City of San Marcos
City Council Regular Agenda

Tuesday, May 26, 2026
1 Civic Center Drive
San Marcos, CA 92069
City Council Chambers
6 PM

Regular City Council Meeting
Special San Marcos Successor Agency to the San Marcos Redevelopment Agency Meeting
Special San Marcos Successor Housing Agency to the San Marcos Redevelopment Agency Meeting
Regular Fire Protection District Meeting
Special San Marcos Public Financing Authority Meeting
Regular San Marcos Public Facilities Authority Meeting
Special Rent Review Commission Meeting

Cell Phones: As a courtesy to others, please silence your cell phone or pager during the meeting and engage in conversations outside the Council Chambers.

Americans with Disabilities Act: If you need special assistance to participate in this meeting, please contact the City Clerk at (760) 744 1050, ext. 3145. Notification 48 hours in advance will enable the City to make reasonable arrangements to ensure accessibility to this meeting. Assisted listening devices are available for the hearing impaired. Please see the City Clerk if you wish to use this device.

Public Comment: If you wish to address the City Council, please complete a "Request to Speak" form. Forms are located at the rear of the Council Chambers. Be sure to indicate which item number you wish to address. Comments are limited to THREE minutes, unless you meet the requirements of a formal or informal organization and have registered your organization with the City Clerk in advance. Speakers are asked to fill out a "Request to Speak" form and hand it to staff, although provision of a name, address, or other identifying information is optional.

The Oral Communication segment of the agenda is for the purpose of allowing the public to address the City Council on any matter NOT listed on the agenda. Speakers are limited to one opportunity to address the Council under Oral Communications. The Oral Communication segment is split on the agenda and begins with a 15 minute timed segment during which the Council will hear as many speakers as possible. Upon the conclusion of the 15 minute timed segment, any remaining speakers will automatically be called during the continuation of the Oral Communication segment at the end of the agenda. Subject to very limited exceptions, the City Council is prohibited by state law from discussing or taking action on items NOT listed on the Agenda. However, they may refer the matter to staff for a future report and recommendation. If you wish to speak under "Oral Communications," please complete a "Request to Speak" form as noted above in advance of the start of that portion of the meeting.

Meeting Schedule and Broadcast Information: Regular City Council meetings are held on the second and fourth Tuesday of each month at 6:00 pm in the Council Chambers. City meetings are broadcast LIVE on San Marcos Community Television (SMTV) on Cox Channel 19, Time Warner Channel 24 and AT&T Channel 99. Meetings are also streamed live and archived online at www.sanmarcosca.gov.

Agenda related writings or documents provided to a majority of the City Council after distribution of the agenda packet will be available for public inspection at the time of distribution in the City Clerk Department located on the second floor of City Hall, 1 Civic Center Drive, San Marcos, CA during normal business hours. The same materials are also posted online at www.san marcos.net as time permits.

CALL TO ORDER

PLEDGE OF ALLEGIANCE

INVOCATION -

ROLL CALL

PROCLAMATIONS AND PRESENTATIONS

A. National Foster Care Month Proclamation

B. Global Accessibility Awareness Day Proclamation

C. Recognition of Life-Saving Actions at the San Marcos Senior Center

CONSENT CALENDAR

Consent Calendar items are considered routine and will be approved by one motion, with no separate discussion prior to voting unless the public, staff, or Council Member(s) request that specific item(s) be removed from the Consent Calendar for separate discussion or action. Speaker slips for this category must be presented to the City Clerk at the start of the meeting. Speakers are limited to three minutes.

1. 26-2876 WAIVER OF TEXT. This item is to waive the reading of the text of all ordinances and resolutions introduced and adopted at this meeting. Ordinances and resolutions shall be introduced or adopted by title.

Recommendation: WAIVE

2. 26-2877 APPROVAL OF MINUTES

Recommendation: APPROVE the minutes of the City Council regular meeting on May 12, 2026.

Attachments: 05-12-26R

3. 26-2878 APPROVAL OF WARRANTS

Recommendation: APPROVE City Council, Successor Agency, and Fire Protection District warrants dated May 2026.

Attachments: Warrants

4. 26-2874 RESOLUTION NO. 2026-9592 - EXPENDITURE OF FUNDS PURSUANT TO COMPENSATION AND REIMBURSEMENT POLICY, EVENT TICKET APPROVAL

Recommendation: ADOPT a resolution approving the expenditure of funds for attendance at events which are in furtherance of a public purpose.

Attachments: May 26 - 802 reso

802 SDRC Congressional Luncheon - Mayor-CM

5. 26-2875 RESOLUTION NO. 2026-9593 - ADOPTING POSITIONS ON LEGISLATION UNDER CONSIDERATION PURSUANT TO THE LEGISLATIVE PLATFORM

Recommendation: ADOPT a resolution taking a position on pending legislation in the California State Legislature that may have local impacts.

Attachments: AB 2517 Support

May 26 Reso - Legislation

6. TMP-2438 RESOLUTION NO. 2026-9594 - ORDERING THE PREPARATION OF AN ENGINEER'S REPORT FOR LANDSCAPING AND LIGHTING DISTRICT NO. 1 FOR FISCAL YEAR 2026/2027

Recommendation: ADOPT resolution ordering the preparation of an Engineer's Report for Landscaping and Lighting District No. 1 for Fiscal Year 2026/2027.

Attachments: 1b - Reso - Order of Eng Report FY27

Assessment Diagram

7. TMP-2445 RESOLUTION NO. 2026-9595 - ORDERING THE PREPARATION OF AN ENGINEER'S REPORT FOR THE VALLECITOS TOWN CENTER STREET MAINTENANCE DISTRICT FOR THE FISCAL YEAR 2026-2027

Recommendation: ADOPT a resolution ordering the preparation of an Engineer's Report for the Vallecitos Town Center Street Maintenance District for the Fiscal Year 2026-2027.

Attachments: VTC Order Engineers Report Resolution FY27

VTC Vicinity Map

8. TMP-2457 RESOLUTION NO. 2026-9596 - ORDERING THE SUMMARY VACATION AND ABANDONMENT OF THE DRAINAGE EASEMENT LOCATED ALONG REDEL ROAD GRANTED ON JULY 30, 2015 BY DOCUMENT 2015-0403598, WITHIN THE BOUNDARIES OF SITE DEVELOPMENT PLAN SDP24-0001 FOR THE BLOCK F STUDENT HOUSING PROJECT

Recommendation: ADOPT resolution (VAC26-0001) ordering the summary vacation and abandonment of the drainage easement located along Redel Road granted by Document 2015-0403598 on July 30, 2016, within the boundaries of Side Development Plan SDP24-0001 for the Block F student housing project.

Attachments: Attachment A- Vicinity Map

Resolution 2026-AAAA Summary Vacation and Abandonment of Drainage Ease

Resolution 2026-AAAA Exhibits A and B

9. TMP-2458 RESOLUTION NO. 2026-9597 - AMENDING THE SAN MARCOS INFRACTION AND MISDEMEANOR BAIL SCHEDULE WITH RESPECT TO FINES AND PENALTIES TO BE IMPOSED FOR VIOLATIONS OF SAN MARCOS MUNICIPAL CODE SECTION 17.64.260 (FIREWORKS)

Recommendation: APPROVE resolution approving modifications to the Infraction and Misdemeanor Bail Schedule to increase the fines and penalties to be imposed for violations of San Marcos Municipal Code section 17.64.260 (Fireworks).

Attachments: Resolution Bail Schedule Update - SMMC section 17.64.260 Fireworks 051820

10. TMP-2456 RESOLUTION NO. 2026-9598 - APPROVING AMENDMENT 01 TO THE COMMUNITY FACILITIES DISTRICT FUNDING AGREEMENT WITH URBAN VILLAGES SAN MARCOS, LLC (AGREEMENT 6999)

Recommendation: ADOPT a resolution approving an amendment to the Community Facilities District Funding Agreement with Urban Villages San Marcos, LLC ("UVSM").

Attachments: Resolution - CFD Funding Agreement

Amendment 01 to CFD Funding Agreement

11. TMP-2444 RESOLUTION NOS. 2026-9599, 2026-9600 & 2026-9601 - AUTHORIZING PARTICIPATION IN THE CALIFORNIA JOINT POWERS INSURANCE AUTHORITY EXCESS WORKERS' COMPENSATION PROGRAM AND RELATED ACTIONS

Recommendation: Adopt the following:
1. Resolution authorizing the City of San Marcos to participate in the California Joint Powers Insurance Authority (JPIA) Excess Workers' Compensation Protection Program.
2. Resolution authorizing submission of an application to the California Department of Industrial Relations for a Certificate of Consent to Self-Insure.
3. Resolution authorizing inclusion of City volunteers in the workers' compensation coverage program.

Attachments: Resolution1

Resolution2

Resolution3

12. 26-2885 RESOLUTION NO. MHP 2026-50 - SPRINGDALE ESTATES MONTHLY RENT INCREASE FOR THE SPACES AFFECTED BY THE SEPTEMBER 2025 RENT INCREASE NOTICE

Recommendation: ADOPT resolution granting Springdale Estates a monthly rent increase for the spaces affected by the September 2025 rent increase notice.

Attachments: Springdale MHRRC Resolution - Final 05252026

ORAL COMMUNICATIONS

Persons wishing to speak on items not on the agenda may do so during this time period, provided remarks are confined to matters within the subject matter jurisdiction of the City Council. Speakers are limited to three minutes. Please complete a "Request to Speak" form and place in basket provided at the rear of the Chamber in advance of the start of that portion of the meeting. The first Oral Communication segment consists of a 15 minute timed segment during which the Council will hear as many speakers as possible. Any speakers not heard during the first Oral Communications segment will automatically be called during the continuation of the Oral Communication segment at the end of the agenda. Please note that, subject to very limited exceptions, the City Council is precluded by State law from discussing or taking action on any topic that is not included on the posted agenda.

NEW BUSINESS

13. TMP-2452 RESOLUTION NOS. 2026-9602 & 2026-9603 - BROWN ACT UPDATES (SB 707) MEETING POLICIES REGARDING PROTOCOLS INCLUDING TECHNOLOGY DISRUPTION AND OUTREACH POLICIES

Recommendation: 1. ADOPT resolution regarding Brown Act updates including meeting policies and procedures regarding technology disruptions in compliance with Government Code 54953.4.
2. ADOPT resolution related to "reasonable efforts" for outreach to encourage participation in City Council meetings under Government Code 54953.4.

Attachments: SB 707 Policy Resolution

SB 707 - Finalzed Version - City Council Meeting Policy & Procedures

SB 707 - Redlined City Council Meeting Policy & Procedures

SB 707 Outreach Resolution

PUBLIC HEARINGS

14. TMP-2442 PUBLIC HEARING PURSUANT TO ASSEMBLY BILL 2561 TO REPORT ON VACANCIES, RECRUITMENT, AND RETENTION EFFORTS AT THE CITY OF SAN MARCOS

Recommendation: Receive informational report pursuant to Assembly Bill 2561 (AB2561) regarding vacancies, recruitment, and retention activities at the City of San Marcos.

15. TMP-2439 RESOLUTION NOS. 2026-9589, 9590 & 9591 AND ORDINANCE NO. 2026-1579 - SANTA FE FLORES TOWNHOMES MULTIFAMILY RESIDENTIAL DEVELOPMENT ENTITLEMENTS INCLUDING: ADDENDUM TO MITIGATED NEGATIVE DECLARATION (ND22-008), GENERAL PLAN AMENDMENT GPA25-0001, REZONE R25-0001, MULTI-FAMILY SITE DEVELOPMENT PLAN MFSDP25-0001, AND TENTATIVE SUBDIVISION MAP TSM25-0001

Recommendation: ADOPT or INTRODUCE of the following in the order set forth below:
1. ADOPT addendum to the previously adopted Mitigated Negative Declaration (ND22-008);
2. ADOPT resolution No. 2026-9589 (General Plan Amendment GPA25-0001) for a land use change of 2.23-net acres from "Medium Density Residential 2" and 0.37-net acres from "Commercial" to "Medium High Density Residential";
3. INTRODUCE Ordinance No. 2026-1579 (Rezone R25-0001) for a zone reclassification of 2.23-net acres from Multifamily Residential 3 (R-3-10) and 0.37-net acres from Commercial (C) to Multifamily Residential (R-3-6);
4. ADOPT resolution No. 2026-9590 (Multi-Family Site Development Plan MFSDP25-0001) to allow the construction of the proposed 46-unit residential condominium development; and
5. ADOPT Resolution No. 2026-9591 (Tentative Subdivision Map TSM25-0001) for the merger of two existing parcels into one and the creation of up to 46 residential condominium units.

Attachments:
Resolution No. 2026-9589 (GPA25-0001)
Resolution No. 2026-9590 (MFSDP25-0001)
Resolution No. 2026-9591 (TSM25-0001)
Attachment A -C - Map, Entitlements, & Characteristics
Attachment D - Addendum No. 1 to Mitigated Negative Declaration (ND22-008)
> D.1a Final Initial Study/Mitigated Negative Declaration for the Santa Fe Flores
> D.1b Appendices to the Final Initial Study/Mitigated Negative Declaration for tl
> D.2 Air Quality Analysis
> D.3 Local Transportation Analysis
> D.4 Biological Resources Letter Report
> D.5 Cultural Resources Survey
> D.6 Geotechnical Report
> D.7 Climate Action Plan Consistency Checklist
> D.8 Preliminary Hydrology Study
> D.9 Stormwater Quality Management Plan
> D.10 Noise Analysis
> D.11 Vehicle Miles Traveled Assessment
> D.12 Buena Sanitation District Letter, July 17, 2025
> D.13 Buena Sanitation District Letter, September 3, 2025
Attachment E.1 - Project Plans - Civil Plans
Attachment E.2 - Project Plans - Architectural Plans
Attachment E.3 - Project Plans - Landscape Plans
Attachment F - Land Use Analysis
Attachment G - Fiscal and Economic Impact Analysis
Attachment H - Planning Commission Meeting Minutes

ORAL COMMUNICATIONS - CONTINUED

This portion of the agenda is set aside for continuation of Oral Communications, if needed. Speakers are limited to three minutes. Please note that, subject to very limited exceptions, the City Council is precluded by State law from taking action on any topic that is not included on the posted agenda. Please complete a "Request to Speak" form and place in basket provided in advance of the start of that portion of the meeting.

REPORTS (INCLUDING AB 1234 REPORTING REQUIREMENTS - GC 53232.3(D))

16. 26-2879 SAN DIEGO ASSOCIATION OF GOVERNMENTS REPORT (MAYOR JONES)

Recommendation: Note and File

17. 26-2880 LEAGUE OF CALIFORNIA CITIES REPORT (COUNCILMEMBER MUSGROVE)

Recommendation: Note and File

18. 26-2881 NORTH COUNTY TRANSIT DISTRICT REPORT (DEPUTY MAYOR SANNELLA)

Recommendation: Note and File.

19. 26-2882 NORTH COUNTY DISPATCH JOINT POWERS AUTHORITY REPORT (COUNCILMEMBER LEBLANG)

Recommendation: Note and File

20. 26-2883 CLEAN ENERGY ALLIANCE REPORT (COUNCILMEMBER NUÑEZ)

Recommendation: Note and File

21. 26-2884 CITY COUNCIL BUSINESS VISITS

Recommendation: Note and File

COUNCIL COMMENTARY

ADJOURNMENT

STATE OF CALIFORNIA)
COUNTY OF SAN DIEGO) SS.
CITY OF SAN MARCOS)

I, PHILLIP SCOLLICK, CITY CLERK OF THE CITY OF SAN MARCOS, HEREBY CERTIFY THAT I CAUSED THE POSTING OF THIS AGENDA IN THE GLASS DISPLAY CASE AT THE NORTH ENTRANCE OF CITY HALL AND ON THE CITY'S WEBSITE ON MAY 21, 2026, 5:30 P.M.

DATE: MAY 21, 2026

PHILLIP SCOLLICK, CITY CLERK

Staff Report

File #:26-2876

MEETING DATE:
May 2026

SUBJECT:

WAIVER OF TEXT. This item is to waive the reading of the text of all ordinances and resolutions introduced and adopted at this meeting. Ordinances and resolutions shall be introduced or adopted by title.

WAIVE

Prepared by: City Clerk's Office
Approved by: Michelle Bender, City Manager

File #:26-2877

MEETING DATE:
May 26, 2026

SUBJECT:

APPROVAL OF MINUTES

Recommendation
APPROVE the minutes of the City Council regular meeting on May 12, 2026.

Prepared by: Micki Olinger Chavez, Deputy City Clerk
Reviewed by: Phil Scollick, City Clerk
Approved by: Michelle Bender, City Manager

MINUTES

Regular Meeting of the San Marcos City Council

TUESDAY, MAY 12, 2026

City Council Chambers
1 Civic Center Drive, San Marcos, CA 92069

Regular City Council Meeting
Special City of San Marcos as Successor Agency to the San Marcos Redevelopment Agency Meeting
Special City of San Marcos as Successor Housing Agency to the San Marcos Redevelopment Agency Meeting
Regular Fire Protection District Meeting
Special San Marcos Public Financing Authority Meeting
Regular San Marcos Public Facilities Authority Meeting

CALL TO ORDER: Mayor Jones called the City Council meeting to order at 6:00 PM.

PLEDGE OF ALLEGIANCE: Led by Mayor Jones.

INVOCATION: Led by Mayor Jones.

ROLL CALL:

PRESENT:	COUNCILMEMBERS: JONES, LEBLANG, MUSGROVE, NUÑEZ, SANNELLA
ABSENT:	COUNCILMEMBERS: NONE

ALSO PRESENT: City Manager Bender, City Attorney Peak, Deputy City Clerk Olinger Chavez and City Clerk Scollick.

PROCLAMATIONS AND PRESENTATIONS

A. SMILE award presented by Councilmember Musgrove to recipient Amber Ter-Vrugt.

B. Professor Kimberly Ayers certificate of recognition for being a contestant on *Jeopardy!*.

C. Economic Development Week proclamation presented to Rick Rungaitis, Chamber CEO.

D. National Public Works Week proclamation presented to Public Works staff.

E. Bike Anywhere Day proclamation presented to Rachel Forseth, SANDAG Senior Public Communications Officer. Rachel provided a presentation on Bike Anywhere Day.

CONSENT CALENDAR

MOVED TO APPROVE CONSENT CALENDAR BY COUNCILMEMBER NUÑEZ, SECONDED BY DEPUTY MAYOR SANNELLA.

AYES:	COUNCILMEMBERS:	JONES, LEBLANG, MUSGROVE, NUÑEZ, SANNELLA
NOES:	COUNCILMEMBERS:	NONE
ABSENT:	COUNCILMEMBERS:	NONE

1. **WAIVER OF TEXT.** This item is to waive the reading of the text of all ordinances and resolutions introduced and adopted at this meeting. Ordinances and resolutions shall be introduced or adopted by title.

2. **APPROVAL OF MINUTES.** Approved the minutes of the City Council regular and special meeting on April 28, 2026.

3. **APPROVAL OF WARRANTS.** Approved City Council, Successor Agency, and Fire Protection District warrants dated May 2026.

4. **RESOLUTION NO. 2026-9584 - ADOPTING POSITIONS ON LEGISLATION UNDER CONSIDERATION PURSUANT TO THE LEGISLATIVE PLATFORM.** Adopted a resolution taking a position on pending legislation in the California State Legislature that may have local impacts.

5. **RESOLUTION NO. FD 2026-379 - APPROVAL OF THE SAN MARCOS FIRE PROTECTION DISTRICT TO PARTICIPATE IN THE SAN DIEGO COUNTY FIRE MITIGATION FEE PROGRAM AND ADOPTION OF A FIVE-YEAR FIRE MITIGATION CAPITAL IMPROVEMENT PLAN.** Adopted a resolution of the San Marcos Fire Protection District Board of Directors authorizing continued participation in the San Diego County Fire Mitigation Fee Program and approving the Five-Year Fire Mitigation Capital Improvement Plan to utilize Fire Mitigation Fee Program revenue.

6. **RESOLUTION NO. 2026-9585 - AWARDING A CONTRACT FOR AS NEEDED SPORTS FIELD RENOVATION SERVICES WITH DIAMOND DESIGNS, LLC, AND DELEGATING AUTHORITY TO THE CITY MANAGER TO NEGOTIATE, FINALIZE, AND EXECUTE THE CONTRACT AND ALL RELATED DOCUMENTS.** Adopted a resolution awarding a contract for as needed sports field renovation services to Diamond Designs, LLC in the amount not to exceed $500,000.00 for a maximum of five (5) years, and delegating authority to the City Manager to negotiate, finalize, and execute the contract and all related documents.

7. **ORDINANCE NO. 2026-1578 - SECOND READING OF ORDINANCE OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS, CALIFORNIA, ACTING AS THE LEGISLATIVE BODY OF IMPROVEMENT AREA NO. F-59 OF COMMUNITY FACILITIES DISTRICT NO. 98-02 (LIGHTING, LANDSCAPING, OPEN SPACE, AND PRESERVE MAINTENANCE), CITY OF SAN MARCOS, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, AUTHORIZING THE LEVY OF SPECIAL TAXES IN SUCH COMMUNITY FACILITIES DISTRICT.** Adopted (Second Reading) of Ordinance No. 2026-1578 an ordinance of the City Council of the City of San Marcos, California, acting as the legislative body of Improvement Area No. F-59 of Community Facilities District No. 98-02 (Lighting, Landscaping, Open Space, and Preserve Maintenance), City of San Marcos, County of San Diego, State of California, authorizing the levy of special taxes in such community facilities district.

8. **RESOLUTION NO. 2026-9586 - ANNEXATION NO. 94 TO THE CITY OF SAN MARCOS COMMUNITY FACILITIES DISTRICT NO. 98-01 IMPROVEMENT AREA NO. 1 (POLICE ONLY).** Adopted resolution certifying the results of the elections and annexing the properties listed on the following page to Community Facilities District No. 98-01 IA No. 1 (Police Only).

9. **RESOLUTION NO. 2026-9587 - ANNEXATION NO. 162 TO THE CITY OF SAN MARCOS COMMUNITY FACILITIES DISTRICT NO. 98-02 (LIGHTING, LANDSCAPING, OPEN SPACE AND PRESERVE MAINTENANCE).** Adopted resolution certifying the results of the elections and annexing the properties listed on the following page to Community Facilities District No. 98-02 (Lighting, Landscaping, Open Space and Preserve Maintenance).

10. **RESOLUTION NO. FD 2026-380 - ANNEXATION NO. 99 TO THE SAN MARCOS FIRE PROTECTION DISTRICT COMMUNITY FACILITY DISTRICT NO. 2001-01.** Adopted resolution certifying the results of the elections and annexing the properties listed on the following page to Community Facilities District No. 2001-01.

11. **RESOLUTION NO. 2026-9588 - ANNEXATION NO. 38 TO THE CITY OF SAN MARCOS COMMUNITY FACILITIES DISTRICT NO. 2011-01 (CONGESTION MANAGEMENT).** Adopted resolution certifying the results of the election and annexing the property listed on the following page to Community Facilities District No. 2011-01 (Congestion Management).

ORAL COMMUNICATIONS

Jane and Bob Tetzlaff provided comments on brush management and fire safety near Discovery Lake.

Marlene Walder provided comments on maintenance requests and amenities at her mobilehome park.

Alondra Alvarez, Universidad Popular, provided updates on Universidad Popular activities in the community.

Flower Alvarez-Lopez, Universidad Popular, spoke on the upcoming events at Universidad Popular.

REPORTS (Including AB 1234 Reporting Requirements)

12. **SAN DIEGO ASSOCIATION OF GOVERNMENTS REPORT** – MAYOR JONES. Report given. No action taken.

13. **LEAGUE OF CALIFORNIA CITIES REPORT** – COUNCILMEMBER LEBLANG. Report given. No action taken.

14. **NORTH COUNTY TRANSIT DISTRICT REPORT** – DEPUTY MAYOR SANNELLA. No report given.

15. **NORTH COUNTY DISPATCH JOINT POWERS AUTHORITY REPORT** – COUNCILMEMBER LEBLANG. No report given.

16. **CLEAN ENERGY ALLIANCE REPORT** – COUNCILMEMBER NUÑEZ. Report given. No action taken.

17. **CITY COUNCIL BUSINESS VISITS** – MAYOR JONES and DEPUTY MAYOR SANNELLA visited Corte Fino Barbershop. Report given. No action taken.

COUNCIL COMMENTARY

Mayor Jones provided information regarding a property on La Moree Road.
Councilmember LeBlang announced Junior Ranger Day would take place Saturday, May 16th and wished Mayor Jones a happy birthday week.
Mayor Jones announced California State University, San Marcos would be holding graduation ceremonies on Friday and Saturday.

ADJOURNMENT

MAYOR JONES adjourned the meeting at 7:03 p.m.

_____
REBECCA D. JONES, MAYOR
CITY OF SAN MARCOS

ATTEST:

_____
PHILLIP SCOLLICK, CITY CLERK
CITY OF SAN MARCOS

File #:26-2878

MEETING DATE:
May 26, 2026

SUBJECT:

APPROVAL OF WARRANTS

Recommendation
APPROVE City Council, Successor Agency, and Fire Protection District warrants dated May 2026.

Attachment
Warrants

Prepared by: Micki Olinger Chavez, Deputy City Clerk
Approved by: Michelle Bender, City Manager

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
5944 GAFCON PM-CM, LLC										
192330	20000373	02/11/2026	CIP344	181248	301.28	301.28	05/06/2026	INV	PD	TO 7 - DBE AN
INVOICE:53494		CHECKDATE:05/06/2026								
192331	20000373	03/12/2026	CIP344	181248	491.31	491.31	05/06/2026	INV	PD	TO 7 - DBE AN
INVOICE:53770		CHECKDATE:05/06/2026								
192332	20000373	04/15/2026	CIP344	181248	1,364.76	1,364.76	05/06/2026	INV	PD	TO 7 - DBE AN
INVOICE:53960		CHECKDATE:05/06/2026								
192334	26000206	04/15/2026	CIP344	181248	1,028.74	1,028.74	05/06/2026	INV	PD	TO 22 - DBE A
INVOICE:53976		CHECKDATE:05/06/2026								
					3,186.09					
7012 IN-SITE LANDSCAPE ARCHITECTURE INC.										
192335	25000516	04/20/2026	CIP344	181249	5,468.00	5,468.00	05/06/2026	INV	PD	TO 5 - LANDSC
INVOICE:1585		CHECKDATE:05/06/2026								
1819 DUDEK										
192326	21000252	03/18/2026	CIP344	181250	680.75	680.75	05/06/2026	INV	PD	ON CALL CONST
INVOICE:202602545		CHECKDATE:05/06/2026								
192328	25000498	03/18/2026	CIP344	181250	4,332.90	4,332.90	05/06/2026	INV	PD	ON CALL CONST
INVOICE:202602547		CHECKDATE:05/06/2026								
192327	21000252	04/22/2026	CIP344	181250	2,721.00	2,721.00	05/06/2026	INV	PD	ON CALL CONST
INVOICE:202603713		CHECKDATE:05/06/2026								
192329	25000498	04/22/2026	CIP344	181250	165.65	165.65	05/06/2026	INV	PD	ON CALL CONST
INVOICE:202603732		CHECKDATE:05/06/2026								
					7,900.30					
1820 KIMLEY-HORN AND ASSOCIATES, INC.										
192337	21000179	01/31/2026	CIP344	181251	3,941.88	3,941.88	05/06/2026	INV	PD	TO 1 - ON CAL
INVOICE:34821303		CHECKDATE:05/06/2026								
192336	21000179	03/31/2026	CIP344	181251	10,043.42	10,043.42	05/06/2026	INV	PD	TO 1 - ON CAL
INVOICE:35432019		CHECKDATE:05/06/2026								
192338	26000166	03/31/2026	CIP344	181251	8,301.03	8,301.03	05/06/2026	INV	PD	TO 47 - ON CA
INVOICE:35432027		CHECKDATE:05/06/2026								
192339	26000208	03/31/2026	CIP344	181251	28,052.37	28,052.37	05/06/2026	INV	PD	TO 48 - ON CA
INVOICE:35436987		CHECKDATE:05/06/2026								
					50,338.70					
2257 PARSONS TRANSPORTATION GROUP, INC.										
192342		10/21/2025	CIP344	181252	2,176.58	2,176.58	05/06/2026	INV	PD	DISCOVERY ST/
INVOICE:2508B414		CHECKDATE:05/06/2026								
192341		03/14/2026	CIP344	181252	693.77	693.77	05/06/2026	INV	PD	DISCOVERY ST/
INVOICE:2512B616		CHECKDATE:05/06/2026								
192343		03/15/2026	CIP344	181252	7,711.73	7,711.73	05/06/2026	INV	PD	DISCOVERY ST/
INVOICE:2512B618		CHECKDATE:05/06/2026								
192340		03/15/2026	CIP344	181252	10,488.54	10,488.54	05/06/2026	INV	PD	DISCOVERY ST/
INVOICE:2512B627		CHECKDATE:05/06/2026								
192344		03/15/2026	CIP344	181252	3,771.13	3,771.13	05/06/2026	INV	PD	DISCOVERY ST/
INVOICE:2601B340		CHECKDATE:05/06/2026								
192345		03/14/2026	CIP344	181252	3,410.13	3,410.13	05/06/2026	INV	PD	DISCOVERY ST/

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
INVOICE:2602B572		CHECKDATE:05/06/2026								
					28,251.88					
7044 VILLA CIVIL, APC										
192482		03/23/2026	CIP344	181253	37,816.60	37,816.60	05/06/2026	INV	PD	ON CALL ENG S
INVOICE:22-015.27		CHECKDATE:05/06/2026								
6961 CHALIFOUX, BRAST, THOMPSON & POTOCKI, APC										
192616		04/15/2026	CIP344	181364	8,497.50	8,497.50	05/11/2026	INV	PD	PROFESSIONAL
INVOICE:4439		CHECKDATE:05/13/2026								
192617		04/15/2026	CIP344	181364	1,648.73	1,648.73	05/11/2026	INV	PD	PROFESSIONAL
INVOICE:4440		CHECKDATE:05/13/2026								
					10,146.23					
7717 SHADE STRUCTURES, INC										
192618		01/16/2026	CIP344	181365	9,126.82	8,670.48	05/11/2026	INV	PD	PASEO DE ARRO
INVOICE:96584-02		CHECKDATE:05/13/2026								
192619		04/14/2026	CIP344	181365	46,800.00	44,460.00	05/11/2026	INV	PD	PASEO DE ARRO
INVOICE:96584-03		CHECKDATE:05/13/2026								
					55,926.82					
7044 VILLA CIVIL, APC										
192620		04/07/2026	CIP344	181366	54,902.50	54,902.50	05/11/2026	INV	PD	ON CALL ENG S
INVOICE:22-015.28		CHECKDATE:05/13/2026								
		25 INVOICES			253,937.12					

** END OF REPORT - Generated by Norris, Danielle **

CITY OF SAN MARCOS
APPROVED BY: Ryan Rector

Digitally signed by Ryan Rector
Date: 2026.05.18 07:57:29 -07'00'

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
3133 ACROSS THE STREET PRODUCTIONS, INC.										
192255	26000416	04/06/2026	AP344	181158	10,155.00	10,155.00	05/06/2026	INV	PD	BLUECARD MEMB
INVOICE:30369		CHECKDATE:05/06/2026								
5460 AMAZON CAPITAL SERVICES, INC.										
192314		04/01/2026	AP344	181159	69.57	69.57	05/06/2026	INV	PD	OFFICE SUPPLI
INVOICE:1373-YQ67-YPTC		CHECKDATE:05/06/2026								
192318		04/01/2026	AP344	181159	-49.74	-49.74	05/06/2026	CRM	PD	CREDIT FOR IN
INVOICE:13JF-K3G4-VDCD		CHECKDATE:05/06/2026								
192307		04/01/2026	AP344	181159	9,540.23	9,540.23	05/06/2026	INV	PD	OFFICE SUPPLI
INVOICE:14CJ-NTTV-1YP4		CHECKDATE:05/06/2026								
192309		04/01/2026	AP344	181159	1,108.45	1,108.45	05/06/2026	INV	PD	OFFICE SUPPLI
INVOICE:161G-H36P-4N3V		CHECKDATE:05/06/2026								
192308		04/01/2026	AP344	181159	2,173.70	2,173.70	05/06/2026	INV	PD	OFFICE SUPPLI
INVOICE:161G-H36P-DL1M		CHECKDATE:05/06/2026								
192312		04/01/2026	AP344	181159	344.01	344.01	05/06/2026	INV	PD	OFFICE SUPPLI
INVOICE:16NW-YWHX-V3WM		CHECKDATE:05/06/2026								
192324		01/01/2026	AP344	181159	-141.93	-141.93	01/01/2026	CRM	PD	CREDIT FOR IN
INVOICE:19PG-QRHW-Q6Q4		CHECKDATE:05/06/2026								
192311		04/01/2026	AP344	181159	345.23	345.23	05/06/2026	INV	PD	OFFICE SUPPLI
INVOICE:1CKK-CDKG-VJ7K		CHECKDATE:05/06/2026								
192310		04/01/2026	AP344	181159	840.98	840.98	05/06/2026	INV	PD	OFFICE SUPPLI
INVOICE:1D3X-G3NQ-CK4R		CHECKDATE:05/06/2026								
192315		04/01/2026	AP344	181159	56.85	56.85	05/06/2026	INV	PD	OFFICE SUPPLI
INVOICE:1D3X-G3NQ-D4XG		CHECKDATE:05/06/2026								
192320		04/01/2026	AP344	181159	-35.44	-35.44	05/06/2026	CRM	PD	CREDIT FOR IN
INVOICE:1FHT-JVJD-4H94		CHECKDATE:05/06/2026								
192322		01/13/2026	AP344	181159	-10.86	-10.86	01/13/2026	CRM	PD	CREDIT FOR IN
INVOICE:1G4P-KRD7-FHTL		CHECKDATE:05/06/2026								
192321		03/21/2026	AP344	181159	-48.93	-48.93	03/21/2026	CRM	PD	CREDIT FOR IN
INVOICE:1J7G-F79K-GN1Q		CHECKDATE:05/06/2026								
192319		04/01/2026	AP344	181159	-10.30	-10.30	05/06/2026	CRM	PD	CREDIT FOR IN
INVOICE:1NX7-FD3W-4VKG		CHECKDATE:05/06/2026								
192316		04/01/2026	AP344	181159	44.06	44.06	05/06/2026	INV	PD	OFFICE SUPPLI
INVOICE:1NX7-FD3W-JTNH		CHECKDATE:05/06/2026								
192323		01/01/2026	AP344	181159	-217.45	-217.45	01/01/2026	CRM	PD	CREDIT FOR IN
INVOICE:1QFM-1NRY-Q7KC		CHECKDATE:05/06/2026								
192313		04/01/2026	AP344	181159	110.33	110.33	05/06/2026	INV	PD	OFFICE SUPPLI
INVOICE:1QMG-KFGY-NK1V		CHECKDATE:05/06/2026								
192317		04/01/2026	AP344	181159	28.76	28.76	05/06/2026	INV	PD	OFFICE SUPPLI
INVOICE:1Y4W-7YV7-RN3M		CHECKDATE:05/06/2026								
					14,147.52					
4877 AZTEC LANDSCAPING, INC.										
192262		04/08/2026	AP344	181160	7,633.79	7,633.79	05/06/2026	INV	PD	BRUSH ABATEME
INVOICE:L7352		CHECKDATE:05/06/2026								
192263		04/08/2026	AP344	181160	13,986.78	13,986.78	05/06/2026	INV	PD	BRUSH ABATEME
INVOICE:L7353		CHECKDATE:05/06/2026								
192264		04/09/2026	AP344	181160	10,977.85	10,977.85	05/06/2026	INV	PD	BRUSH ABATEME
INVOICE:L7354		CHECKDATE:05/06/2026								
192265		04/09/2026	AP344	181160	17,110.92	17,110.92	05/06/2026	INV	PD	BRUSH ABATEME

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
INVOICE:L7355		CHECKDATE:05/06/2026								
192266		04/09/2026	AP344	181160	256.42	256.42	05/06/2026	INV	PD	BRUSH ABATEME
INVOICE:L7357		CHECKDATE:05/06/2026								
					49,965.76					
2276 BEST BEST & KRIEGER										
192267		04/09/2026	AP344	181161	55.50	55.50	05/06/2026	INV	PD	GENERAL PUBLI
INVOICE:1058548		CHECKDATE:05/06/2026								
7239 AMORANTO FAMILY LLC										
192269		04/21/2026	AP344	181162	945.18	945.18	05/06/2026	INV	PD	ENCAMPMENT CL
INVOICE:3272		CHECKDATE:05/06/2026								
192270		04/26/2026	AP344	181162	1,265.00	1,265.00	05/06/2026	INV	PD	ENCAMPMENT CL
INVOICE:3279		CHECKDATE:05/06/2026								
					2,210.18					
3160 BURKE, WILLIAMS & SORENSEN, LLP										
192279		04/22/2026	AP344	181163	11,185.96	11,185.96	05/06/2026	INV	PD	LEGAL SERVICE
INVOICE:365519		CHECKDATE:05/06/2026								
1005 BURTON'S FIRE, INC.										
192280		04/20/2026	AP344	181164	559.79	559.79	05/06/2026	INV	PD	HEAVY FIRE EQ
INVOICE:S71559		CHECKDATE:05/06/2026								
6358 BUSY BEES LOCKS & KEYS INC										
192281		04/16/2026	AP344	181165	7,141.68	7,141.68	05/06/2026	INV	PD	DOOR INSTALL:
INVOICE:91191399		CHECKDATE:05/06/2026								
192282		04/21/2026	AP344	181165	705.63	705.63	05/06/2026	INV	PD	SERVICE CALL:
INVOICE:91195554		CHECKDATE:05/06/2026								
					7,847.31					
6590 CHEROKEE CHEMICAL CO., INC										
192283		04/20/2026	AP344	181166	125.00	125.00	05/06/2026	INV	PD	MONTHLY WATER
INVOICE:0519245-IN		CHECKDATE:05/06/2026								
1280 CDW GOVERNMENT, INC.										
192284	26000427	04/22/2026	AP344	181167	536.92	536.92	05/06/2026	INV	PD	COMPUTER EQUI
INVOICE:AI9YH2T		CHECKDATE:05/06/2026								
192286	26000432	04/24/2026	AP344	181167	3,179.84	3,179.84	05/06/2026	INV	PD	LAPTOP EQUIPM
INVOICE:AJ1B44Y		CHECKDATE:05/06/2026								
192285	26000432	04/23/2026	AP344	181167	21,498.99	21,498.99	05/06/2026	INV	PD	LAPTOP EQUIPM
INVOICE:AJ1BG3T		CHECKDATE:05/06/2026								
					25,215.75					
4823 COAST NEWS INC										
192288		04/24/2026	AP344	181168	213.13	213.13	05/06/2026	INV	PD	LEGAL AD SERV
INVOICE:00161009		CHECKDATE:05/06/2026								

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
5459 COLONIAL LIFE & ACCIDENT INSURANCE COMPANY										
192290		04/10/2026	AP344	181169	1,474.58	1,474.58	05/06/2026	INV	PD	PREM SVC: APR
INVOICE:48359300410079		CHECKDATE:05/06/2026								
5644 COMMUNITY RESOURCE CENTER										
192292		04/15/2026	AP344	181170	4,369.19	4,369.19	05/06/2026	INV	PD	LATINX DV SUP
INVOICE:041526		CHECKDATE:05/06/2026								
192291		01/15/2026	AP344	181171	4,803.04	4,803.04	05/06/2026	INV	PD	LATINX DV SUP
INVOICE:011526		CHECKDATE:05/06/2026								
1649 DISCOUNT SCHOOL SUPPLY										
192298	26000381	03/22/2026	AP344	181172	2,608.26	2,608.26	05/06/2026	INV	PD	RICHMAR CAMP
INVOICE:P43817230102		CHECKDATE:05/06/2026								
192299	26000381	03/24/2026	AP344	181172	239.24	239.24	05/06/2026	INV	PD	RICHMAR CAMP
INVOICE:P43817230103		CHECKDATE:05/06/2026								
192303	26000381	03/31/2026	AP344	181172	671.98	671.98	05/06/2026	INV	PD	RICHMAR CAMP
INVOICE:P43817230104		CHECKDATE:05/06/2026								
192301	26000382	03/25/2026	AP344	181172	567.24	567.24	05/06/2026	INV	PD	RICHMAR CAMP
INVOICE:P43817300101		CHECKDATE:05/06/2026								
192297	26000382	03/21/2026	AP344	181172	750.33	750.33	05/06/2026	INV	PD	RICHMAR CAMP
INVOICE:P43817300102		CHECKDATE:05/06/2026								
192300	26000382	03/24/2026	AP344	181172	1,783.46	1,783.46	05/06/2026	INV	PD	RICHMAR CAMP
INVOICE:P43817300103		CHECKDATE:05/06/2026								
192304	26000382	04/04/2026	AP344	181172	4,567.42	4,567.42	05/06/2026	INV	PD	RICHMAR CAMP
INVOICE:P43817300104		CHECKDATE:05/06/2026								
192302	26000382	03/31/2026	AP344	181172	262.15	262.15	05/06/2026	INV	PD	RICHMAR CAMP
INVOICE:P43817300105		CHECKDATE:05/06/2026								
					11,450.08					
6204 FABIANA IBANEZ DIEGUEZ										
192296		04/28/2026	AP344	181173	10,886.40	10,886.40	05/06/2026	INV	PD	INSTRUCTOR PA
INVOICE:030426-042726		CHECKDATE:05/06/2026								
5944 GAFCON PM-CM, LLC										
192349		04/15/2026	AP344	181174	263.39	263.39	05/06/2026	INV	PD	DBE AND LABOR
INVOICE:53962		CHECKDATE:05/06/2026								
192352		04/15/2026	AP344	181174	262.55	262.55	05/06/2026	INV	PD	DBE AND LABOR
INVOICE:53963		CHECKDATE:05/06/2026								
192350		04/15/2026	AP344	181174	204.21	204.21	05/06/2026	INV	PD	DBE AND LABOR
INVOICE:53964		CHECKDATE:05/06/2026								
192353		04/15/2026	AP344	181174	204.21	204.21	05/06/2026	INV	PD	DBE AND LABOR
INVOICE:53965		CHECKDATE:05/06/2026								
192351		04/15/2026	AP344	181174	204.21	204.21	05/06/2026	INV	PD	DBE AND LABOR
INVOICE:53966		CHECKDATE:05/06/2026								
192354	26000086	04/15/2026	AP344	181174	583.46	583.46	05/06/2026	INV	PD	DBE AND LABOR
INVOICE:53974		CHECKDATE:05/06/2026								
192355	26000120	04/15/2026	AP344	181174	350.07	350.07	05/06/2026	INV	PD	TO 14 - DBE A
INVOICE:53975		CHECKDATE:05/06/2026								

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
					2,072.10					
3335 THE HARTFORD										
192358		05/01/2026	AP344	181175	15,511.99	15,511.99	05/06/2026	INV	PD	LIFE/ADD, STD
INVOICE:751064348432		CHECKDATE:05/06/2026								
192357		04/01/2026	AP344	181175	13,115.39	13,115.39	05/06/2026	INV	PD	LIFE/ADD, STD
INVOICE:751064461151		CHECKDATE:05/06/2026								
192356		04/01/2026	AP344	181175	566.78	566.78	05/06/2026	INV	PD	VOLUNTARY AD&
INVOICE:760914347548		CHECKDATE:05/06/2026								
					29,194.16					
4884 LEGAL AID SOCIETY OF SAN DIEGO, INC.										
192369		04/15/2026	AP344	181176	7,163.59	7,163.59	05/06/2026	INV	PD	CDBG FAIR HOU
INVOICE:123-FY26-03		CHECKDATE:05/06/2026								
4405 MICHAEL BAKER INTERNATIONAL, INC.										
192376		01/30/2026	AP344	181177	4,200.25	4,200.25	05/06/2026	INV	PD	PROFESSIONAL
INVOICE:1275671		CHECKDATE:05/06/2026								
6765 MOTION AND FLOW CONTROL PRODUCTS, INC										
192377		04/22/2026	AP344	181178	66.81	66.81	05/06/2026	INV	PD	SMALL EQUIPME
INVOICE:9789568		CHECKDATE:05/06/2026								
1787 PARKHOUSE TIRE, INC.										
192380		04/13/2026	AP344	181179	1,637.31	1,637.31	05/06/2026	INV	PD	TIRES
INVOICE:3020316569		CHECKDATE:05/06/2026								
192381		04/13/2026	AP344	181179	990.56	990.56	05/06/2026	INV	PD	TIRES
INVOICE:3020316570		CHECKDATE:05/06/2026								
192382		04/15/2026	AP344	181179	287.00	287.00	05/06/2026	INV	PD	TIRES
INVOICE:3020316819		CHECKDATE:05/06/2026								
192383		04/20/2026	AP344	181179	39.56	39.56	05/06/2026	INV	PD	TIRES
INVOICE:3020316964		CHECKDATE:05/06/2026								
192384		04/21/2026	AP344	181179	895.51	895.51	05/06/2026	INV	PD	TIRES
INVOICE:3020317025		CHECKDATE:05/06/2026								
192385		04/23/2026	AP344	181179	119.00	119.00	05/06/2026	INV	PD	TIRES
INVOICE:3020317123		CHECKDATE:05/06/2026								
					3,968.94					
6155 SAN DIEGO FRICTION										
192416		02/17/2026	AP344	181180	515.98	515.98	05/06/2026	INV	PD	RENTAL VEHICL
INVOICE:04P70508		CHECKDATE:05/06/2026								
192417		04/16/2026	AP344	181180	1,502.54	1,502.54	05/06/2026	INV	PD	CAPITAL EQUIP
INVOICE:04P72842		CHECKDATE:05/06/2026								
192418		04/22/2026	AP344	181180	193.99	193.99	05/06/2026	INV	PD	CAPITAL EQUIP
INVOICE:04P73055		CHECKDATE:05/06/2026								
192419		04/23/2026	AP344	181180	-355.07	-355.07	04/23/2026	CRM	PD	CREDIT FOR PA
INVOICE:04P73101		CHECKDATE:05/06/2026								
192420		04/27/2026	AP344	181180	62.38	62.38	05/06/2026	INV	PD	HEAVY FIRE EQ
INVOICE:04P73232		CHECKDATE:05/06/2026								

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
					1,919.82					
7791 TRIDEN GROUP CORPORATION										
192500		04/26/2026	AP344	181181	4,000.00	4,000.00	05/06/2026	INV	PD	VCISO & CYBER
INVOICE:29058R		CHECKDATE:05/06/2026								
192499		04/26/2026	AP344	181181	5,875.00	5,875.00	05/06/2026	INV	PD	FRACTIONAL IT
INVOICE:29059R		CHECKDATE:05/06/2026								
					9,875.00					
2293 VULCAN MATERIALS COMPANY										
192512	26000059	04/17/2026	AP344	181182	670.73	670.73	05/06/2026	INV	PD	CONCRETE
INVOICE:6207495		CHECKDATE:05/06/2026								
192510	26000059	04/13/2026	AP344	181182	755.34	755.34	05/06/2026	INV	PD	CONCRETE
INVOICE:950000900101		CHECKDATE:05/06/2026								
192511	26000059	04/14/2026	AP344	181182	622.80	622.80	05/06/2026	INV	PD	CONCRETE
INVOICE:950000901727		CHECKDATE:05/06/2026								
192513	26000059	04/20/2026	AP344	181182	534.45	534.45	05/06/2026	INV	PD	CONCRETE
INVOICE:950000912154		CHECKDATE:05/06/2026								
					2,583.32					
1838 ZEP MANUFACTURING COMPANY										
192519		04/15/2026	AP344	181183	415.05	415.05	05/06/2026	INV	PD	EXPENDABLE MA
INVOICE:9012662075		CHECKDATE:05/06/2026								
1072 AETNA										
192256		04/23/2026	AP344	181184	160,349.69	160,349.69	05/06/2026	INV	PD	HEALTH INS HM
INVOICE:J3161367		CHECKDATE:05/06/2026								
6319 AT&T										
192259		04/15/2026	AP344	181185	9,447.07	9,447.07	05/06/2026	INV	PD	ACCT 83100120
INVOICE:5377134110		CHECKDATE:05/06/2026								
192261		04/19/2026	AP344	181185	2,445.90	2,445.90	05/06/2026	INV	PD	ACCT 83100095
INVOICE:6645565110		CHECKDATE:05/06/2026								
					11,892.97					
1180 AT&T U-VERSE (SM)										
192257		04/21/2026	AP344	181186	228.29	228.29	05/06/2026	INV	PD	ACCT 31679479
INVOICE:192257		CHECKDATE:05/06/2026								
1178 AT&T/CALNET 3										
192258		04/25/2026	AP344	181187	127.12	127.12	05/06/2026	INV	PD	BAN 939108231
INVOICE:000025151405		CHECKDATE:05/06/2026								
7909 BCBS CALIFORNIA										
192277		04/22/2026	AP344	181188	353.04	353.04	05/06/2026	INV	PD	AMBULANCE OVE
INVOICE:192277		CHECKDATE:05/06/2026								

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
2073 BOUND TREE MEDICAL, LLC										
192272		04/27/2026	AP344	181189	808.61	808.61	05/06/2026	INV	PD	MEDICAL BILLA
INVOICE:86185187		CHECKDATE:05/06/2026								
192273		04/27/2026	AP344	181189	97.16	97.16	05/06/2026	INV	PD	MEDICAL BILLA
INVOICE:86185188		CHECKDATE:05/06/2026								
192274		04/27/2026	AP344	181189	360.58	360.58	05/06/2026	INV	PD	MEDICAL BILLA
INVOICE:86185189		CHECKDATE:05/06/2026								
192275		04/27/2026	AP344	181189	15.02	15.02	05/06/2026	INV	PD	MEDICAL BILLA
INVOICE:86185190		CHECKDATE:05/06/2026								
192276		04/27/2026	AP344	181189	1,005.97	1,005.97	05/06/2026	INV	PD	MEDICAL BILLA
INVOICE:86185191		CHECKDATE:05/06/2026								
					2,287.34					
7911 BS OF CA										
192278		04/22/2026	AP344	181190	1,969.61	1,969.61	05/06/2026	INV	PD	AMBULANCE OVE
INVOICE:192278		CHECKDATE:05/06/2026								
7787 CHRISTIE STRANG										
192287		04/22/2026	AP344	181191	90.00	90.00	05/06/2026	INV	PD	LIVESCAN FEE
INVOICE:042226		CHECKDATE:05/06/2026								
3678 COLANTUONO, HIGHSMITH & WHATLEY, PC										
192289		04/09/2026	AP344	181192	30,226.50	30,226.50	05/06/2026	INV	PD	LEGAL SVCS: M
INVOICE:70252		CHECKDATE:05/06/2026								
7910 CONIFER										
192293		04/22/2026	AP344	181193	446.07	446.07	05/06/2026	INV	PD	AMBULANCE OVE
INVOICE:192293		CHECKDATE:05/06/2026								
1488 COX COMMUNICATIONS										
192294		04/24/2026	AP344	181194	50.00	50.00	05/06/2026	INV	PD	ACCT 00134101
INVOICE:192294		CHECKDATE:05/06/2026								
1648 DEPT OF JUSTICE										
192295		04/08/2026	AP344	181195	192.00	192.00	05/06/2026	INV	PD	FINGERPRINT A
INVOICE:036909		CHECKDATE:05/06/2026								
3892 EAST PENN MANUFACTURING, INC.										
192306		04/20/2026	AP344	181196	496.26	496.26	05/06/2026	INV	PD	HEAVY FIRE EQ
INVOICE:260381308		CHECKDATE:05/06/2026								
7706 EDUARDO NILO										
192347	26000426	04/22/2026	AP344	181197	2,955.00	2,955.00	05/06/2026	INV	PD	ROPE RESCUE T
INVOICE:FIR038		CHECKDATE:05/06/2026								
3509 FRANABEL S. ALEX-FLORESCA										

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
192348		04/28/2026	AP344	181198	285.00	285.00	05/06/2026	INV	PD	INSTRUCTOR PA
INVOICE:033026-042026		CHECKDATE:05/06/2026								
7726 HANNAH HOUZE										
192359		04/28/2026	AP344	181199	408.00	408.00	05/06/2026	INV	PD	INSTRUCTOR PA
INVOICE:033026-042726		CHECKDATE:05/06/2026								
1801 HAWTHORNE MACHINERY CO.										
192360	26000037	04/10/2026	AP344	181200	201.29	201.29	05/06/2026	INV	PD	HEAVY EQUIPME
INVOICE:PS001019441		CHECKDATE:05/06/2026								
6035 HDL COREN & CONE										
192361		04/16/2026	AP344	181201	63.83	63.83	05/06/2026	INV	PD	PROPERTY TAX
INVOICE:SIN062018		CHECKDATE:05/06/2026								
192362		04/27/2026	AP344	181201	6,795.13	6,795.13	05/06/2026	INV	PD	PROPERTY TAX
INVOICE:SIN062710		CHECKDATE:05/06/2026								
					6,858.96					
2236 ELIZABETH HERZOG										
192268		03/20/2026	AP344	181202	1,255.13	1,255.13	05/06/2026	INV	PD	2026 HOUSING
INVOICE:032026		CHECKDATE:05/06/2026								
2964 AH/HU ASSOCIATES, INC.										
192363		04/17/2026	AP344	181203	126.00	126.00	05/06/2026	INV	PD	PUBLIC NOTICE
INVOICE:110049		CHECKDATE:05/06/2026								
7906 HOWARD DOMBROWSKI										
192305		04/22/2026	AP344	181204	114.21	114.21	05/06/2026	INV	PD	AMBULANCE OVE
INVOICE:192305		CHECKDATE:05/06/2026								
2477 I LOVE A CLEAN SAN DIEGO										
192364	26000361	04/15/2026	AP344	181205	1,250.00	1,250.00	05/06/2026	INV	PD	SERVICES PERF
INVOICE:26-5981		CHECKDATE:05/06/2026								
7912 JAMES WALKER										
192365		04/22/2026	AP344	181206	155.00	155.00	05/06/2026	INV	PD	AMBULANCE OVE
INVOICE:192365		CHECKDATE:05/06/2026								
2065 KEYSER MARSTON ASSOCIATES, INC.										
192366		03/10/2026	AP344	181207	3,755.00	3,755.00	05/06/2026	INV	PD	AFFORDABLE HO
INVOICE:0040578		CHECKDATE:05/06/2026								
192367		04/08/2026	AP344	181207	7,463.00	7,463.00	05/06/2026	INV	PD	AFFORDABLE HO
INVOICE:0040618		CHECKDATE:05/06/2026								

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
					11,218.00					
3161 LENNAR HOMES OF CALIFORNIA, INC.										
192368		04/16/2026	AP344	181208	201,776.86	201,776.86	05/06/2026	INV	PD	CASH SECURITY
INVOICE:R064987		CHECKDATE:05/06/2026								
2076 LIFE-ASSIST, INC.										
192370	26000078	04/27/2026	AP344	181209	150.80	150.80	05/06/2026	INV	PD	MEDICATION AN
INVOICE:2109901		CHECKDATE:05/06/2026								
192371	26000078	04/27/2026	AP344	181209	244.14	244.14	05/06/2026	INV	PD	MEDICATION AN
INVOICE:2109903		CHECKDATE:05/06/2026								
192372	26000078	04/27/2026	AP344	181209	244.14	244.14	05/06/2026	INV	PD	MEDICATION AN
INVOICE:2109905		CHECKDATE:05/06/2026								
192373	26000078	04/27/2026	AP344	181209	194.59	194.59	05/06/2026	INV	PD	MEDICATION AN
INVOICE:2109920		CHECKDATE:05/06/2026								
					833.67					
3511 MARK MONCEY										
192375		04/28/2026	AP344	181210	2,185.40	2,185.40	05/06/2026	INV	PD	INSTRUCTOR PA
INVOICE:032126-042526		CHECKDATE:05/06/2026								
7349 OC INTERPRETING AGENCY										
192378		04/16/2026	AP344	181211	320.00	320.00	05/06/2026	INV	PD	TRANSLATION S
INVOICE:166598		CHECKDATE:05/06/2026								
7908 PABLO MARQUEZ										
192374		04/22/2026	AP344	181212	35.00	35.00	05/06/2026	INV	PD	AMBULANCE OVE
INVOICE:192374		CHECKDATE:05/06/2026								
2097 PACIFIC PIPELINE SUPPLY										
192379		02/10/2026	AP344	181213	689.25	689.25	05/06/2026	INV	PD	IRRIGATION PA
INVOICE:S100485428.001		CHECKDATE:05/06/2026								
4245 PITNEY BOWES RESERVE ACCOUNT										
192539		04/30/2026	AP344	181214	4,000.00	4,000.00	05/06/2026	INV	PD	PB RESERVE AC
INVOICE:192539		CHECKDATE:05/06/2026								
1202 PRE-PAID LEGAL SERVICES, INC.										
192386		04/25/2026	AP344	181215	705.20	705.20	05/06/2026	INV	PD	PR CONTRIBS:
INVOICE:042526		CHECKDATE:05/06/2026								
6696 PRIZED POSSESSIONS, LLC										
192387	26000007	03/05/2026	AP344	181216	1,490.18	1,490.18	05/06/2026	INV	PD	SPRING LEAGUE
INVOICE:122816-9601		CHECKDATE:05/06/2026								
2735 PWLC I, INC.										

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
192388		04/01/2026	AP344	181217	1,295.00	1,295.00	05/06/2026	INV	PD	WOODLAND PARK
INVOICE:67894		CHECKDATE:05/06/2026								
192389		04/23/2026	AP344	181217	647.45	647.45	05/06/2026	INV	PD	EXTRA WORK
INVOICE:67975		CHECKDATE:05/06/2026								
192390		04/23/2026	AP344	181217	43.30	43.30	05/06/2026	INV	PD	EXTRA WORK
INVOICE:67977		CHECKDATE:05/06/2026								
192540		04/23/2026	AP344	181217	286.19	286.19	05/06/2026	INV	PD	EXTRA WORK
INVOICE:67978		CHECKDATE:05/06/2026								
192392		04/23/2026	AP344	181217	102.95	102.95	05/06/2026	INV	PD	EXTRA WORK
INVOICE:67979		CHECKDATE:05/06/2026								
192393		04/23/2026	AP344	181217	89.73	89.73	05/06/2026	INV	PD	EXTRA WORK
INVOICE:67980		CHECKDATE:05/06/2026								
192394		04/23/2026	AP344	181217	98.96	98.96	05/06/2026	INV	PD	EXTRA WORK
INVOICE:67981		CHECKDATE:05/06/2026								
192395		04/23/2026	AP344	181217	221.63	221.63	05/06/2026	INV	PD	EXTRA WORK
INVOICE:67982		CHECKDATE:05/06/2026								
192396		04/23/2026	AP344	181217	286.51	286.51	05/06/2026	INV	PD	EXTRA WORK
INVOICE:67983		CHECKDATE:05/06/2026								
					3,071.72					
4767 RICOH USA, INC.										
192398		04/24/2026	AP344	181218	624.41	624.41	05/06/2026	INV	PD	ACCT 24569-33
INVOICE:109990245		CHECKDATE:05/06/2026								
5379 ROBERTSON INDUSTRIES, INC										
192399		12/31/2025	AP344	181219	43,750.00	43,750.00	05/06/2026	INV	PD	PLAYGROUND RE
INVOICE:PJI-018073		CHECKDATE:05/06/2026								
6124 ROCKET JOHNS, INC										
192400		04/08/2026	AP344	181220	235.88	235.88	05/06/2026	INV	PD	RESTROOM RENT
INVOICE:32944		CHECKDATE:05/06/2026								
3965 ROGERS ANDERSON MALODY & SCOTT LLP										
192401		03/31/2026	AP344	181221	12,900.00	12,900.00	05/06/2026	INV	PD	CITY FINANCIA
INVOICE:80188		CHECKDATE:05/06/2026								
7649 ROTH STAFFING COMPANIES, LP										
192407		04/24/2026	AP344	181222	1,396.40	1,396.40	05/06/2026	INV	PD	TEMP STAFFING
INVOICE:16389090		CHECKDATE:05/06/2026								
192408		04/24/2026	AP344	181222	1,720.00	1,720.00	05/06/2026	INV	PD	TEMP STAFFING
INVOICE:16389091		CHECKDATE:05/06/2026								
192409		04/24/2026	AP344	181222	3,911.60	3,911.60	05/06/2026	INV	PD	TEMP STAFFING
INVOICE:16389092		CHECKDATE:05/06/2026								
192411		04/24/2026	AP344	181222	1,496.13	1,496.13	05/06/2026	INV	PD	TEMP STAFFING
INVOICE:16389093		CHECKDATE:05/06/2026								
192402		04/24/2026	AP344	181222	1,607.60	1,607.60	05/06/2026	INV	PD	TEMP STAFFING
INVOICE:16389094		CHECKDATE:05/06/2026								
192403		04/24/2026	AP344	181222	972.00	972.00	05/06/2026	INV	PD	TEMP STAFFING
INVOICE:16389095		CHECKDATE:05/06/2026								

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
192404		04/24/2026	AP344	181222	972.00	972.00	05/06/2026	INV	PD	TEMP STAFFING
INVOICE:16389096		CHECKDATE:05/06/2026								
192405		04/24/2026	AP344	181222	1,274.52	1,274.52	05/06/2026	INV	PD	TEMP STAFFING
INVOICE:16389097		CHECKDATE:05/06/2026								
192406		04/24/2026	AP344	181222	1,155.84	1,155.84	05/06/2026	INV	PD	TEMP STAFFING
INVOICE:16389098		CHECKDATE:05/06/2026								
192412		04/24/2026	AP344	181222	5,504.00	5,504.00	05/06/2026	INV	PD	TEMP STAFFING
INVOICE:16389099		CHECKDATE:05/06/2026								
					20,010.09					
6787 SAN DIEGO ELEVATOR AND LIFTS, LLC										
192415		04/14/2026	AP344	181223	150.00	150.00	05/06/2026	INV	PD	PW ELEVATOR S
INVOICE:7103258		CHECKDATE:05/06/2026								
7806 SAN DIEGO COUNTY BICYCLE COALITION										
192413		04/20/2026	AP344	181224	1,250.00	1,250.00	05/06/2026	INV	PD	PUBLIC BIKE E
INVOICE:MARCH_SANMARCOS_2026		CHECKDATE:05/06/2026								
4407 SDC ASSESSOR/RECORDER/COUNTY CLERK										
192421		02/03/2026	AP344	181225	187.00	187.00	05/06/2026	INV	PD	RECORDED DOCU
INVOICE:202600103		CHECKDATE:05/06/2026								
1695 SAN DIEGO COUNTY SHERIFF'S DEPARTMENT										
192422		04/27/2026	AP344	181226	2,072,416.13	2,072,416.13	05/06/2026	INV	PD	LAW ENFORCEME
INVOICE:042726		CHECKDATE:05/06/2026								
1923 SAN DIEGO COUNTY WATER AUTHORITY										
192414		04/22/2026	AP344	181227	300.00	300.00	05/06/2026	INV	PD	ENCROACHMENT
INVOICE:192414		CHECKDATE:05/06/2026								
1756 SAN DIEGO GAS & ELECTRIC										
192423		04/15/2026	AP344	181228	31,611.24	31,611.24	05/06/2026	INV	PD	ACCT 00222450
INVOICE:192423		CHECKDATE:05/06/2026								
7907 SHARP HEALTH										
192487		04/22/2026	AP344	181229	1,453.05	1,453.05	05/06/2026	INV	PD	AMBULANCE OVE
INVOICE:192487		CHECKDATE:05/06/2026								
6920 SHIELDS, HARPER & CO.										
192488	26000379	04/21/2026	AP344	181230	1,386.56	1,386.56	05/06/2026	INV	PD	MIFARE FUEL C
INVOICE:3419023		CHECKDATE:05/06/2026								
7509 SIDEPATH, INC										
192489	26000165	04/16/2026	AP344	181231	5,402.00	5,402.00	05/06/2026	INV	PD	APEX FLEX SUB
INVOICE:26301		CHECKDATE:05/06/2026								
192490	26000165	04/16/2026	AP344	181231	5,402.00	5,402.00	05/06/2026	INV	PD	APEX FLEX SUB

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
INVOICE:26302		CHECKDATE:05/06/2026								
					10,804.00					
3826 SOUND SYSTEM KIDS										
192491		04/28/2026	AP344	181232	1,626.00	1,626.00	05/06/2026	INV	PD	INSTRUCTOR PA
INVOICE:030326-042226		CHECKDATE:05/06/2026								
1545 STAPLES BUSINESS ADVANTAGE										
192492	26000026	03/28/2026	AP344	181233	290.63	290.63	05/06/2026	INV	PD	OFFICE SUPPLI
INVOICE:6059552407		CHECKDATE:05/06/2026								
192493	26000026	04/18/2026	AP344	181233	211.04	211.04	05/06/2026	INV	PD	OFFICE SUPPLI
INVOICE:6061361988		CHECKDATE:05/06/2026								
					501.67					
7607 STRADLING YOCCA CARLSON & RAUTH LLP										
192494		04/24/2026	AP344	181234	17,311.10	17,311.10	05/06/2026	INV	PD	LEGAL SVCS -
INVOICE:430791		CHECKDATE:05/06/2026								
6728 T-MOBILE USA INC.										
192495		04/28/2026	AP344	181235	2,746.01	2,746.01	05/06/2026	INV	PD	ACCT 98114072
INVOICE:042826		CHECKDATE:05/06/2026								
192496		04/28/2026	AP344	181236	234.90	234.90	05/06/2026	INV	PD	ACCT 97675622
INVOICE:976756227-54		CHECKDATE:05/06/2026								
1675 TARGET SPECIALTY PRODUCTS										
192497		04/27/2026	AP344	181237	240.31	240.31	05/06/2026	INV	PD	FERTILIZERS/H
INVOICE:INVP502137281		CHECKDATE:05/06/2026								
7272 THE REINHART CORP										
192254		04/20/2026	AP344	181238	330.00	330.00	05/06/2026	INV	PD	SERVICE CALL:
INVOICE:24911		CHECKDATE:05/06/2026								
7603 TYLER BROWN										
192271		04/28/2026	AP344	181239	402.50	402.50	05/06/2026	INV	PD	INSTRUCTOR PA
INVOICE:042526		CHECKDATE:05/06/2026								
6793 UNIFIRST CORPORATION										
192424		02/02/2026	AP344	181240	43.82	43.82	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351145623		CHECKDATE:05/06/2026								
192425		02/02/2026	AP344	181240	44.48	44.48	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351145632		CHECKDATE:05/06/2026								
192426		02/02/2026	AP344	181240	43.82	43.82	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351145720		CHECKDATE:05/06/2026								
192427		02/02/2026	AP344	181240	29.30	29.30	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351145774		CHECKDATE:05/06/2026								
192430		02/02/2026	AP344	181240	25.10	25.10	05/06/2026	INV	PD	JANITORIAL SV

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
INVOICE:2351145799		CHECKDATE:05/06/2026								
192431		02/03/2026	AP344	181240	55.70	55.70	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351145882		CHECKDATE:05/06/2026								
192432		02/03/2026	AP344	181240	39.80	39.80	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351145960		CHECKDATE:05/06/2026								
192433		02/03/2026	AP344	181240	27.83	27.83	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351145986		CHECKDATE:05/06/2026								
192434		02/03/2026	AP344	181240	34.18	34.18	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351146022		CHECKDATE:05/06/2026								
192435		02/03/2026	AP344	181240	28.50	28.50	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351146023		CHECKDATE:05/06/2026								
192520		02/03/2026	AP344	181240	129.56	129.56	05/06/2026	INV	PD	UNIFORMS: STR
INVOICE:2351146025		CHECKDATE:05/06/2026								
192521		02/03/2026	AP344	181240	120.74	120.74	05/06/2026	INV	PD	UNIFORMS: PAR
INVOICE:2351146026		CHECKDATE:05/06/2026								
192522		02/03/2026	AP344	181240	31.44	31.44	05/06/2026	INV	PD	UNIFORMS: FLE
INVOICE:2351146027		CHECKDATE:05/06/2026								
192439		02/09/2026	AP344	181240	43.82	43.82	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351146751		CHECKDATE:05/06/2026								
192440		02/09/2026	AP344	181240	44.48	44.48	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351146753		CHECKDATE:05/06/2026								
192441		02/09/2026	AP344	181240	43.82	43.82	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351146769		CHECKDATE:05/06/2026								
192442		02/09/2026	AP344	181240	29.30	29.30	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351146779		CHECKDATE:05/06/2026								
192446		02/10/2026	AP344	181240	39.80	39.80	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351146935		CHECKDATE:05/06/2026								
192447		02/10/2026	AP344	181240	27.83	27.83	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351146955		CHECKDATE:05/06/2026								
192448		02/10/2026	AP344	181240	34.18	34.18	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351147012		CHECKDATE:05/06/2026								
192449		02/10/2026	AP344	181240	28.50	28.50	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351147013		CHECKDATE:05/06/2026								
192525		02/10/2026	AP344	181240	129.56	129.56	05/06/2026	INV	PD	UNIFORMS: STR
INVOICE:2351147016		CHECKDATE:05/06/2026								
192526		02/10/2026	AP344	181240	121.07	121.07	05/06/2026	INV	PD	UNIFORMS: PAR
INVOICE:2351147018		CHECKDATE:05/06/2026								
192527		02/10/2026	AP344	181240	31.44	31.44	05/06/2026	INV	PD	UNIFORMS: FLE
INVOICE:2351147019		CHECKDATE:05/06/2026								
192452		02/16/2026	AP344	181240	43.82	43.82	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351147636		CHECKDATE:05/06/2026								
192453		02/16/2026	AP344	181240	44.48	44.48	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351147658		CHECKDATE:05/06/2026								
192454		02/16/2026	AP344	181240	43.82	43.82	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351147744		CHECKDATE:05/06/2026								
192455		02/16/2026	AP344	181240	29.30	29.30	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351147787		CHECKDATE:05/06/2026								
192458		02/16/2026	AP344	181240	25.10	25.10	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351147811		CHECKDATE:05/06/2026								
192459		02/17/2026	AP344	181240	53.70	53.70	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351147903		CHECKDATE:05/06/2026								
192460		02/17/2026	AP344	181240	39.80	39.80	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351147976		CHECKDATE:05/06/2026								
192461		02/17/2026	AP344	181240	27.83	27.83	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351147995		CHECKDATE:05/06/2026								

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
192462		02/17/2026	AP344	181240	34.18	34.18	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351148034		CHECKDATE:05/06/2026								
192463		02/17/2026	AP344	181240	25.30	25.30	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351148036		CHECKDATE:05/06/2026								
192530		02/17/2026	AP344	181240	130.06	130.06	05/06/2026	INV	PD	UNIFORMS: STR
INVOICE:2351148040		CHECKDATE:05/06/2026								
192531		02/17/2026	AP344	181240	113.61	113.61	05/06/2026	INV	PD	UNIFORMS: PAR
INVOICE:2351148041		CHECKDATE:05/06/2026								
192532		02/17/2026	AP344	181240	31.44	31.44	05/06/2026	INV	PD	UNIFORMS: FLE
INVOICE:2351148042		CHECKDATE:05/06/2026								
192466		02/23/2026	AP344	181240	43.82	43.82	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351148695		CHECKDATE:05/06/2026								
192467		02/23/2026	AP344	181240	44.48	44.48	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351148701		CHECKDATE:05/06/2026								
192468		02/23/2026	AP344	181240	43.82	43.82	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351148777		CHECKDATE:05/06/2026								
192469		02/23/2026	AP344	181240	29.30	29.30	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351148806		CHECKDATE:05/06/2026								
192472		02/23/2026	AP344	181240	25.10	25.10	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351148860		CHECKDATE:05/06/2026								
192473		02/24/2026	AP344	181240	39.80	39.80	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351149016		CHECKDATE:05/06/2026								
192474		02/24/2026	AP344	181240	27.83	27.83	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351149027		CHECKDATE:05/06/2026								
192475		02/24/2026	AP344	181240	34.18	34.18	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351149066		CHECKDATE:05/06/2026								
192476		02/24/2026	AP344	181240	25.30	25.30	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351149069		CHECKDATE:05/06/2026								
192535		02/24/2026	AP344	181240	130.28	130.28	05/06/2026	INV	PD	UNIFORMS: STR
INVOICE:2351149073		CHECKDATE:05/06/2026								
192536		02/24/2026	AP344	181240	113.61	113.61	05/06/2026	INV	PD	UNIFORMS: PAR
INVOICE:2351149074		CHECKDATE:05/06/2026								
192537		02/24/2026	AP344	181240	31.44	31.44	05/06/2026	INV	PD	UNIFORMS: FLE
INVOICE:2351149075		CHECKDATE:05/06/2026								
192478		02/24/2026	AP344	181240	53.70	53.70	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351149091		CHECKDATE:05/06/2026								
					2,513.17					
192428		02/02/2026	AP344	181241	14.18	14.18	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351145779		CHECKDATE:05/06/2026								
192429		02/02/2026	AP344	181241	21.22	21.22	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351145780		CHECKDATE:05/06/2026								
192436		02/03/2026	AP344	181241	24.36	24.36	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351146024		CHECKDATE:05/06/2026								
192523		02/03/2026	AP344	181241	16.30	16.30	05/06/2026	INV	PD	UNIFORMS: FAC
INVOICE:2351146028		CHECKDATE:05/06/2026								
192437		02/06/2026	AP344	181241	14.18	14.18	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351146560		CHECKDATE:05/06/2026								
192438		02/09/2026	AP344	181241	25.10	25.10	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351146746		CHECKDATE:05/06/2026								
192443		02/09/2026	AP344	181241	14.18	14.18	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351146781		CHECKDATE:05/06/2026								
192444		02/09/2026	AP344	181241	21.22	21.22	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351146782		CHECKDATE:05/06/2026								
192524		02/09/2026	AP344	181241	12.10	12.10	05/06/2026	INV	PD	UNIFORMS: SEN

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
INVOICE:2351146798		CHECKDATE:05/06/2026								
192450		02/10/2026	AP344	181241	24.36	24.36	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351147015		CHECKDATE:05/06/2026								
192528		02/10/2026	AP344	181241	16.30	16.30	05/06/2026	INV	PD	UNIFORMS: FAC
INVOICE:2351147020		CHECKDATE:05/06/2026								
192451		02/13/2026	AP344	181241	14.18	14.18	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351147586		CHECKDATE:05/06/2026								
192529		02/16/2026	AP344	181241	7.46	7.46	05/06/2026	INV	PD	UNIFORMS: SEN
INVOICE:2351147791		CHECKDATE:05/06/2026								
192456		02/16/2026	AP344	181241	14.18	14.18	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351147793		CHECKDATE:05/06/2026								
192457		02/16/2026	AP344	181241	21.22	21.22	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351147797		CHECKDATE:05/06/2026								
192464		02/17/2026	AP344	181241	24.36	24.36	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351148037		CHECKDATE:05/06/2026								
192533		02/17/2026	AP344	181241	16.52	16.52	05/06/2026	INV	PD	UNIFORMS: FAC
INVOICE:2351148043		CHECKDATE:05/06/2026								
192465		02/20/2026	AP344	181241	14.18	14.18	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351148635		CHECKDATE:05/06/2026								
192534		02/23/2026	AP344	181241	7.46	7.46	05/06/2026	INV	PD	UNIFORMS: SEN
INVOICE:2351148808		CHECKDATE:05/06/2026								
192470		02/23/2026	AP344	181241	14.18	14.18	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351148810		CHECKDATE:05/06/2026								
192471		02/23/2026	AP344	181241	21.22	21.22	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351148814		CHECKDATE:05/06/2026								
192477		02/24/2026	AP344	181241	24.36	24.36	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351149070		CHECKDATE:05/06/2026								
192538		02/24/2026	AP344	181241	16.52	16.52	05/06/2026	INV	PD	UNIFORMS: FAC
INVOICE:2351149077		CHECKDATE:05/06/2026								
192541		02/27/2026	AP344	181241	14.18	14.18	05/06/2026	INV	PD	JANITORIAL SV
INVOICE:2351149742		CHECKDATE:05/06/2026								
					413.52					
5407 US BANK CORPORATE PAYMENT SYSTEMS										
192346		03/25/2026	AP344	181242	4,022.01	4,022.01	05/06/2026	INV	PD	ACCT ENDING 7
INVOICE:192346		CHECKDATE:05/06/2026								
1740 VALLECITOS WATER DISTRICT										
192501		04/08/2026	AP344	181243	20,761.88	20,761.88	05/06/2026	INV	PD	CUST NO 00004
INVOICE:192501		CHECKDATE:05/06/2026								
192502		04/15/2026	AP344	181243	30,078.69	30,078.69	05/06/2026	INV	PD	CUST NO 00004
INVOICE:192502		CHECKDATE:05/06/2026								
					50,840.57					
7744 VAN OTTERLOO, INC										
192503		04/06/2026	AP344	181244	27.66	27.66	05/06/2026	INV	PD	RENTAL VEHICL
INVOICE:183374		CHECKDATE:05/06/2026								
1764 VISTA IRRIGATION DISTRICT										
192504		04/22/2026	AP344	181245	4,123.72	4,123.72	05/06/2026	INV	PD	ACCT 4765-001
INVOICE:192504		CHECKDATE:05/06/2026								

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
192505		04/22/2026	AP344	181245	163.05	163.05	05/06/2026	INV	PD	ACCT 4765-042
INVOICE:192505		CHECKDATE:05/06/2026								
192506		04/22/2026	AP344	181245	1,567.04	1,567.04	05/06/2026	INV	PD	ACCT 4770-009
INVOICE:192506		CHECKDATE:05/06/2026								
192507		04/22/2026	AP344	181245	1,940.96	1,940.96	05/06/2026	INV	PD	ACCT 4770-009
INVOICE:192507		CHECKDATE:05/06/2026								
192508		04/22/2026	AP344	181245	15.48	15.48	05/06/2026	INV	PD	ACCT 4765-000
INVOICE:192508		CHECKDATE:05/06/2026								
192509		04/22/2026	AP344	181245	341.25	341.25	05/06/2026	INV	PD	ACCT 4765-001
INVOICE:192509		CHECKDATE:05/06/2026								
					8,151.50					
3070 WEST COAST ARBORISTS, INC.										
192514		12/10/2025	AP344	181246	35,926.00	35,926.00	05/06/2026	INV	PD	TREE WORK: LA
INVOICE:238400-A		CHECKDATE:05/06/2026								
192515		04/23/2026	AP344	181246	1,242.00	1,242.00	05/06/2026	INV	PD	TREE WORK: SU
INVOICE:242826		CHECKDATE:05/06/2026								
192516		04/23/2026	AP344	181246	2,760.00	2,760.00	05/06/2026	INV	PD	TREE WORK: WI
INVOICE:242828		CHECKDATE:05/06/2026								
					39,928.00					
1988 WESTAIR GAS & EQUIPMENT										
192517		04/22/2026	AP344	181247	299.98	299.98	05/06/2026	INV	PD	MEDICAL BILLA
INVOICE:0012215229		CHECKDATE:05/06/2026								
192518		04/22/2026	AP344	181247	190.46	190.46	05/06/2026	INV	PD	MEDICAL BILLA
INVOICE:0012215232		CHECKDATE:05/06/2026								
					490.44					
1121 AMERIGAS PROPANE, LP										
192545		04/24/2026	AP344	181254	130.91	130.91	05/13/2026	INV	PD	PROPANE: JACK
INVOICE:3189243459		CHECKDATE:05/13/2026								
1150 APPRIVER, LLC										
192546		05/01/2026	AP344	181255	25,780.65	25,780.65	05/13/2026	INV	PD	LICENSE RENEW
INVOICE:3963809		CHECKDATE:05/13/2026								
4877 AZTEC LANDSCAPING, INC.										
192547	26000342	04/28/2026	AP344	181256	1,514.65	1,514.65	05/13/2026	INV	PD	BRUSH ABATEME
INVOICE:L7408		CHECKDATE:05/13/2026								
7239 AMORANTO FAMILY LLC										
192550		03/30/2026	AP344	181257	833.80	833.80	05/13/2026	INV	PD	ENCAMPMENT CL
INVOICE:3256		CHECKDATE:05/13/2026								
6358 BUSY BEES LOCKS & KEYS INC										
192563		04/28/2026	AP344	181258	7.50	7.50	05/13/2026	INV	PD	KEY COPIES
INVOICE:91196417		CHECKDATE:05/13/2026								

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
6684 CARAHSOFT TECHNOLOGY CORPORATION										
192566	26000431	04/30/2026	AP344	181259	815.89	815.89	05/13/2026	INV	PD	ZOOM LICENSES
INVOICE:IN2275449		CHECKDATE:05/13/2026								
4823 COAST NEWS INC										
192574		05/01/2026	AP344	181260	213.13	213.13	05/13/2026	INV	PD	LEGAL AD SERV
INVOICE:00161030		CHECKDATE:05/13/2026								
192575		05/01/2026	AP344	181260	151.13	151.13	05/13/2026	INV	PD	LEGAL AD SERV
INVOICE:00161045		CHECKDATE:05/13/2026								
192576		05/01/2026	AP344	181260	272.03	272.03	05/13/2026	INV	PD	LEGAL AD SERV
INVOICE:00161119		CHECKDATE:05/13/2026								
192577		05/01/2026	AP344	181260	313.88	313.88	05/13/2026	INV	PD	LEGAL AD SERV
INVOICE:00161125		CHECKDATE:05/13/2026								
					950.17					
5944 GAFCON PM-CM, LLC										
192600		04/15/2026	AP344	181261	271.67	271.67	05/13/2026	INV	PD	DBE AND LABOR
INVOICE:53961		CHECKDATE:05/13/2026								
192601		04/15/2026	AP344	181261	392.98	392.98	05/13/2026	INV	PD	DBE AND LABOR
INVOICE:53967		CHECKDATE:05/13/2026								
192599		04/15/2026	AP344	181261	263.03	263.03	05/13/2026	INV	PD	DBE AND LABOR
INVOICE:53968		CHECKDATE:05/13/2026								
					927.68					
4689 PRECISION CONCRETE CUTTING										
192672		04/30/2026	AP344	181262	40,291.00	40,291.00	05/13/2026	INV	PD	CONCRETE SLIC
INVOICE:26-0146		CHECKDATE:05/13/2026								
1716 PRINTER REPAIR DEPOT										
192673		04/21/2026	AP344	181263	1,723.91	1,723.91	05/13/2026	INV	PD	TONER
INVOICE:78887		CHECKDATE:05/13/2026								
4351 J. HARRIS INDUSTRIAL WATER TREATMENT, INC.										
192674		04/30/2026	AP344	181264	30.10	30.10	05/13/2026	INV	PD	MIXED BED: FS
INVOICE:2408383		CHECKDATE:05/13/2026								
192676		04/30/2026	AP344	181264	30.10	30.10	05/13/2026	INV	PD	MIXED BED: FS
INVOICE:2408384		CHECKDATE:05/13/2026								
192675		04/30/2026	AP344	181264	30.10	30.10	05/13/2026	INV	PD	MIXED BED: FS
INVOICE:2408385		CHECKDATE:05/13/2026								
192677		04/30/2026	AP344	181264	30.10	30.10	05/13/2026	INV	PD	MIXED BED: FS
INVOICE:2408386		CHECKDATE:05/13/2026								
					120.40					
6653 QUENCH USA, INC										
192719		05/01/2026	AP344	181265	427.61	427.61	05/13/2026	INV	PD	WATER COOLER
INVOICE:INV10753393		CHECKDATE:05/13/2026								
192720	26000004	05/01/2026	AP344	181265	174.06	174.06	05/13/2026	INV	PD	WATER COOLER
INVOICE:INV10765205		CHECKDATE:05/13/2026								

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
192721		05/01/2026	AP344	181265	199.07	199.07	05/13/2026	INV	PD	WATER COOLER
INVOICE:INV10808299		CHECKDATE:05/13/2026								
					800.74					
4876 ROADPOST USA										
192551		05/01/2026	AP344	181266	77.25	77.25	05/13/2026	INV	PD	MAY 2026 SAT
INVOICE:BU01885778		CHECKDATE:05/13/2026								
6154 JANEL RODRIGUEZ										
192607		04/24/2026	AP344	181267	646.15	646.15	05/13/2026	INV	PD	CASE #17FL007
INVOICE:042426		CHECKDATE:05/13/2026								
2035 FITNESS WAREHOUSE USA, INC										
192596	26000073	04/30/2026	AP344	181268	524.85	524.85	05/13/2026	INV	PD	FIRE STATION
INVOICE:38915		CHECKDATE:05/13/2026								
2421 SHERWIN-WILLIAMS CO										
192743		03/12/2026	AP344	181269	48.50	48.50	05/13/2026	INV	PD	PAINT SUPPLIE
INVOICE:42442183150326		CHECKDATE:05/13/2026								
4549 SITEONE LANDSCAPE SUPPLY HOLDING, LLC										
192746		03/24/2026	AP344	181270	264.41	264.41	05/13/2026	INV	PD	IRRIGATION MA
INVOICE:163731387-001		CHECKDATE:05/13/2026								
192747		03/24/2026	AP344	181270	-264.41	-264.41	05/13/2026	CRM	PD	CREDIT FOR IR
INVOICE:163733091-001		CHECKDATE:05/13/2026								
192750		04/08/2026	AP344	181270	428.78	428.78	05/13/2026	INV	PD	IRRIGATION MA
INVOICE:163733308-001		CHECKDATE:05/13/2026								
192748		03/30/2026	AP344	181270	208.54	208.54	05/13/2026	INV	PD	IRRIGATION MA
INVOICE:163978487-001		CHECKDATE:05/13/2026								
192749		04/01/2026	AP344	181270	347.24	347.24	05/13/2026	INV	PD	IRRIGATION MA
INVOICE:164151512-001		CHECKDATE:05/13/2026								
					984.56					
2548 TRAFFIC SUPPLY INC.										
192762		04/21/2026	AP344	181271	925.46	925.46	05/13/2026	INV	PD	SIGN MAINTENA
INVOICE:38437		CHECKDATE:05/13/2026								
192763		04/30/2026	AP344	181271	456.35	456.35	05/13/2026	INV	PD	SIGN MAINTENA
INVOICE:38491		CHECKDATE:05/13/2026								
					1,381.81					
7791 TRIDEN GROUP CORPORATION										
192765		03/26/2026	AP344	181272	4,000.00	4,000.00	05/13/2026	INV	PD	VCISO & CYBER
INVOICE:28991R		CHECKDATE:05/13/2026								
192764		03/26/2026	AP344	181272	5,875.00	5,875.00	05/13/2026	INV	PD	FRACTIONAL IT
INVOICE:28992R		CHECKDATE:05/13/2026								
					9,875.00					
1798 UNDERGROUND SERVICE ALERT										

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
192779	26000049	05/01/2026	AP344	181273	186.84	186.84	05/13/2026	INV	PD	STATE FEE FOR
INVOICE:25-263508		CHECKDATE:05/13/2026								
192778	26000049	05/01/2026	AP344	181273	1,416.10	1,416.10	05/13/2026	INV	PD	APR 2026 TICK
INVOICE:420260166		CHECKDATE:05/13/2026								
					1,602.94					
1852 VERIZON WIRELESS										
192781		04/20/2026	AP344	181274	3,538.65	3,538.65	05/13/2026	INV	PD	ACCT 97026115
INVOICE:6141618169		CHECKDATE:05/13/2026								
5476 ABI OFFICE FURNITURE										
192542	26000360	04/14/2026	AP344	181275	4,280.13	4,280.13	05/13/2026	INV	PD	OFFICE FURNIT
INVOICE:14648		CHECKDATE:05/13/2026								
1050 ACE ELECTRIC, INC										
192543		04/16/2026	AP344	181276	5,902.89	5,902.89	05/13/2026	INV	PD	BALL FIELD LI
INVOICE:6802-1		CHECKDATE:05/13/2026								
7852 ALTA LANGUAGE SERVICES, INC.										
192544		02/28/2026	AP344	181277	58.00	58.00	05/13/2026	INV	PD	LISTENING & S
INVOICE:IS833883		CHECKDATE:05/13/2026								
4675 BEAR ELECTRICAL SOLUTIONS, LLC										
192772		02/28/2026	AP344	181278	9,110.75	9,110.75	05/13/2026	INV	PD	TRAFFIC SIGNA
INVOICE:10243		CHECKDATE:05/13/2026								
192773		02/28/2026	AP344	181278	15,050.00	15,050.00	05/13/2026	INV	PD	TRAFFIC SIGNA
INVOICE:10244		CHECKDATE:05/13/2026								
192774		02/28/2026	AP344	181278	1,680.00	1,680.00	05/13/2026	INV	PD	TRAFFIC SIGNA
INVOICE:10245		CHECKDATE:05/13/2026								
					25,840.75					
5532 CHRISTINA BIGGIN										
192549		05/06/2026	AP344	181279	9,767.40	9,767.40	05/13/2026	INV	PD	INSTRUCTOR PA
INVOICE:010726-043026		CHECKDATE:05/13/2026								
4618 CATHLEEN BOSSALLER										
192553		05/01/2026	AP344	181280	477.40	477.40	05/13/2026	INV	PD	INSTRUCTOR PA
INVOICE:040126-043026		CHECKDATE:05/13/2026								
2073 BOUND TREE MEDICAL, LLC										
192552		04/28/2026	AP344	181281	1,246.55	1,246.55	05/13/2026	INV	PD	MEDICAL BILLA
INVOICE:86186996		CHECKDATE:05/13/2026								
192554		05/04/2026	AP344	181281	296.48	296.48	05/13/2026	INV	PD	MEDICAL BILLA
INVOICE:86193944		CHECKDATE:05/13/2026								
192555		05/04/2026	AP344	181281	34.67	34.67	05/13/2026	INV	PD	MEDICAL BILLA
INVOICE:86193945		CHECKDATE:05/13/2026								

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
192556		05/04/2026	AP344	181281	653.24	653.24	05/13/2026	INV	PD	MEDICAL BILLA
INVOICE:86193946		CHECKDATE:05/13/2026								
192557		05/04/2026	AP344	181281	28.92	28.92	05/13/2026	INV	PD	MEDICAL BILLA
INVOICE:86193947		CHECKDATE:05/13/2026								
192558		05/04/2026	AP344	181281	191.96	191.96	05/13/2026	INV	PD	MEDICAL BILLA
INVOICE:86193948		CHECKDATE:05/13/2026								
192559		05/04/2026	AP344	181281	51.30	51.30	05/13/2026	INV	PD	MEDICAL BILLA
INVOICE:86193949		CHECKDATE:05/13/2026								
192560		05/04/2026	AP344	181281	719.27	719.27	05/13/2026	INV	PD	MEDICAL BILLA
INVOICE:86193950		CHECKDATE:05/13/2026								
					3,222.39					
4170 BRAX COMPANY, INC										
192561		03/19/2026	AP344	181282	4,220.00	4,220.00	05/13/2026	INV	PD	WELL REPAIR:
INVOICE:62679		CHECKDATE:05/13/2026								
192562		04/16/2026	AP344	181282	14,855.07	14,855.07	05/13/2026	INV	PD	WELL REPAIR:
INVOICE:63376		CHECKDATE:05/13/2026								
					19,075.07					
7483 CALIFORNIA STATE DISBURSEMENT UNIT										
192565		04/24/2026	AP344	181283	876.46	876.46	05/13/2026	INV	PD	CASE #FLHE220
INVOICE:042426		CHECKDATE:05/13/2026								
5715 CHRISTOPHER CARROLL										
192567		04/27/2026	AP344	181284	50.00	50.00	05/13/2026	INV	PD	PLANNING COMM
INVOICE:042026		CHECKDATE:05/13/2026								
7218 CATHERINE A HUETT										
192806		05/01/2026	AP344	181285	1,194.20	1,194.20	05/13/2026	INV	PD	INSTRUCTOR PA
INVOICE:040126-043026		CHECKDATE:05/13/2026								
6294 CCS FACILITY SERVICES - SAN DIEGO, INC.										
192569		04/30/2026	AP344	181286	5,334.00	5,334.00	05/13/2026	INV	PD	JANITORIAL SV
INVOICE:753796		CHECKDATE:05/13/2026								
192570		04/30/2026	AP344	181286	22,794.87	22,794.87	05/13/2026	INV	PD	JANITORIAL SV
INVOICE:753903		CHECKDATE:05/13/2026								
192571		04/30/2026	AP344	181286	26,169.20	26,169.20	05/13/2026	INV	PD	CITYWIDE PARK
INVOICE:753919		CHECKDATE:05/13/2026								
					54,298.07					
7167 CELINE COSSOU										
192572		05/05/2026	AP344	181287	630.00	630.00	05/13/2026	INV	PD	INSTRUCTOR PA
INVOICE:040926-042326		CHECKDATE:05/13/2026								
7787 CHRISTIE STRANG										
192810		04/01/2026	AP344	181288	133.76	133.76	05/13/2026	INV	PD	INTERVIEW PAN
INVOICE:040126 2		CHECKDATE:05/13/2026								

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
2667 JEFFREY COLWELL										
192578		05/01/2026	AP344	181289	4,430.00	4,430.00	05/13/2026	INV	PD	SMTV VIDEO PR
INVOICE:20260501-01		CHECKDATE:05/13/2026								
5713 JANA CRACIUNESCU										
192579		05/01/2026	AP344	181290	1,012.20	1,012.20	05/13/2026	INV	PD	INSTRUCTOR PA
INVOICE:040126-043026		CHECKDATE:05/13/2026								
7316 JEFFREY SCOTT ARVESON										
192580	26000014	05/01/2026	AP344	181291	800.00	800.00	05/13/2026	INV	PD	REMOVAL & DIS
INVOICE:05012026		CHECKDATE:05/13/2026								
1400 DEPT OF TRANSPORTATION (CASH)										
192564		04/20/2026	AP344	181292	8,553.62	8,553.62	05/13/2026	INV	PD	SIGNALS & LIG
INVOICE:SL260821		CHECKDATE:05/13/2026								
7183 DIAMOND DESIGNS LLC										
192581		04/24/2026	AP344	181293	3,808.54	3,808.54	05/13/2026	INV	PD	SPORTS FIELD
INVOICE:3265		CHECKDATE:05/13/2026								
6301 DIANA CAVANAUGH										
192568		04/27/2026	AP344	181294	50.00	50.00	05/13/2026	INV	PD	PLANNING COMM
INVOICE:042026		CHECKDATE:05/13/2026								
4567 CHARLENE DONOVAN										
192584		05/05/2026	AP344	181295	5,169.00	5,169.00	05/13/2026	INV	PD	INSTRUCTOR PA
INVOICE:030326-043026		CHECKDATE:05/13/2026								
7223 CAGE HOLDINGS LLC										
192585		04/24/2026	AP344	181296	65.25	65.25	05/13/2026	INV	PD	TOPSOIL: SUNS
INVOICE:26-04ES316		CHECKDATE:05/13/2026								
7706 EDUARDO NILO										
192587	26000425	04/29/2026	AP344	181297	4,000.00	4,000.00	05/13/2026	INV	PD	TRENCH RESCUE
INVOICE:FIR042		CHECKDATE:05/13/2026								
192586	26000423	04/29/2026	AP344	181297	3,000.00	3,000.00	05/13/2026	INV	PD	TRENCH RESCUE
INVOICE:FIR043		CHECKDATE:05/13/2026								
192807	26000424	04/29/2026	AP344	181297	2,955.00	2,955.00	05/13/2026	INV	PD	ROPE RESCUE T
INVOICE:FIR044		CHECKDATE:05/13/2026								
					9,955.00					
7602 ERIC DUANE WILLIAMS										
192588		05/05/2026	AP344	181298	1,645.00	1,645.00	05/13/2026	INV	PD	INSTRUCTOR PA
INVOICE:040626-050126		CHECKDATE:05/13/2026								

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
4388 ESSENCO, INC.										
192589		04/15/2026	AP344	181299	3,192.67	3,192.67	05/13/2026	INV	PD	CATERED MEALS
INVOICE:SM-0050		CHECKDATE:05/13/2026								
192590		04/30/2026	AP344	181299	2,876.79	2,876.79	05/13/2026	INV	PD	CATERED MEALS
INVOICE:SM-0051		CHECKDATE:05/13/2026								
					6,069.46					
1000 EXECUTIVE LANDSCAPE INC.										
192591		04/30/2026	AP344	181300	42,801.14	42,801.14	05/13/2026	INV	PD	LANDSCAPE MAI
INVOICE:81059		CHECKDATE:05/13/2026								
192592		04/30/2026	AP344	181300	123,763.77	123,763.77	05/13/2026	INV	PD	LANDSCAPE MAI
INVOICE:81060		CHECKDATE:05/13/2026								
192593		05/01/2026	AP344	181300	120.00	120.00	05/13/2026	INV	PD	25360-500 RAN
INVOICE:83060		CHECKDATE:05/13/2026								
					166,684.91					
5251 FIRE CATT, LLC										
192595	26000422	04/11/2026	AP344	181301	14,125.70	14,125.70	05/13/2026	INV	PD	FIRE HOSE AND
INVOICE:17709		CHECKDATE:05/13/2026								
4593 FRANCHISE TAX BOARD										
192597		04/24/2026	AP344	181302	50.00	50.00	05/13/2026	INV	PD	EWOT, PR09: 4
INVOICE:042426		CHECKDATE:05/13/2026								
192598		04/24/2026	AP344	181303	184.85	184.85	05/13/2026	INV	PD	EWOT, PR09: 4
INVOICE:042426 2		CHECKDATE:05/13/2026								
1048 GRAINGER										
192602		12/23/2025	AP344	181304	168.07	168.07	05/13/2026	INV	PD	CREDIT MEMO C
INVOICE:9752488370A		CHECKDATE:05/13/2026								
192621		04/14/2026	AP344	181304	130.71	130.71	05/13/2026	INV	PD	BUILDING MATE
INVOICE:9878471565		CHECKDATE:05/13/2026								
192622		04/14/2026	AP344	181304	-225.04	-225.04	05/13/2026	CRM	PD	CREDIT FOR BU
INVOICE:9878718601		CHECKDATE:05/13/2026								
192623		04/17/2026	AP344	181304	33.50	33.50	05/13/2026	INV	PD	BUILDING MATE
INVOICE:9883603335		CHECKDATE:05/13/2026								
192624		04/17/2026	AP344	181304	187.23	187.23	05/13/2026	INV	PD	BUILDING MATE
INVOICE:9883801970		CHECKDATE:05/13/2026								
192626		04/17/2026	AP344	181304	989.63	989.63	05/13/2026	INV	PD	BUILDING MATE
INVOICE:9883801988		CHECKDATE:05/13/2026								
192625		04/17/2026	AP344	181304	48.79	48.79	05/13/2026	INV	PD	SAFETY SUPPLI
INVOICE:9884361669		CHECKDATE:05/13/2026								
192627		04/20/2026	AP344	181304	388.65	388.65	05/13/2026	INV	PD	SAFETY SUPPLI
INVOICE:9886795112		CHECKDATE:05/13/2026								
192629		04/21/2026	AP344	181304	109.81	109.81	05/13/2026	INV	PD	BUILDING MATE
INVOICE:9886939397		CHECKDATE:05/13/2026								
192628		04/21/2026	AP344	181304	24.06	24.06	05/13/2026	INV	PD	BUILDING MATE
INVOICE:9886939405		CHECKDATE:05/13/2026								
192630		04/22/2026	AP344	181304	7.19	7.19	05/13/2026	INV	PD	SMALL EQUIPME
INVOICE:9888575488		CHECKDATE:05/13/2026								

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
192631		04/23/2026	AP344	181304	206.90	206.90	05/13/2026	INV	PD	CONSTRUCTION
INVOICE:9891670284		CHECKDATE:05/13/2026								
192632		04/27/2026	AP344	181304	482.23	482.23	05/13/2026	INV	PD	ELECTRICAL RE
INVOICE:9894959148		CHECKDATE:05/13/2026								
192633		04/27/2026	AP344	181304	25.08	25.08	05/13/2026	INV	PD	ELECTRICAL RE
INVOICE:9894959155		CHECKDATE:05/13/2026								
192634		04/29/2026	AP344	181304	243.10	243.10	05/13/2026	INV	PD	ELECTRICAL RE
INVOICE:9898572947		CHECKDATE:05/13/2026								
					2,819.91					
3446 FATIMA GUERRERO										
192594		04/27/2026	AP344	181305	50.00	50.00	05/13/2026	INV	PD	PLANNING COMM
INVOICE:042026		CHECKDATE:05/13/2026								
1853 HARRIS & ASSOCIATES, INC.										
192603	24000202	04/24/2026	AP344	181306	5,677.11	5,677.11	05/13/2026	INV	PD	TO 2 - BIOLOG
INVOICE:71986		CHECKDATE:05/13/2026								
6722 HOLLY TAYLOR										
192604		05/01/2026	AP344	181307	506.10	506.10	05/13/2026	INV	PD	INSTRUCTOR PA
INVOICE:040126-043026		CHECKDATE:05/13/2026								
7139 INDU SINGH										
192606		05/01/2026	AP344	181308	91.70	91.70	05/13/2026	INV	PD	INSTRUCTOR PA
INVOICE:040126-043026		CHECKDATE:05/13/2026								
7178 JEWISH COMMUNITY FOUNDATION OF SAN DIEGO										
192609		03/31/2026	AP344	181309	500.00	500.00	05/13/2026	INV	PD	ADMINISTRATIO
INVOICE:033126		CHECKDATE:05/13/2026								
1034 KATIE SILVA										
192745		05/05/2026	AP344	181310	499.80	499.80	05/13/2026	INV	PD	INSTRUCTOR PA
INVOICE:030326-042826		CHECKDATE:05/13/2026								
5371 KELLY PAPER COMPANY										
192610		04/28/2026	AP344	181311	657.07	657.07	05/13/2026	INV	PD	PAPER SUPPLIE
INVOICE:12214109		CHECKDATE:05/13/2026								
192611		04/29/2026	AP344	181311	-474.79	-474.79	05/13/2026	CRM	PD	CREDIT FOR PA
INVOICE:12215584		CHECKDATE:05/13/2026								
192612		05/01/2026	AP344	181311	699.68	699.68	05/13/2026	INV	PD	PAPER SUPPLIE
INVOICE:12217987		CHECKDATE:05/13/2026								
					881.96					
3431 STEPHEN KILDOO										
192614		04/27/2026	AP344	181312	50.00	50.00	05/13/2026	INV	PD	PLANNING COMM
INVOICE:042026		CHECKDATE:05/13/2026								

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
7534 LAURIE SHEAHAN										
192615		05/01/2026	AP344	181313	380.80	380.80	05/13/2026	INV	PD	INSTRUCTOR PA
INVOICE:040126-043026		CHECKDATE:05/13/2026								
1804 LAWNMOWERS PLUS INC										
192635	26000068	04/22/2026	AP344	181314	146.63	146.63	05/13/2026	INV	PD	SERVICE
INVOICE:24967		CHECKDATE:05/13/2026								
192636		04/22/2026	AP344	181314	70.90	70.90	05/13/2026	INV	PD	SMALL EQUIPME
INVOICE:25046		CHECKDATE:05/13/2026								
192809	26000068	04/27/2026	AP344	181314	143.50	143.50	05/13/2026	INV	PD	SERVICE
INVOICE:25563		CHECKDATE:05/13/2026								
					361.03					
2076 LIFE-ASSIST, INC.										
192639	26000078	04/29/2026	AP344	181315	135.03	135.03	05/13/2026	INV	PD	MEDICATION AN
INVOICE:2112211		CHECKDATE:05/13/2026								
192640	26000078	05/04/2026	AP344	181315	304.57	304.57	05/13/2026	INV	PD	MEDICATION AN
INVOICE:2114609		CHECKDATE:05/13/2026								
192641	26000078	05/04/2026	AP344	181315	1,159.21	1,159.21	05/13/2026	INV	PD	MEDICATION AN
INVOICE:2114629		CHECKDATE:05/13/2026								
					1,598.81					
5697 DONALD R. LINCOLN										
192582		04/01/2026	AP344	181316	1,800.00	1,800.00	05/13/2026	INV	PD	PROFESSIONAL
INVOICE:040126		CHECKDATE:05/13/2026								
192583		05/01/2026	AP344	181316	3,672.00	3,672.00	05/13/2026	INV	PD	PROFESSIONAL
INVOICE:050126		CHECKDATE:05/13/2026								
					5,472.00					
7840 LINDSEY SMITH										
192642		04/27/2026	AP344	181317	50.00	50.00	05/13/2026	INV	PD	PLANNING COMM
INVOICE:042026		CHECKDATE:05/13/2026								
7070 LIONEL SAULSBERRY										
192643		04/27/2026	AP344	181318	100.00	100.00	05/13/2026	INV	PD	PLANNING COMM
INVOICE:042026		CHECKDATE:05/13/2026								
1783 MAR-CON PRODUCTS, INC.										
192645		04/22/2026	AP344	181319	794.17	794.17	05/13/2026	INV	PD	CONCRETE
INVOICE:62580		CHECKDATE:05/13/2026								
7407 MARCO INDUSTRIES, INC										
192644	26000113	04/21/2026	AP344	181320	1,335.65	1,335.65	05/13/2026	INV	PD	HEAVY EQUIPME
INVOICE:215768		CHECKDATE:05/13/2026								
7591 MARIE MARCINKO										

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
192646		04/27/2026	AP344	181321	50.00	50.00	05/13/2026	INV	PD	PLANNING COMM
INVOICE:042026		CHECKDATE:05/13/2026								
7326 MIKE BARNETT										
192548		04/27/2026	AP344	181322	50.00	50.00	05/13/2026	INV	PD	PLANNING COMM
INVOICE:042026		CHECKDATE:05/13/2026								
7901 MZEROA HOLDINGS, LLC										
192647	26000434	04/27/2026	AP344	181323	990.00	990.00	05/13/2026	INV	PD	UAS PART 107
INVOICE:588493		CHECKDATE:05/13/2026								
1490 NAPA AUTO PARTS										
192648		04/21/2026	AP344	181324	383.15	383.15	05/13/2026	INV	PD	HEAVY FIRE EQ
INVOICE:100499		CHECKDATE:05/13/2026								
192649		04/22/2026	AP344	181324	3.20	3.20	05/13/2026	INV	PD	HEAVY FIRE EQ
INVOICE:100540		CHECKDATE:05/13/2026								
192650		04/22/2026	AP344	181324	36.34	36.34	05/13/2026	INV	PD	HEAVY EQUIPME
INVOICE:100541		CHECKDATE:05/13/2026								
192651		04/22/2026	AP344	181324	163.70	163.70	05/13/2026	INV	PD	SMALL EQUIPME
INVOICE:100562		CHECKDATE:05/13/2026								
192652		04/23/2026	AP344	181324	15.24	15.24	05/13/2026	INV	PD	SMALL EQUIPME
INVOICE:100652		CHECKDATE:05/13/2026								
192653		04/27/2026	AP344	181324	134.28	134.28	05/13/2026	INV	PD	HEAVY FIRE EQ
INVOICE:101060		CHECKDATE:05/13/2026								
192656		04/27/2026	AP344	181324	86.01	86.01	05/13/2026	INV	PD	HEAVY EQUIPME
INVOICE:101091		CHECKDATE:05/13/2026								
192654		04/28/2026	AP344	181324	138.61	138.61	05/13/2026	INV	PD	BUILDING MATE
INVOICE:101133		CHECKDATE:05/13/2026								
192655		04/28/2026	AP344	181324	34.06	34.06	05/13/2026	INV	PD	EXPENDABLE MA
INVOICE:101141		CHECKDATE:05/13/2026								
192657		04/29/2026	AP344	181324	39.45	39.45	05/13/2026	INV	PD	EXPENDABLE MA
INVOICE:101275		CHECKDATE:05/13/2026								
192658		04/30/2026	AP344	181324	68.34	68.34	05/13/2026	INV	PD	HEAVY FIRE EQ
INVOICE:101425		CHECKDATE:05/13/2026								
192659		04/30/2026	AP344	181324	5.08	5.08	05/13/2026	INV	PD	SMALL EQUIPME
INVOICE:101450		CHECKDATE:05/13/2026								
192660		04/30/2026	AP344	181324	-36.00	-36.00	05/13/2026	CRM	PD	CREDIT FOR IN
INVOICE:101473		CHECKDATE:05/13/2026								
192661		05/01/2026	AP344	181324	27.06	27.06	05/13/2026	INV	PD	EXPENDABLE MA
INVOICE:101501		CHECKDATE:05/13/2026								
192662		05/04/2026	AP344	181324	336.93	336.93	05/13/2026	INV	PD	HEAVY FIRE EQ
INVOICE:101754		CHECKDATE:05/13/2026								
192663		05/04/2026	AP344	181324	11.31	11.31	05/13/2026	INV	PD	HEAVY EQUIPME
INVOICE:101770		CHECKDATE:05/13/2026								
					1,446.76					
3430 KEVIN NORRIS										
192613		04/27/2026	AP344	181325	50.00	50.00	05/13/2026	INV	PD	PLANNING COMM
INVOICE:042026		CHECKDATE:05/13/2026								
7349 OC INTERPRETING AGENCY										

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
192664		04/30/2026	AP344	181326	320.00	320.00	05/13/2026	INV	PD	TRANSLATION S
INVOICE:166878		CHECKDATE:05/13/2026								
192665		04/30/2026	AP344	181326	320.00	320.00	05/13/2026	INV	PD	TRANSLATION S
INVOICE:166880		CHECKDATE:05/13/2026								
					640.00					
5288 OPEN AIR CINEMA, LLC										
192666	26000448	04/22/2026	AP344	181327	1,750.00	1,750.00	05/13/2026	INV	PD	INFLATABLE PR
INVOICE:OAC20260422-SCRN-RPR		CHECKDATE:05/13/2026								
2097 PACIFIC PIPELINE SUPPLY										
192667		04/07/2026	AP344	181328	634.62	634.62	05/13/2026	INV	PD	IRRIGATION PA
INVOICE:S100487357.001		CHECKDATE:05/13/2026								
192668		05/01/2026	AP344	181328	128.46	128.46	05/13/2026	INV	PD	WATER WELL PU
INVOICE:S100488403.001		CHECKDATE:05/13/2026								
					763.08					
7259 PARKWOOD LANDSCAPE MAINTENANCE, INC.										
192669		04/30/2026	AP344	181329	27,194.26	27,194.26	05/13/2026	INV	PD	LANDSCAPE MAI
INVOICE:111141		CHECKDATE:05/13/2026								
6791 PEGGY LAWSON										
192638		05/01/2026	AP344	181330	235.90	235.90	05/13/2026	INV	PD	INSTRUCTOR PA
INVOICE:040126-043026		CHECKDATE:05/13/2026								
1664 PINPOINT PEST CONTROL										
192670		03/27/2026	AP344	181331	165.00	165.00	05/13/2026	INV	PD	BEE REMOVAL
INVOICE:999061		CHECKDATE:05/13/2026								
6464 PACIFIC INSURANCE NETWORK SYSTEMS, INC										
192671		04/30/2026	AP344	181332	600.00	600.00	05/13/2026	INV	PD	SOFTWARE LICE
INVOICE:3602		CHECKDATE:05/13/2026								
2735 PWLC I, INC.										
192679		12/12/2025	AP344	181333	93.00	93.00	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67454		CHECKDATE:05/13/2026								
192680		12/12/2025	AP344	181333	525.00	525.00	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67455		CHECKDATE:05/13/2026								
192681		12/12/2025	AP344	181333	440.00	440.00	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67456		CHECKDATE:05/13/2026								
192682		12/12/2025	AP344	181333	574.52	574.52	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67458		CHECKDATE:05/13/2026								
192683		12/12/2025	AP344	181333	70.38	70.38	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67459		CHECKDATE:05/13/2026								
192684		12/12/2025	AP344	181333	194.64	194.64	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67460		CHECKDATE:05/13/2026								
192685		12/12/2025	AP344	181333	247.60	247.60	05/13/2026	INV	PD	EXTRA WORK

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
INVOICE:67461		CHECKDATE:05/13/2026								
192686		12/12/2025	AP344	181333	20.53	20.53	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67462		CHECKDATE:05/13/2026								
192687		03/26/2026	AP344	181333	66.83	66.83	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67841		CHECKDATE:05/13/2026								
192688		03/26/2026	AP344	181333	29.90	29.90	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67842		CHECKDATE:05/13/2026								
192689		03/26/2026	AP344	181333	87.28	87.28	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67843		CHECKDATE:05/13/2026								
192690		03/26/2026	AP344	181333	47.56	47.56	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67844		CHECKDATE:05/13/2026								
192691		03/26/2026	AP344	181333	13.25	13.25	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67845		CHECKDATE:05/13/2026								
192692		03/26/2026	AP344	181333	87.67	87.67	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67846		CHECKDATE:05/13/2026								
192693		03/26/2026	AP344	181333	21.47	21.47	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67847		CHECKDATE:05/13/2026								
192694		03/26/2026	AP344	181333	112.86	112.86	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67848		CHECKDATE:05/13/2026								
192695		04/15/2026	AP344	181333	150.66	150.66	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67953		CHECKDATE:05/13/2026								
192696		04/15/2026	AP344	181333	114.99	114.99	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67954		CHECKDATE:05/13/2026								
192697		04/15/2026	AP344	181333	341.49	341.49	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67955		CHECKDATE:05/13/2026								
192698		04/15/2026	AP344	181333	105.98	105.98	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67956		CHECKDATE:05/13/2026								
192699		04/15/2026	AP344	181333	95.25	95.25	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67957		CHECKDATE:05/13/2026								
192700		04/15/2026	AP344	181333	440.00	440.00	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67958		CHECKDATE:05/13/2026								
192701		04/15/2026	AP344	181333	672.00	672.00	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67959		CHECKDATE:05/13/2026								
192702		04/23/2026	AP344	181333	102.82	102.82	05/13/2026	INV	PD	EXTRA WORK
INVOICE:67976		CHECKDATE:05/13/2026								
192703		04/30/2026	AP344	181333	95.71	95.71	05/13/2026	INV	PD	EXTRA WORK
INVOICE:68028		CHECKDATE:05/13/2026								
192704		04/30/2026	AP344	181333	28.09	28.09	05/13/2026	INV	PD	EXTRA WORK
INVOICE:68029		CHECKDATE:05/13/2026								
192705		04/30/2026	AP344	181333	400.92	400.92	05/13/2026	INV	PD	EXTRA WORK
INVOICE:68030		CHECKDATE:05/13/2026								
192706		04/30/2026	AP344	181333	232.27	232.27	05/13/2026	INV	PD	EXTRA WORK
INVOICE:68031		CHECKDATE:05/13/2026								
192707		04/30/2026	AP344	181333	48.74	48.74	05/13/2026	INV	PD	EXTRA WORK
INVOICE:68032		CHECKDATE:05/13/2026								
192709		04/30/2026	AP344	181333	126.09	126.09	05/13/2026	INV	PD	EXTRA WORK
INVOICE:68033		CHECKDATE:05/13/2026								
192710		04/30/2026	AP344	181333	387.76	387.76	05/13/2026	INV	PD	EXTRA WORK
INVOICE:68034		CHECKDATE:05/13/2026								
192711		04/30/2026	AP344	181333	42.61	42.61	05/13/2026	INV	PD	EXTRA WORK
INVOICE:68035		CHECKDATE:05/13/2026								
192712		04/30/2026	AP344	181333	268.00	268.00	05/13/2026	INV	PD	EXTRA WORK
INVOICE:68036		CHECKDATE:05/13/2026								
192713		04/30/2026	AP344	181333	246.30	246.30	05/13/2026	INV	PD	EXTRA WORK
INVOICE:68037		CHECKDATE:05/13/2026								

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
192714		04/30/2026	AP344	181333	45.82	45.82	05/13/2026	INV	PD	EXTRA WORK
INVOICE:68038		CHECKDATE:05/13/2026								
192715		04/30/2026	AP344	181333	36.35	36.35	05/13/2026	INV	PD	EXTRA WORK
INVOICE:68039		CHECKDATE:05/13/2026								
192716		04/30/2026	AP344	181333	947.33	947.33	05/13/2026	INV	PD	EXTRA WORK
INVOICE:68040		CHECKDATE:05/13/2026								
192717		05/04/2026	AP344	181333	92,526.04	92,526.04	05/13/2026	INV	PD	LAND MAINT SV
INVOICE:68084		CHECKDATE:05/13/2026								
192718		05/04/2026	AP344	181333	108,904.92	108,904.92	05/13/2026	INV	PD	LAND MAINT SV
INVOICE:68085		CHECKDATE:05/13/2026								
					208,992.63					
6860 PYRO SPECTACULARS, INC										
192767		05/07/2026	AP344	181334	23,550.00	23,550.00	05/13/2026	INV	PD	FIREWORKS DIS
INVOICE:INV430274		CHECKDATE:05/13/2026								
7045 REGIONAL GOVERNMENT SERVICES AUTHORITY										
192678		03/31/2026	AP344	181335	8,124.10	8,124.10	05/13/2026	INV	PD	PROFESSIONAL
INVOICE:21066		CHECKDATE:05/13/2026								
4248 RICOH USA, INC.										
192722		04/27/2026	AP344	181336	2,442.38	2,442.38	05/13/2026	INV	PD	ACCT 4478340:
INVOICE:5073138917		CHECKDATE:05/13/2026								
1718 RINCON DEL DIABLO MUNICIPAL WATER DISTRICT										
192723		04/29/2026	AP344	181337	1,357.52	1,357.52	05/13/2026	INV	PD	ACCT 20-6320-
INVOICE:192723		CHECKDATE:05/13/2026								
7649 ROTH STAFFING COMPANIES, LP										
192724		05/01/2026	AP344	181338	925.98	925.98	05/13/2026	INV	PD	TEMP STAFFING
INVOICE:16391365		CHECKDATE:05/13/2026								
192725		05/01/2026	AP344	181338	1,333.00	1,333.00	05/13/2026	INV	PD	TEMP STAFFING
INVOICE:16391366		CHECKDATE:05/13/2026								
192726		05/01/2026	AP344	181338	3,199.35	3,199.35	05/13/2026	INV	PD	TEMP STAFFING
INVOICE:16391367		CHECKDATE:05/13/2026								
192727		05/01/2026	AP344	181338	1,879.20	1,879.20	05/13/2026	INV	PD	TEMP STAFFING
INVOICE:16391368		CHECKDATE:05/13/2026								
192728		05/01/2026	AP344	181338	301.00	301.00	05/13/2026	INV	PD	TEMP STAFFING
INVOICE:16391369		CHECKDATE:05/13/2026								
192729		05/01/2026	AP344	181338	863.91	863.91	05/13/2026	INV	PD	TEMP STAFFING
INVOICE:16391370		CHECKDATE:05/13/2026								
192730		05/01/2026	AP344	181338	964.56	964.56	05/13/2026	INV	PD	TEMP STAFFING
INVOICE:16391371		CHECKDATE:05/13/2026								
192731		05/01/2026	AP344	181338	972.00	972.00	05/13/2026	INV	PD	TEMP STAFFING
INVOICE:16391372		CHECKDATE:05/13/2026								
192732		05/01/2026	AP344	181338	972.00	972.00	05/13/2026	INV	PD	TEMP STAFFING
INVOICE:16391373		CHECKDATE:05/13/2026								
192733		05/01/2026	AP344	181338	1,274.52	1,274.52	05/13/2026	INV	PD	TEMP STAFFING
INVOICE:16391374		CHECKDATE:05/13/2026								
192734		05/01/2026	AP344	181338	1,146.81	1,146.81	05/13/2026	INV	PD	TEMP STAFFING

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
INVOICE:16391375		CHECKDATE:05/13/2026								
192735		05/01/2026	AP344	181338	5,504.00	5,504.00	05/13/2026	INV	PD	TEMP STAFFING
INVOICE:16391376		CHECKDATE:05/13/2026								
					19,336.33					
4738 RUTAN & TUCKER, LLP										
192736		04/24/2026	AP344	181339	21,325.50	21,325.50	05/13/2026	INV	PD	WAVE ENA SVCS
INVOICE:1062549		CHECKDATE:05/13/2026								
1880 CITY OF SAN DIEGO										
192573		04/29/2026	AP344	181340	395.00	395.00	05/13/2026	INV	PD	PROJECT HEART
INVOICE:1000449060		CHECKDATE:05/13/2026								
3929 SAN DIEGO HUMANE SOCIETY AND SPCA										
192738		05/01/2026	AP344	181341	53,873.00	53,873.00	05/13/2026	INV	PD	ANIMAL CONTRO
INVOICE:AC-MAY26		CHECKDATE:05/13/2026								
1756 SAN DIEGO GAS & ELECTRIC										
192739		04/16/2026	AP344	181342	13.52	13.52	05/13/2026	INV	PD	ACCT 21000149
INVOICE:192739		CHECKDATE:05/13/2026								
192740		04/22/2026	AP344	181342	110.17	110.17	05/13/2026	INV	PD	ACCT 21000200
INVOICE:192740		CHECKDATE:05/13/2026								
					123.69					
6297 MEISTER SEALCOAT & SUPPLIES, LLC										
192741		04/28/2026	AP344	181343	541.53	541.53	05/13/2026	INV	PD	CONSTRUCTION
INVOICE:92408		CHECKDATE:05/13/2026								
192742		04/30/2026	AP344	181343	32.33	32.33	05/13/2026	INV	PD	CONSTRUCTION
INVOICE:92619		CHECKDATE:05/13/2026								
					573.86					
7918 SHANE SIKES										
192744		04/29/2026	AP344	181344	2,000.00	2,000.00	05/13/2026	INV	PD	PARK USE DEPO
INVOICE:R077923		CHECKDATE:05/13/2026								
2448 SAN MARCOS CHAMBER OF COMMERCE										
192737		04/29/2026	AP344	181345	389.37	389.37	05/13/2026	INV	PD	2026 SPRING F
INVOICE:390663		CHECKDATE:05/13/2026								
1199 SM MISC EMPLOYEES ASSOC.										
192751		04/24/2026	AP344	181346	969.00	969.00	05/13/2026	INV	PD	PR EMP DUES -
INVOICE:042426		CHECKDATE:05/13/2026								
1201 SAN MARCOS SUPERVISORS ASSOC.										
192752		04/24/2026	AP344	181347	315.00	315.00	05/13/2026	INV	PD	PR EMP DUES:
INVOICE:042426		CHECKDATE:05/13/2026								

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
1848 SMART & FINAL										
192753		05/01/2026	AP344	181348	2,293.90	2,293.90	05/13/2026	INV	PD	ACCT 360383:
INVOICE:050126		CHECKDATE:05/13/2026								
1545 STAPLES BUSINESS ADVANTAGE										
192757	26000026	04/18/2026	AP344	181349	6.50	6.50	05/13/2026	INV	PD	PAPER SUPPLIE
INVOICE:6061361986		CHECKDATE:05/13/2026								
192758	26000026	04/18/2026	AP344	181349	181.59	181.59	05/13/2026	INV	PD	OFFICE SUPPLI
INVOICE:6061361987		CHECKDATE:05/13/2026								
192754	26000026	05/02/2026	AP344	181349	249.80	249.80	05/13/2026	INV	PD	OFFICE SUPPLI
INVOICE:6062963106		CHECKDATE:05/13/2026								
192755	26000026	05/02/2026	AP344	181349	247.83	247.83	05/13/2026	INV	PD	PAPER SUPPLIE
INVOICE:6062963107		CHECKDATE:05/13/2026								
192756	26000026	05/02/2026	AP344	181349	42.74	42.74	05/13/2026	INV	PD	PAPER SUPPLIE
INVOICE:6062963108		CHECKDATE:05/13/2026								
					728.46					
7895 SWEETWATER SOUND HOLDINGS, LLC										
192759	26000406	04/30/2026	AP344	181350	4,993.73	4,993.73	05/13/2026	INV	PD	SUMMER CONCER
INVOICE:50102652		CHECKDATE:05/13/2026								
6728 T-MOBILE USA INC.										
192760		04/21/2026	AP344	181351	740.46	740.46	05/13/2026	INV	PD	ACCT 98244974
INVOICE:042126		CHECKDATE:05/13/2026								
4169 TURF STAR INC										
192775	26000299	04/03/2026	AP344	181352	27,423.94	27,423.94	05/13/2026	INV	PD	2 PARKS AERAT
INVOICE:E0007335		CHECKDATE:05/13/2026								
192776		04/06/2026	AP344	181352	705.94	705.94	05/13/2026	INV	PD	SERVICE
INVOICE:INV146713		CHECKDATE:05/13/2026								
192777		04/17/2026	AP344	181352	2,661.47	2,661.47	05/13/2026	INV	PD	SERVICE
INVOICE:INV149157		CHECKDATE:05/13/2026								
					30,791.35					
4240 URBAN VILLAGES SAN MARCOS, LLC										
192768		05/11/2026	AP344	181353	66,077.49	66,077.49	05/13/2026	INV	PD	UVSM CFD FUND
INVOICE:051126		CHECKDATE:05/13/2026								
2872 U.S. BANK										
192780		04/24/2026	AP344	181354	5,222.24	5,222.24	05/13/2026	INV	PD	PARS: 4/10/26
INVOICE:042426		CHECKDATE:05/13/2026								
5407 US BANK CORPORATE PAYMENT SYSTEMS										
192811		03/25/2026	AP344	181355	2,033.29	2,033.29	05/13/2026	INV	PD	ACCT ENDING 5
INVOICE:192811		CHECKDATE:05/13/2026								

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
7687 VERTOSOFT LLC										
192782		04/29/2026	AP344	181356	922.11	922.11	05/13/2026	INV	PD	PROFESSIONAL
INVOICE:INV11978		CHECKDATE:05/13/2026								
7044 VILLA CIVIL, APC										
192769		04/07/2026	AP344	181357	2,360.00	2,360.00	05/13/2026	INV	PD	ON CALL ENG S
INVOICE:24-044.19		CHECKDATE:05/13/2026								
192770		03/06/2026	AP344	181357	10,350.00	10,350.00	05/13/2026	INV	PD	ON CALL ENG S
INVOICE:26-003.01		CHECKDATE:05/13/2026								
192771		04/03/2026	AP344	181357	22,759.50	22,759.50	05/13/2026	INV	PD	ON CALL ENG S
INVOICE:26-003.02		CHECKDATE:05/13/2026								
					35,469.50					
1764 VISTA IRRIGATION DISTRICT										
192783		05/01/2026	AP344	181358	1,944.23	1,944.23	05/13/2026	INV	PD	ACCT 9903-045
INVOICE:192783		CHECKDATE:05/13/2026								
192784		05/01/2026	AP344	181358	2,515.66	2,515.66	05/13/2026	INV	PD	ACCT 9908-042
INVOICE:192784		CHECKDATE:05/13/2026								
					4,459.89					
1474 VSP										
192787		05/03/2026	AP344	181359	1,126.79	1,126.79	05/13/2026	INV	PD	VOL VISION (A
INVOICE:825167635		CHECKDATE:05/13/2026								
192785		05/03/2026	AP344	181359	107.03	107.03	05/13/2026	INV	PD	VOL VISION (R
INVOICE:825169399		CHECKDATE:05/13/2026								
192786		05/03/2026	AP344	181359	1,195.82	1,195.82	05/13/2026	INV	PD	VOL VISION (A
INVOICE:825169405		CHECKDATE:05/13/2026								
					2,429.64					
3070 WEST COAST ARBORISTS, INC.										
192792		04/13/2026	AP344	181360	4,140.00	4,140.00	05/13/2026	INV	PD	TREE WORK: UN
INVOICE:242762		CHECKDATE:05/13/2026								
192798		04/13/2026	AP344	181360	33,120.00	33,120.00	05/13/2026	INV	PD	TREE WORK: DI
INVOICE:242763		CHECKDATE:05/13/2026								
192793		04/03/2026	AP344	181360	14,628.00	14,628.00	05/13/2026	INV	PD	TREE WORK: SM
INVOICE:242766		CHECKDATE:05/13/2026								
192794		04/23/2026	AP344	181360	2,760.00	2,760.00	05/13/2026	INV	PD	TREE WORK: DI
INVOICE:242815		CHECKDATE:05/13/2026								
192795		04/23/2026	AP344	181360	2,760.00	2,760.00	05/13/2026	INV	PD	TREE WORK
INVOICE:242818		CHECKDATE:05/13/2026								
192799		04/23/2026	AP344	181360	1,104.00	1,104.00	05/13/2026	INV	PD	TREE WORK: SM
INVOICE:242825		CHECKDATE:05/13/2026								
192796		04/23/2026	AP344	181360	8,280.00	8,280.00	05/13/2026	INV	PD	TREE WORK: AR
INVOICE:242834		CHECKDATE:05/13/2026								
192797		04/15/2026	AP344	181360	8,280.00	8,280.00	05/13/2026	INV	PD	TREE WORK: SA
INVOICE:242888		CHECKDATE:05/13/2026								
192800		05/01/2026	AP344	181360	1,656.00	1,656.00	05/13/2026	INV	PD	TREE WORK: LI
INVOICE:243229		CHECKDATE:05/13/2026								
192801		05/01/2026	AP344	181360	1,380.00	1,380.00	05/13/2026	INV	PD	TREE WORK: UN
INVOICE:243230		CHECKDATE:05/13/2026								

CITY OF SAN MARCOS

VENDOR INVOICE LIST

DOCUMENT	P.O.	INV DATE	CHECK RUN	CHECK #	INVOICE NET	PAID AMOUNT	DUE DATE	TYPE	STS	DESCR
					78,108.00					
1988 WESTAIR GAS & EQUIPMENT										
192802		04/29/2026	AP344	181361	125.38	125.38	05/13/2026	INV	PD	MEDICAL BILLA
INVOICE:0012219115		CHECKDATE:05/13/2026								
192803		04/29/2026	AP344	181361	207.52	207.52	05/13/2026	INV	PD	MEDICAL BILLA
INVOICE:0012219127		CHECKDATE:05/13/2026								
					332.90					
6886 WHITE CAP SUPPLY HOLDINGS II, LLC										
192804		04/21/2026	AP344	181362	82.40	82.40	05/13/2026	INV	PD	BUILDING MATE
INVOICE:50036478772		CHECKDATE:05/13/2026								
1677 WITTMAN ENTERPRISES, LLC										
192805		04/30/2026	AP344	181363	12,840.00	12,840.00	05/13/2026	INV	PD	EMS BILLING S
INVOICE:WITT-000427		CHECKDATE:05/13/2026								
507 INVOICES					4,079,007.55					

** END OF REPORT - Generated by Norris, Danielle **

CITY OF SAN MARCOS
APPROVED BY: Ryan Rector

Digitally signed by Ryan Rector
Date: 2026.05.18 07:56:50 -07'00'

File #:26-2874

MEETING DATE:
May 26, 2026

SUBJECT:

RESOLUTION NO. 2026-9592 - EXPENDITURE OF FUNDS PURSUANT TO COMPENSATION AND REIMBURSEMENT POLICY, EVENT TICKET APPROVAL

Recommendation
ADOPT a resolution approving the expenditure of funds for attendance at events which are in furtherance of a public purpose.

Relevant Council Strategic Theme
Planning for the Future
Good Governance

Introduction
Pursuant to the City of San Marcos Compensation and Reimbursement Policy ("Policy"), City Council Members may receive reimbursement for, or payment of, expenses incurred while performing official duties. Section D of the Policy describes the types of official duties for which reimbursement or payment is authorized which have been determined to be in furtherance of a public purpose in accordance with California Code of Regulations Title 2, §18944.1.

Discussion
The following events are presented for a determination to the effect that attendance would constitute official duties in furtherance of a public purpose, and otherwise meets Policy requirements for City Council approval for distribution of tickets to:

- Mayor Jones and City Manager Michelle Bender to attend the San Diego Regional Chamber of Commerce Congressional Luncheon

Attendance is deemed to support good governance by fostering and enhancing relations with 501(c)(3) and 501(c)(4) entities.

Environmental Review

The proposed action does not constitute a "project" as defined under Section 15378 of the California Environmental Quality Act Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000 - 15387), and is therefore not subject to environmental review pursuant to Guidelines Section 15060(c)

(3).

Fiscal Impact

The fiscal impact to the approved Fiscal Year 2025-26 General Fund (Fund 100) budget would be as follows:

- San Diego Regional Chamber of Commerce Congressional Luncheon. - $175 per ticket

Attachments

802 Ticket Resolution
San Diego Regional Chamber of Commerce Congressional Luncheon 802 Form

Prepared by: Michael Lieberman, Legislative Analyst
Reviewed by: Phil Scollick, City Clerk/Director of Legislative Affairs
Approved by: Michelle Bender, City Manager

RESOLUTION NO. 2026-xxxx

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS, CALIFORNIA, APPROVING THE EXPENDITURE OF FUNDS FOR EVENT TICKETS PURSUANT TO THE COMPENSATION AND REIMBURSEMENT POLICY

WHEREAS, the Compensation and Reimbursement Policy ("Policy") of the City of San Marcos ("City") provides that the City Council may approve payment for or reimbursement of expenses of officials for the performance of official duties; and

WHEREAS, the City Council has reviewed the events listed below for compliance with the regulations and the Policy, and hereby finds that said events are in compliance therewith.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of San Marcos finds that the attendance of Mayor Jones and City Manager Michelle Bender at the San Diego Regional Chamber of Commerce's Congressional Luncheon; are within the requirements of the policy and regulations, and costs associated with such attendance are hereby approved for payment by the City, inasmuch as attendance is deemed to support and enhance relations with 501(c)(3) and 501(c)(4) entities, and involves significant regional benefit and public purpose.

PASSED, APPROVED AND ADOPTED by the City Council of the City of San Marcos at a regular meeting thereof, this 26th day of May, 2026, by the following roll call vote:

AYES: COUNCILMEMBERS:

NOES: COUNCILMEMBERS:

ABSENT: COUNCILMEMBERS:

Rebecca D. Jones, Mayor City of San Marcos

ATTEST:

Phillip Scollick, City Clerk City of San Marcos

Agency Report of:
Ceremonial Role Events and Ticket/Pass Distributions

A Public Document

1. Agency Name

CITY OF SAN MARCOS

Division, Department, or Region *(If Applicable)*

CITY CLERK DEPARTMENT

Designated Agency Contact *(Name, Title)*

PHIL SCOLLICK, CITY CLERK

Area Code/Phone Number	**E-mail**
(760) 744-1050	PSCOLLICK@SAN-MARCOS.NET

Date Stamp

California Form 802

For Official Use Only

☐ **Amendment** *(Must provide explanation in Part 3.)*

Date of Original Filing: _____ *(Month, Day, Year)*

2. Function or Event Information

Does the agency have a ticket policy? Yes ☒ No ☐

Face Value of Each Ticket/Pass: $175.00

Event Description: SDRC Congressional Luncheon *(Provide Title/Explanation)*

$ Date(s): 06 / 15 / 26 ____/____/____

Ticket(s)/Pass(es) provided by agency? Yes ☒ No ☐

If no: _____ *(Name of Source)*

Was ticket distribution made at the behest of agency official? No ☒ Yes ☐

If yes: _____ *(Official's Name (Last, First))*

3. Recipients

• **Use Section A to identify the agency's department or unit.** • **Use Section B to identify an individual.** • **Use Section C to identify an outside organization.**

A. Name of Agency, Department or Unit	Number of Ticket(s)/ Pass(es)	Describe the public purpose made pursuant to the agency's policy

B. Name of Individual *(Last, First)*	Number of Ticket(s)/ Pass(es)	Identify one of the following:
Jones, Rebecca/Bender, Michelle	1	Ceremonial Role ☐ Other ☒ Income ☐ *If checking "Ceremonial Role" or "Other" describe below:* PUBLIC PURPOSE FOR INTERGOVERNMENTAL RELATIONS
		Ceremonial Role ☐ Other ☐ Income ☐ *If checking "Ceremonial Role" or "Other" describe below:*

C. Name of Outside Organization (include address and description)	Number of Ticket(s)/ Pass(es)	Describe the public purpose made pursuant to the agency's policy

4. Verification

I have read and understand FPPC Regulations 18944.1 and 18942. I have verified that the distribution set forth above, is in accordance with the requirements.

Signature of Agency Head or Designee	MICHELLE BENDER *Print Name*	CITY MANAGER *Title*	*(Month, Day, Year)*

Comment: _____

Agency Report of:
Ceremonial Role Events and Ticket/Pass Distributions

California Form 802

A Public Document

This form is for use by all state and local government agencies. The form identifies persons that receive admission tickets and passes and describes the public purpose for the distribution. This form was prepared by the Fair Political Practices Commission (FPPC) and is available at www.fppc.ca.gov.

General Information

FPPC Regulation 18944.1 sets out the circumstances under which an agency's distribution of tickets to entertainment events, sporting events, and like occasions would not result in a gift to individuals that attend the function. In general, the agency must adopt a policy which identifies the public purpose served in distributing the admissions. The Form 802 serves to detail each event and the public purpose of each ticket distribution. FPPC Regulation 18942 lists exceptions to reportable gifts, including ceremonial events, when listed on this form.

When the regulation procedures are followed, persons, organizations, or agencies who receive admissions are listed on a Form 802. Agency officials do not report the admissions on the official's Statement of Economic Interests, Form 700, and the value of the admission is not subject to the gift limit.

The Form 802 also informs the public as to whether the admissions were made at the behest of an agency official and whether the behested tickets were provided to an organization or to specific individuals.

Exception

This form is not required for admission provided to a school or university district official, coach, athletic director, or employee to attend an amateur event performed by students of that school or university.

Public Posting

This form must be maintained as a public document. A copy of all forms must be forwarded to the FPPC for posting on its website. E-mail delivery is preferred. E-mail: Form802@fppc.ca.gov; Fax: 916.322.0886; 428 J Street, Suite 620, Sacramento, CA 95814.

Forms must be sent to the FPPC as soon as possible. General business practice is no later than 45 days from the distribution.

A local agency may also also post the forms on its wesbite, but it is not required to do so.

Privacy Information Notice

Information requested by the FPPC is used to administer and enforce the Political Reform Act. Failure to provide information may be a violation subject to administrative, criminal, or civil penalties. All reports are public records available for inspection and reproduction. Direct questions to FPPC's General Counsel.

Instructions

Part 1. Agency Identification:

List the agency's name. Provide a designated agency contact person, their phone number, and e-mail address. Mark the amendment box if changing any information on a previously filed form and include the date of the original filing.

Part 2. Function or Event Information:

Confirm that your agency has a policy for ticket distribution. Unless the the ceremonial role or income box in Part 3, Section B, is marked, this form is only applicable if your agency has a policy.

Complete all of the other required fields that identify the ticket value, description of event, date(s) and whether the ticket was provided by the agency or an outside source. If an agency official behests the tickets, the official's name is also required. Use the comment field or an attachment to explain in full.

Part 3. Ticket Recipients:

This part identifies who uses the tickets. The identification requirements vary depending upon who received the tickets and are categorized into three sections. Each section must list the number of tickets received. Use the comment field or an attachment to explain in full.

Section A. Report tickets distributed to agency staff, other than an elected official or governing board member, pursuant to the agency's policy. It is not necessary to list each employee's name, but identify the unit/department for which the employee works. The agency must describe the public purpose associated with the ticket distribution. A reference to the policy is permissible.

Section B. Report: 1) any agency official who performs a ceremonial role; 2) any agency official who reports the value as income; or 3) tickets used by elected officals and governing board members (including those distributed pursuant to the agency's policy).

Section C. Report tickets provided to an organization. The organization's name, an address (website url is permissible), and a brief description of the public purpose are required.

Agency Report of:
Ceremonial Role Events and Ticket/Pass Distributions
Continuation Sheet

California Form 802

A Public Document

Agency Name

CITY OF SAN MARCOS

3. Recipients

● **Use Section A to identify the agency's department or unit.** ● **Use Section B to identify an individual.** ● **Use Section C to identify an outside organization.**

A. Name of Agency, Department or Unit	Number of Ticket(s)/ Pass(es)	Describe the public purpose made pursuant to the agency's policy

B. Name of Individual *(Last, First)*	Number of Ticket(s)/ Pass(es)	Identify one of the following:
	1	Ceremonial Role ☐ Other ☐ Income ☐ *If checking "Ceremonial Role" or "Other" describe below:*
	1	Ceremonial Role ☐ Other ☐ Income ☐ *If checking "Ceremonial Role" or "Other" describe below:*
	1	Ceremonial Role ☐ Other ☐ Income ☐ *If checking "Ceremonial Role" or "Other" describe below:*
		Ceremonial Role ☐ Other ☐ Income ☐ *If checking "Ceremonial Role" or "Other" describe below:*

C. Name of Outside Organization (include address and description)	Number of Ticket(s)/ Pass(es)	Describe the public purpose made pursuant to the agency's policy

File #:26-2875

MEETING DATE:
May 26, 2026

SUBJECT:

RESOLUTION NO. 2026-9593 - ADOPTING POSITIONS ON LEGISLATION UNDER CONSIDERATION PURSUANT TO THE LEGISLATIVE PLATFORM

Recommendation
ADOPT a resolution taking a position on pending legislation in the California State Legislature that may have local impacts.

Board or Commission Action
Not Applicable

Introduction
The City Council adopted the 2026 Legislative Platform to guide the consideration of state and federal bills that affect City operations. Legislators introduced approximately 1800 bills. Staff, lobbyist consultants and Cal Cities continue to review this new legislation. The deadline for fiscal committees to hear bills introduced in the first house was May 15, 2026. 2026 is also an election year, and the final year in Governor Newsom's term.

Discussion
This report provides updates on early legislation of concern in the second year of this legislative session. Staff continue to monitor these bills, and others as the legislative session continues. They will also collaborate with Cal Cities and our lobbyist teams on future City Council consideration for official positions on bills working their way through the legislative process.

The following bills best align with the City's state legislative priorities, and staff believe that they would have a possible impact on the city.

Bill No.	Author	Title	Position
AB 2517	Calderon	Fire safety: fire hazard severity zones.	Support

Environmental Review

The proposed action does not constitute a "project" as defined under Section 15378 of the California Environmental Quality Act Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000 - 15387), and is therefore not subject to environmental review pursuant to Guidelines Section 15060(c)

(3).

Fiscal Impact
There is no direct fiscal impact associated with adopting the proposed resolution. Unknown fiscal impacts are associated with the bills noted in Attachment A. A more thorough analysis of each bill's implementation requirements is needed to demonstrate total fiscal impact.

Attachments
Attachment A: Resolution
Attachment B: AB 2517 Support Letter

Prepared by: Michael Lieberman, Legislative Analyst
Reviewed by: Phil Scollick, City Clerk/Director of Legislative Affairs
Approved by: Michelle Bender, City Manager

SAN MARCOS
DISCOVER LIFE'S POSSIBILITIES

City Council
CityHall@sanmarcosca.gov

May 26, 2026

The Honorable Buffy Wicks
Chair, Assembly Appropriations Committee
1021 O Street, Suite 8220
Sacramento, CA 95814

RE: **AB 2517 (Calderon) Fire safety: Fire hazard severity zones - SUPPORT**

Dear Chair Wicks,

The City of San Marcos is pleased to support AB 2517 (Calderon), which would improve the Fire Hazard Severity Zone (FHSZ) designation process conducted by the Office of the State Fire Marshal by ensuring consistent and timely updates to the local responsibility area FHSZ maps and establishing a more transparent, publicly accessible process at the state level for developing and releasing these designations, which ultimately inform wildfire mitigation efforts to reduce fire risk.

The threat of wildfires are of growing concern across California, as communities have witnessed the increase in frequency and severity of catastrophic wildfires in the past decade. Under current law, fire hazard severity zone designations are released by the Office of the State Fire Marshal and applied in both the state and local responsibility areas to provide the state's best available science of environmental conditions, such as slope, vegetation, and wind patterns, that can spread a wildfire.

The local responsibility area (LRA) FHSZ designations are only required to be periodically re-reviewed every five years and existing statute does not require comprehensive updates to the designations. Prior to the most recent release in 2025, the LRA FHSZ maps had not been updated over the past 15 years. Important concerns were raised last year when the maps were updated, including the accuracy of land use information, including split parcels with multiple designations and the classification of developed areas such as parking lots and bodies of water being designated as very high fire hazard severity zones. These issues create challenges for local jurisdictions who are required to adopt these maps by ordinance and host public comment locally without the ability to respond to the public concerns regarding the model and data.

AB 2517 would address these concerns by clarifying how and when the LRA FHSZ maps are updated, including how stakeholders can engage meaningfully in the process. The bill would establish a five-year update cycle for the LRA FHSZ maps, a preliminary public release of the maps, require the disclosure of the data, models, and methodology used to develop the designations, and provide opportunities for local agencies and stakeholders to engage with OSFM before maps are transmitted locally for local ordinance adoption. These steps are critical to ensuring public transparency and consistency in how these maps are updated to help protect communities from the threat of wildfires.

For these reasons, the City of San Marcos supports **AB 2517**.

Sincerely,

Rebecca D. Jones
Mayor

RESOLUTION NO. 2026-xxxx

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS, CALIFORNIA, ADOPTING POSITIONS ON LEGISLATION UNDER CONSIDERATION PURSUANT TO THE LEGISLATIVE PLATFORM

WHEREAS, the City Council has established a state and federal advocacy program to increase the City's presence at both levels of government; and

WHEREAS, in 2013 the City Council adopted modifications to Policy No. 2013-07 and implemented procedures to keep the City's legislative platform current, keep the Council informed on the legislative measures acted upon, and provide a process for effectively communicating the City's position on measures to the appropriate elected representatives; and

WHEREAS, in keeping with the adopted legislative procedures, the City Council is provided with regular legislative activity reports for review and direction.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of San Marcos, that the City Council adopts the following positions on legislation:

PROPOSED LEGISLATION			**POSITION**
AB 2517	Calderon	Fire safety: fire hazard severity zones.	Support

PASSED, APPROVED AND ADOPTED by the City Council of the City of San Marcos at a regular meeting thereof, this 26th day of May, 2026, by the following roll call vote:

AYES: COUNCILMEMBERS:

NOES: COUNCILMEMBERS:

ABSENT: COUNCILMEMBERS:

Rebecca D. Jones, Mayor City of San Marcos

ATTEST:

Phillip Scollick, City Clerk City of San Marcos

File #:TMP-2438

MEETING DATE:
MAY 26, 2026

SUBJECT:

RESOLUTION NO. 2026-9594 - ORDERING THE PREPARATION OF AN ENGINEER'S REPORT FOR LANDSCAPING AND LIGHTING DISTRICT NO. 1 FOR FISCAL YEAR 2026/2027

Recommendation
ADOPT resolution ordering the preparation of an Engineer's Report for Landscaping and Lighting District No. 1 for Fiscal Year 2026/2027.

Board or Commission Action
Not Applicable

Relevant Council Strategic Theme
Quality of Life
Good Governance

Relevant Department Goal
Not Applicable

Executive Summary
At the direction of the City Council, the City of San Marcos Landscaping and Lighting District No. 1 ("LLMD") was formed on June 9, 1981, by Resolution No. 81-1592 under the Landscaping Lighting Act of 1972 ("the Act"). The purpose of the LLMD was to ensure that development completed after June 9, 1981 and prior to July 14, 1998 contributes a fair share to the landscape and street light maintenance costs associated with each respective development.

In order to continue the assessment of taxes for districts formed under the Act, the City is required to approve an engineer's report. The Act requires an engineer's report be prepared and include information regarding the districts' assessments for the following fiscal year.

Discussion
The Act requires the implementation of certain proceedings for any fiscal year in which any assessments are to be levied and collected within an existing assessment district formed under its provisions. As part of those proceedings, the City must request the preparation of an engineer's report for review and approval by the governing body. The attached resolution authorizes the preparation of the report compliant with the Act.

Fiscal Impact
The LLMD is estimated to generate revenue of $530,000 for Fiscal Year 2026/2027 which is not sufficient to cover all expected and eligible expenses. An estimated $1,160,000 from the General Fund will be needed. The renewal of district assessments will allow for the continued levy on annexed properties within the LLMD.

Attachment(s)
Resolution
Assessment Diagram

Prepared/Submitted by: Jeffrey Jorgenson, Accounting & Treasury Manager
Reviewed by: Donna Apar, Finance Director
Approved by: Michelle Bender, City Manager

RESOLUTION NO. 2026-XXXX

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS, CALIFORNIA, ORDERING THE PREPARATION OF THE ENGINEER'S REPORT FOR PROCEEDINGS RELATING TO THE ANNUAL LEVY OF ASSESSMENTS FOR LANDSCAPE AND LIGHTING DISTRICT NO. 1 FOR FISCAL YEAR 2026-2027

WHEREAS, the City Council of the City of San Marcos, California, desires to initiate proceedings for the annual levy of assessments for a landscaping and street lighting district pursuant to the terms and provisions of the "Landscaping and Lighting Act of 1972," being Division 15, Part 2 of the Streets and Highways Code of the State of California, in what is known and designated as Landscape and Lighting District No. 1 (“the District"); and

WHEREAS, these proceedings for the annual levy of assessments relate to the fiscal year commencing July 1, 2026, and ending June 30, 2027; and

WHEREAS, an assessment diagram has been submitted to the City Council showing the boundaries of the area and proposed zones within the area affected by the levy of the assessment for the fiscal year 2026-2027 (“Assessment Diagram”), and said Assessment Diagram also identifies landscaped areas and street lights to be maintained within the District; and

WHEREAS, the provisions of said Division 15, Part 2, require a written report (“Report”) consisting of the following:

1. Plans and specifications of the area of existing and proposed works of improvement to be maintained;
2. An estimate of the costs for maintaining the existing and proposed improvements for the subject fiscal year;
3. A diagram of the area proposed to be assessed including the boundaries of any zones within the District;
4. An assessment of the estimated costs for maintenance work for said fiscal year.

NOW, THEREFORE, IT IS HEREBY RESOLVED AS FOLLOWS:

SECTION l. That the above recitals are all true and correct.

SECTION 2. That a map, entitled by the name of the District, and designated "Assessment Diagram", as submitted to this City Council, showing the boundaries of the proposed area to be assessed, the boundaries of the proposed zones within the District, and the existing and proposed works of improvement to be maintained, is hereby approved, and a copy thereof shall be on file in the Office of the City Clerk and open to the public inspection. The proposed parcels and properties within said area are those to be assessed to pay certain costs and expenses for said maintenance work.

SECTION 3. That the proposed maintenance work within the area proposed to be assessed shall be for certain street lighting and landscaping improvements, as said maintenance work is set forth in the Report to be presented to this City Council for consideration. The proposed landscaping improvement maintenance constitutes new improvements within the District and is proposed only within proposed landscaping zones as identified in the map described in Section 2 hereinabove.

SECTION 4. That the City Engineer is hereby ordered to prepare and file with this City Council a Report relating to said annual assessment levy, in accordance with provisions of Article IV, commencing with Section 22565 of Chapter 1 of the Streets and Highways Code of the State of California.

SECTION 5. That upon completion, said Report shall be filed with the City Clerk, who shall then submit the same to this City Council for its consideration pursuant to Sections 22623 and 22624 of said Streets and Highways Code.

PASSED, APPROVED, and ADOPTED by the City Council of the City of San Marcos this 26th day of May, 2026, by the following roll call vote:

AYES: COUNCILMEMBERS:

NOES: COUNCILMEMBERS:

ABSENT: COUNCILMEMBERS:

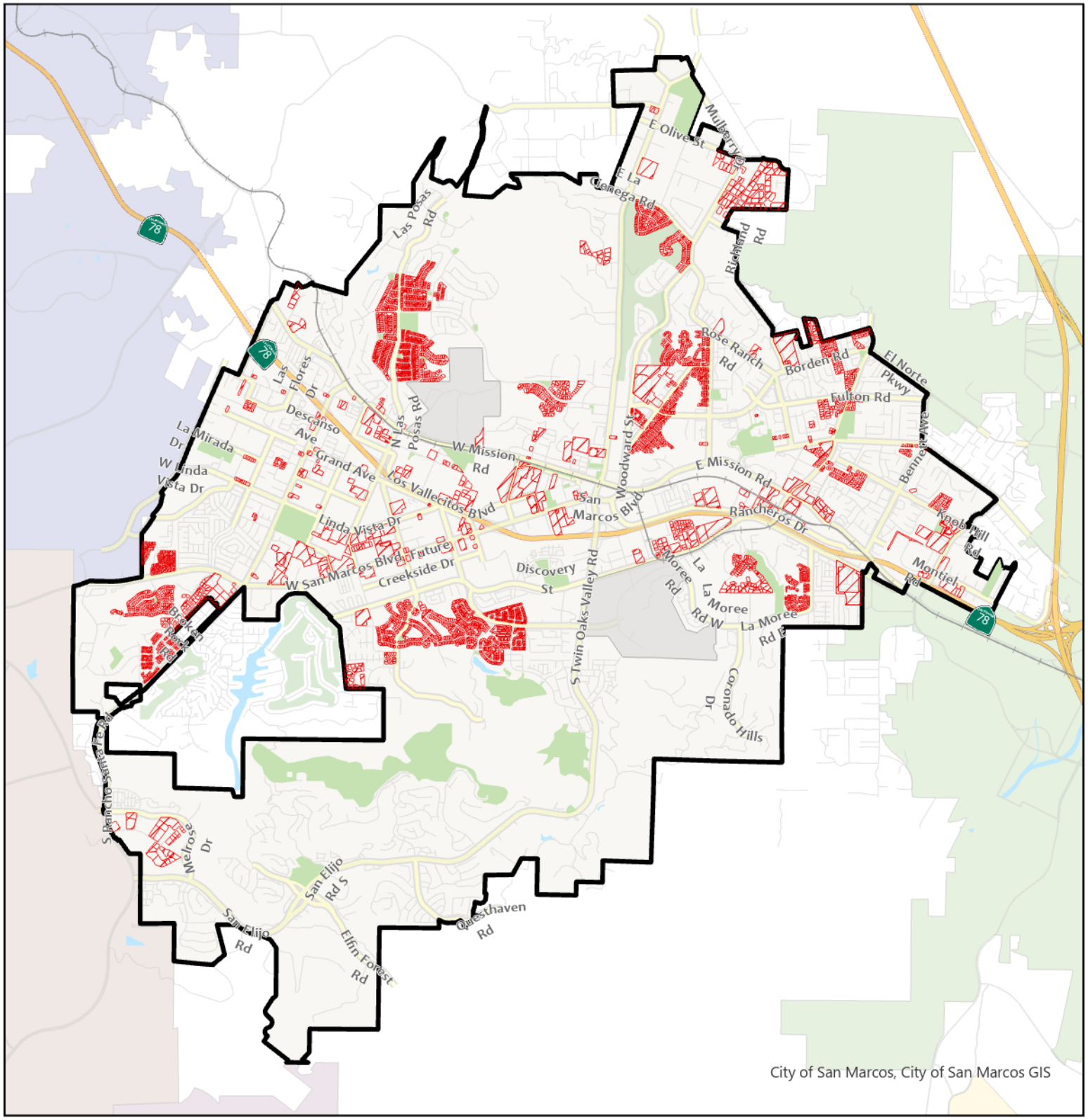
Rebecca D. Jones, Mayor
City of San Marcos

ATTEST:

Phillip Scollick, City Clerk
City of San Marcos

Lighting and Landscaping District No. 1

ASSESSMENT DIAGRAM



Parcels Within Lighting and Landscaping District No. 1

File #:TMP-2445

MEETING DATE:
MAY 26, 2026

SUBJECT:

RESOLUTION NO. 2026-9595 - ORDERING THE PREPARATION OF AN ENGINEER'S REPORT FOR THE VALLECITOS TOWN CENTER STREET MAINTENANCE DISTRICT FOR THE FISCAL YEAR 2026-2027

Recommendation
ADOPT a resolution ordering the preparation of an Engineer's Report for the Vallecitos Town Center Street Maintenance District for the Fiscal Year 2026-2027.

Board or Commission Action
Not Applicable

Relevant Council Strategic Theme
Quality of Life
Good Governance

Relevant Department Goal
Not Applicable

Executive Summary
In order to continue the assessment of taxes for districts formed under the Landscaping and Lighting Act of 1972 ("the Act"), the City is required to approve an engineer's report. The Act requires an engineer's report be prepared including information regarding the districts' assessments for the following fiscal year.

Discussion
In October 1999, at the request of the property owners, the Vallecitos Town Center Street Maintenance District ("District") was formed pursuant to the terms of the Act by Resolution 1999-5300. The purpose of this district is to provide yearly revenue from properties to mitigate for ongoing impacts of street maintenance costs along Center Drive and energy and maintenance costs of existing traffic signals within the district.

The Act requires the implementation of certain proceedings for any fiscal year in which any assessments are to be levied and collected within an existing assessment district formed under its provisions. As part of those proceedings, the City must request the preparation of an engineer's report for review and approval by the governing body. The attached resolution authorizes the preparation of the report compliant with the Act.

Fiscal Impact

The Vallecitos Town Center Street Maintenance District is estimated to produce revenues sufficient to cover all expected and eligible expenses with no impact to the general fund for the Fiscal Year of 2026-2027. The renewal of district assessments will allow for the continued levy on annexed properties within the District. These funds are used to maintain street and signal improvements within the District.

Attachment(s)
Resolution
Vicinity Map

Prepared/Submitted by: Jeffrey Jorgenson, Accounting & Treasury Manager
Reviewed by: Donna Apar, Finance Director
Approved by: Michelle Bender, City Manager

RESOLUTION NO. 2026-xxxx

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS, CALIFORNIA, ORDERING THE PREPARATION OF THE ENGINEER'S REPORT FOR THE VALLECITOS TOWN CENTER STREET MAINTENANCE DISTRICT

WHEREAS, the CITY COUNCIL of the CITY OF SAN MARCOS, CALIFORNIA, desires to initiate proceedings for the annual levy of assessments for a landscaping and street lighting district pursuant to the terms and provisions of the Landscaping and Lighting Act of 1972, being Division 15, Part 2 of the Streets and Highways Code of the State of California, in what is known and designated as Vallecitos Town Center Street Maintenance District (hereinafter the "District"); and,

WHEREAS, these proceedings for the annual levy of assessments shall relate to the fiscal year commencing July 1, 2026, and ending June 30, 2027; and,

WHEREAS, there has been submitted to this City Council a map entitled and designated by the name of this District, showing the boundaries of the area and proposed zones within the area affected by the levy of the assessment for the above referenced fiscal year, said description being sufficient to identify the existing and proposed works of improvements and the areas proposed to be assessed for said maintenance thereof; and,

WHEREAS, the provisions of said Division 15, Part 2, require a written Report, consisting of the following:

1. Plans and specifications of the area of existing and proposed works of improvement to be maintained;
2. An estimate of the costs for maintaining the existing and proposed improvements for the subject fiscal year;
3. A diagram of the area proposed to be assessed including the boundaries of any zones within the District;
4. An assessment of the estimated costs for maintenance work for said fiscal year.

NOW, THEREFORE, it is hereby resolved as follows:

SECTION 1. That the above recitals are all true and correct.

SECTION 2. That a map, entitled by the name of the District, and designated "Assessment Diagram," as submitted to this City Council, showing the boundaries of the proposed area to be assessed, the boundaries of the proposed zones within the District and showing the existing and proposed works of improvement to be maintained, is hereby approved, and a copy thereof shall be on file in the Office of the City Clerk and open to the public inspection. The proposed parcels and properties within said area are those to be assessed to pay certain of the costs and expenses for said maintenance work.

SECTION 3. That the proposed maintenance work within the area proposed to be assessed shall be for certain street improvements and traffic signals, as said maintenance work is set forth in the "Report" to be presented to this City Council for consideration.

SECTION 4. That the City Engineer is hereby ordered to prepare and file with this City Council, a Report relating to said annual assessment levy in accordance with provisions of Article IV, commencing with Section 22565 of Chapter 1 of the Streets and Highways Code of the State of California.

SECTION 5. That upon completion, said Report shall be filed with the City Clerk, who shall then submit the same to this City Council for its consideration pursuant to Sections 22623 and 22624 of said Streets and Highways Code.

PASSED, APPROVED and ADOPTED by the City Council of the City of San Marcos, this 26th day of May, 2026, by the following roll call vote:

AYES: COUNCILMEMBERS:

NOES: COUNCILMEMBERS:

ABSENT: COUNCILMEMBERS:

Rebecca D. Jones, Mayor
City of San Marcos

ATTEST:

Phillip Scollick, City Clerk
City of San Marcos

VALLECITOS TOWN CENTER STREET MAINTENANCE DISTRICT

ASSESSMENT DIAGRAM

FY 2026-2027 ANNUAL LEVY

LEGEND

DISTRICT BOUNDARY	ZONE 2
226-xxx-xx ASSESSOR'S PARCEL NUMBER (APN)	ZONE 1
ASSESSOR'S PARCEL LINE	

ASSESSMENT DIAGRAM
VALLECITOS TOWN CENTER STREET MAINTENANCE DISTRICT CITY OF SAN MARCOS
SHEET 1 OF 1

2026 NearMap Aerial Image

File #:TMP-2457

MEETING DATE:
May 26, 2026

SUBJECT:

RESOLUTION NO. 2026-9596 - ORDERING THE SUMMARY VACATION AND ABANDONMENT OF THE DRAINAGE EASEMENT LOCATED ALONG REDEL ROAD GRANTED ON JULY 30, 2015 BY DOCUMENT 2015-0403598, WITHIN THE BOUNDARIES OF SITE DEVELOPMENT PLAN SDP24-0001 FOR THE BLOCK F STUDENT HOUSING PROJECT

Recommendation
ADOPT resolution (VAC26-0001) ordering the summary vacation and abandonment of the drainage easement located along Redel Road granted by Document 2015-0403598 on July 30, 2016, within the boundaries of Side Development Plan SDP24-0001 for the Block F student housing project.

Board or Commission Action
On April 20, 2026, the Planning Commission considered the proposed summary vacation and abandonment of the drainage easement along Redel Road granted by granted on July 30, 2015 by Document 2015-0403598 (Drainage Easement) in accordance with Streets and Highways Code Section 8313 and Government Code Section 65402, found it to be in conformance with the adopted General Plan, and approved Resolution PC 26 -5198 recommending that City Council approve the proposed summary vacation and abandonment of the Drainage Easement.

Relevant Council Strategic Theme
Planning for the Future
Good Governance

Executive Summary
On September 4, 2025, the Development Advisory Committee approved the Student Housing Block F project. The project allows for the development of 310,500 square foot, 11-story mixed-use student housing building on a 4.5-acre site located at 292 E. Barham Drive within the University District Specific Plan area (Vicinity Map in Attachment A). The Drainage Easement along Redel Road was granted on July 30, 2015 as Document No. 2015-0403598 is a public service easement proposed for summary vacation and abandonment. City staff have determined that the Drainage Easement is no longer required for public purposes and will not be required in future.

Contingent upon City Council approving of and ordering the summary vacation and abandonment, the vacated service easement will remove an encumbrance on the underlying property and allow use of the area by the

proposed development.

Discussion

Summary Vacation of Public Service Easement

Pursuant to the California Streets and Highways Code (CSHC) 8333(c), the legislative body of a local agency may summarily vacate a public service easement if the easement has been superseded by relocation or determined to be excess by the easement holder, and there are no public facilities within the easement. Staff have determined that the Drainage Easement is in excess, and there are no public facilities within the easement.

Planning Commission Consideration.

In accordance with California Streets and Highways Code (CSHC) Section 8313 and Government Code Section 65402, the local planning agency is required to consider the proposed vacation action and to report on the conformity with the adopted General Plan. Staff reviewed the limits of the proposed vacation of public service easement and determined that it is not needed for public use, and the vacation and abandonment of the public service easement is consistent with the General Plan.

On April 20, 2026, Planning Commission considered the proposed vacation and abandonment of the public service easement in accordance with CSHC Section 8313 and Government Code Section 65402 and found the proposed vacations to be in conformance with the adopted General Plan. Planning Commission approved Resolution PC 26-5198 (VAC26-0001) recommending City Council approve the summary vacation and abandonment of public service easement for the Drainage Easement granted on July 30, 2015 as Document No. 2015-0403598. Pursuant to CSHC Section 8335 and 8336(b), no public hearing is required.

Order to Summarily Vacate and Abandon

If City Council orders the vacation and abandonment of the public service easement, the vacated easement will remove this encumbrance on the property and allow use of the area by the proposed development.

Environmental Review

The proposed vacation and abandonment of the public service easement is within the scope of the 2022 Addendum to the Environmental Impact Report (FEIR) (SCH NO. 2008101083) for the University District Specific Plan, which is in accordance with California Environmental Quality Act (CEQA) Sections 15162 and 15164.

Fiscal Impact

There are no immediate fiscal impacts associated with the vacation and abandonment of public service easement.

Attachments

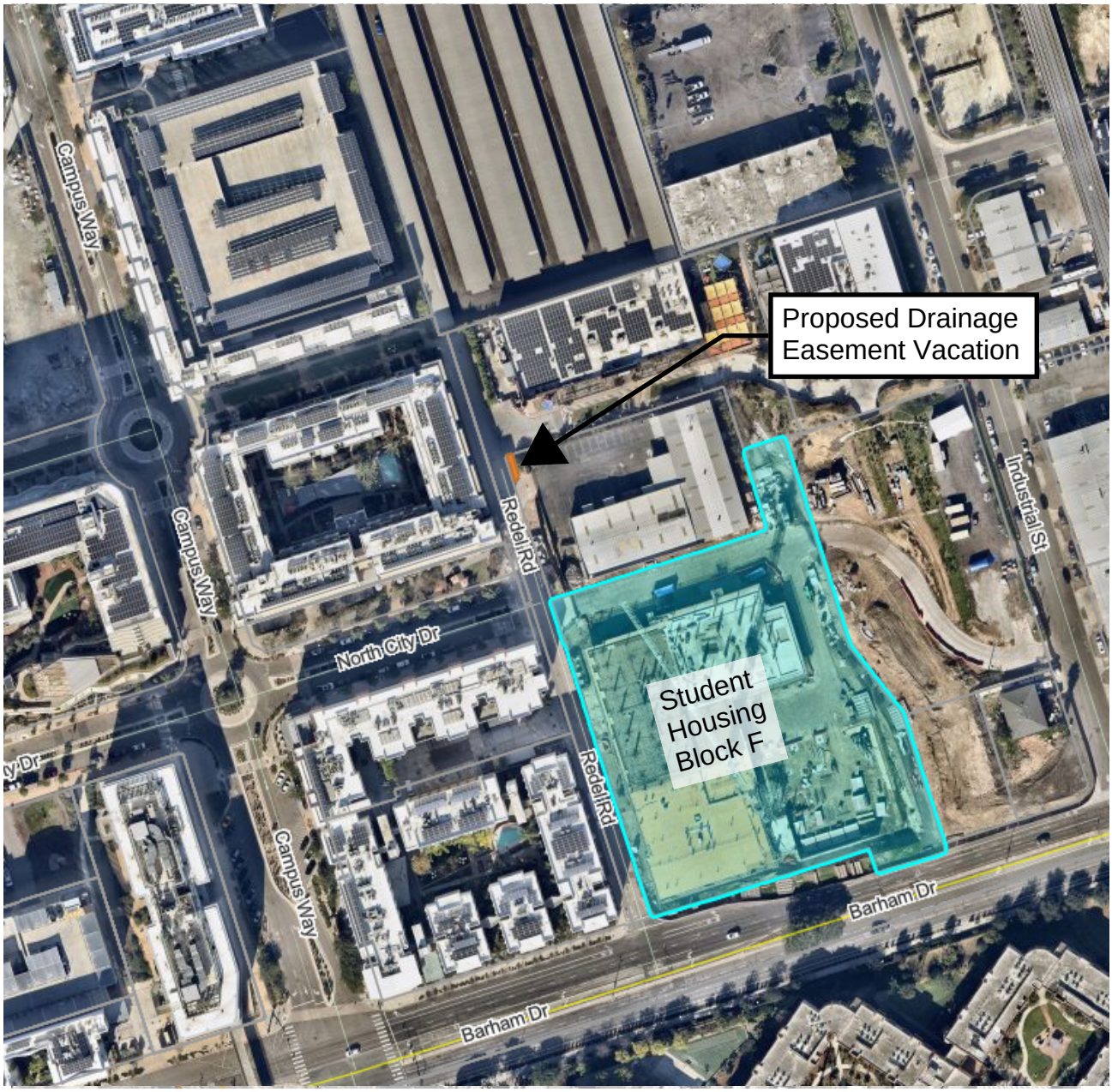
1. Aerial Vicinity Map
2. Resolution 2026-AAAA (VAC26-0001)

Prepared by: Stephanie Kellar, Deputy City Engineer
Reviewed by: Kyrenne Chua, Principal Civil Engineer

Reviewed by: Isaac Etchamendy, Development Services Director
Reviewed by: Helen Holmes Peak, City Attorney
Approved by: Michelle Bender, City Manager

City of San Marcos
1 Civic Center Drive
San Marcos, CA 92069

VICINITY MAP
ATTACHMENT A



STUDENT HOUSING BLOCK F
292 E. BARHAM DRIVE

EXHIBIT "A"
LEGAL DESCRIPTION
DRAINAGE EASEMENT VACATION

All of that Easement for Drainage Purposes granted to the City of San Marcos per document filed in the Office of the County Recorder of San Diego County July 30, 2015 as Document No. 2015-0403598, of Official Records.

Contains 0.03 Acres or 1,469 Square Feet, more or less

Prepared under the direction of the undersigned, in conformance with the Professional Land Surveyor's Act

2/6/2026

Joseph G. Cresto
PLS 8050

Date

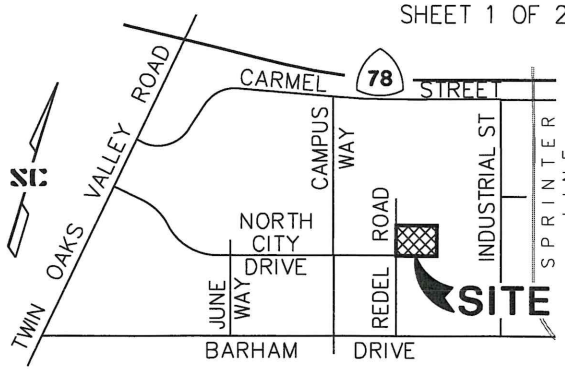
END OF LEGAL DESCRIPTION

EXHIBIT "B"

LEGEND

INDICATES EASEMENT FOR DRAINAGE PURPOSES GRANTED TO CITY SAN MARCOS PER DOCUMENT NO. 2015-0403598, O.R., RECORDED JULY 30, 2015 VACATED

CONTAINS 0.03 ACRES OR 1,469 SQ. FT., MORE OR LESS



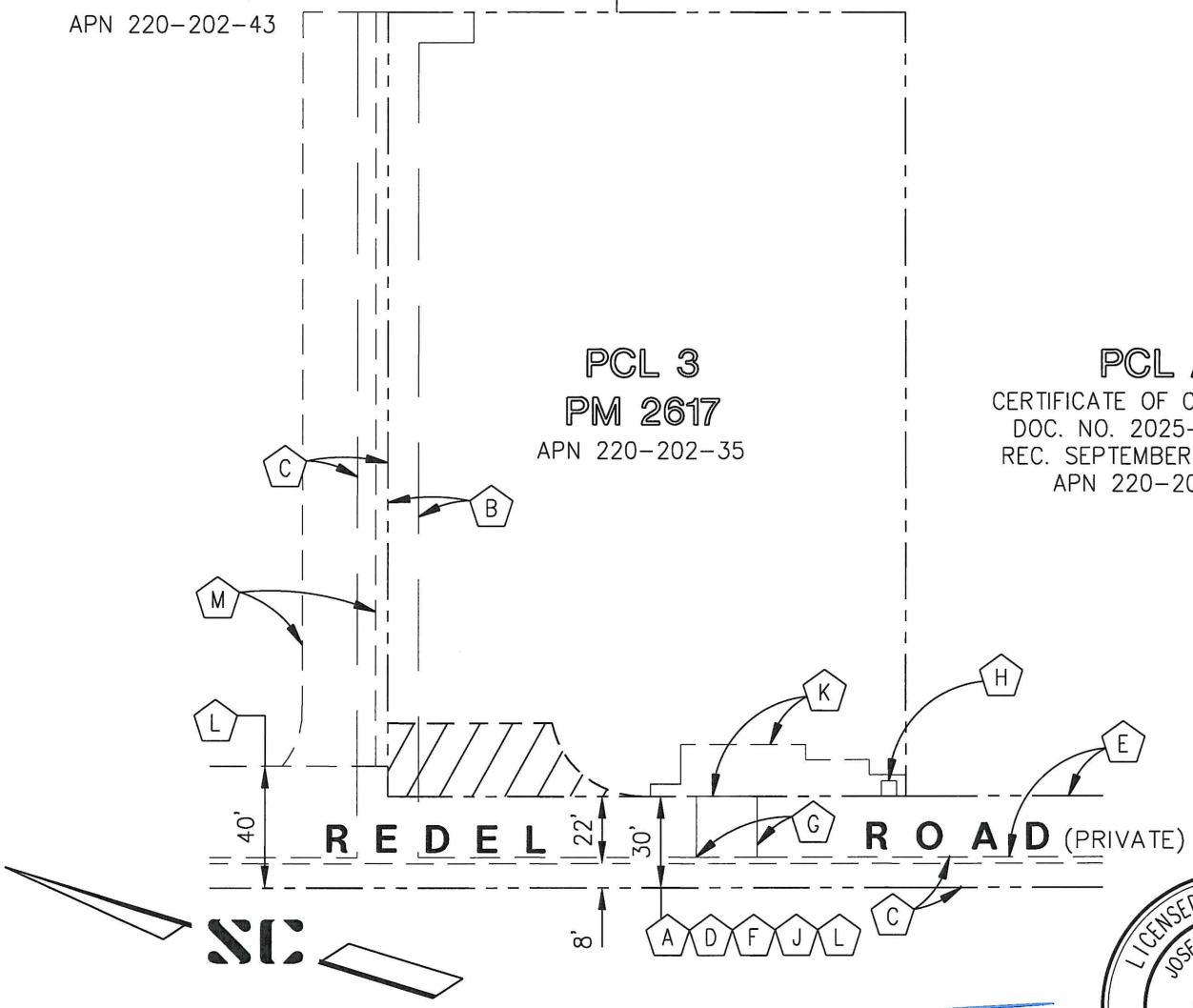
THOMAS BROTHERS COORD:
PAGE 1128; GRID J1

VICINITY MAP
NO SCALE

PCL "C"
CERTIFICATE OF COMPLIANCE
DOC. NO. 2015-0646023
REC. DECEMBER 17, 2015
APN 220-202-43

PCL 3
PM 2617
APN 220-202-35

PCL A
CERTIFICATE OF COMPLIANCE
DOC. NO. 2025-0265146
REC. SEPTEMBER 24, 2025
APN 220-202-75



60 30 0 60

SCALE: 1"=60'

JOSEPH G. CRESTO
PLS 8050

2/6/2026
DATE

LICENSED LAND SURVEYOR
JOSEPH G. CRESTO
No. 8050
STATE OF CALIFORNIA

STEVENS CRESTO ENGINEERS
9665 Chesapeake Dr, Ste 200
San Diego, CA 92123
858.694.5660 stevenscresto.com

DRAINAGE EASEMENT VACATION

CITY OF SAN MARCOS
PARCEL 3 OF PARCEL MAP 2617
APN 220-202-35

SCE NO. 13003	DATE: 2026-02-06	SCALE: 1"=60'	DWG: 13003.79 DRAINAGE EASEMENT VACATION	DRAWN BY: KJG	CHECKED BY: JGC

EXHIBIT "B"

EASEMENT LEGEND

(A) EXISTING PRIVATE ROAD AND UTILITY EASEMENT REC. JUNE 12, 1974, FILE NO. 74-155646, O.R.

(B) EXISTING PIPELINE EASEMENT TO SAN MARCOS WATER DISTRICT REC. DECEMBER 3, 1984, FILE NO. 84-450389, O.R.

(C) EXISTING PIPELINE EASEMENT TO SAN MARCOS WATER DISTRICT REC. DECEMBER 3, 1984, FILE NO. 84-450393, O.R.

(D) EXISTING EASEMENT FOR ROAD AND UTILITY PURPOSES TO DAVE JONES FAMILY PARTNERSHIP PER DOCUMENT NO. 1995-0199051, O.R. RECORDED MAY 11, 1995

(E) EXISTING PIPELINE EASEMENT TO VALLECITOS WATER DISTRICT REC. DECEMBER 8, 2010, FILE NO. 2010-0677057, O.R.

(F) EXISTING EASEMENT FOR UNDERGROUND FACILITIES TO PACIFIC BELL TELEPHONE COMPANY (AT&T) PER DOCUMENT NO. 2011-378399, O.R. RECORDED JULY 23, 2011

(G) EXISTING EASEMENT FOR PIPELINES TO VALLECITOS WATER DISTRICT PER DOCUMENT NO. 2011-0397810, O.R. RECORDED AUGUST 04, 2011

(H) EXISTING EASEMENT FOR PIPELINES TO VALLECITOS WATER DISTRICT PER DOCUMENT NO. 2011-0397811, O.R. RECORDED AUGUST 04, 2011

(J) EXISTING GENERAL UTILITY, MUNICIPAL ACCESS AND EMERGENCY ACCESS EASEMENT TO THE CITY OF SAN MARCOS REC. AUGUST 31, 2011, FILE NO. 2011-0451114, O.R.

(K) EXISTING EASEMENT FOR ELECTRICAL FACILITIES TO SAN DIEGO GAS & ELECTRIC PER DOCUMENT NO. 2015-0418637, O.R. RECORDED AUGUST 07, 2015

(L) EXISTING EASEMENT FOR PUBLIC ACCESS AND GENERAL UTILITIES TO CITY OF SAN MARCOS PER DOCUMENT NO. 2015-0517767, O.R. RECORDED OCTOBER 1, 2015

(M) EXISTING EASEMENT FOR PEDESTRIAN & NON-MOTOR VEHICLE ACCESS TO CITY OF SAN MARCOS PER DOCUMENT NO. 2016-0488277, O.R. RECORDED SEPTEMBER 16, 2016

STEVENS CRESTO ENGINEERS
9665 Chesapeake Dr, Ste 200
San Diego, CA 92123
858.694.5660 stevenscresto.com

DRAINAGE EASEMENT VACATION

CITY OF SAN MARCOS
PARCEL 3 OF PARCEL MAP 2617
APN 220-202-35

SCE NO. 13003	DATE: 2026-02-06	SCALE: 1"=60'	DWG: 13003.79 DRAINAGE EASEMENT VACATION	DRAWN BY: KJG	CHECKED BY: JGC

File #:TMP-2458

MEETING DATE:
May 26, 2026

SUBJECT:

RESOLUTION NO. 2026-9597 - AMENDING THE SAN MARCOS INFRACTION AND MISDEMEANOR BAIL SCHEDULE WITH RESPECT TO FINES AND PENALTIES TO BE IMPOSED FOR VIOLATIONS OF SAN MARCOS MUNICIPAL CODE SECTION 17.64.260 (FIREWORKS)

Recommendation
APPROVE resolution approving modifications to the Infraction and Misdemeanor Bail Schedule to increase the fines and penalties to be imposed for violations of San Marcos Municipal Code section 17.64.260 (Fireworks).

Board or Commission Action
Not Applicable

Executive Summary
The proposed Resolution would approve amendments to the City's Infraction and Misdemeanor Bail Schedule to increase fines and penalties for violations of San Marcos Municipal Code section 17.64.260, which prohibits the sale, discharge, firing, or use of all fireworks or other substances designed and intended for pyrotechnic display.

Discussion
San Marcos Municipal Code (SMMC) Chapter 17.64 regulates the City's application of the California Fire Code and associated codes and regulations, and SMMC section 17.64.260 prohibits the sale, discharge, firing, or use of all firecrackers, party poppers, bombs, rockets, torpedoes, Roman candles, Sky Lanterns or other fireworks or substances designed and intended for pyrotechnic display, and of all firework pistols/cannons, or other appliances using blank cartridges or caps containing chlorate of potash mixture or other mixtures designed to make an explosive sound, within the City except as specifically permitted by the City Council.

Section 17.64.290 provides that any violation of Chapter 17.64 constitutes a misdemeanor, which is punishable by a fine set forth in the City's bail schedule, up to six months in prison, or both. The current San Marcos Misdemeanor and Infraction Bail Schedule (Bail Schedule) sets the fine amount for violations of SMMC section 17.64.260 (Fireworks) at $1000 per violation, which is repeated in the current San Diego County Superior Court Bail Schedule. It does not set forth increased fines for subsequent violations.

At the direction of Mayor Jones and Council Member LeBlang, this item is brought forward for City Council consideration of increases to the fines and penalties set forth in the City's Bail Schedule for second and third

violations of SMMC 17.64.260. The increases are being proposed to reflect the serious threat to public health and safety represented by fireworks, with respect to the potential for personal injury as well as the threat of fire, as much of the City is located within Very High Fire Hazard Severity Zones as identified by the State Fire Marshal and the San Marcos Fire Department, with additional areas in the City which border such Zones falling within the High and Moderate Fire Hazard Severity Zones.

Proposed for the City Council's consideration is a resolution reflecting an increase relating to additional violations of the prohibition, as follows:

First offense:	$1,000.00 (existing, not proposed to be changed)
Second offense:	$2,500.00 (new)
Third offense:	$5,000.00 (new)

Environmental Review
This action does not constitute a "project" as defined under Section 15378 of the California Environmental Quality Act Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000 - 15387) and is therefore not subject to environmental review pursuant to Guidelines Section 15060(c)(3).

Fiscal Impact
It is not yet known whether the additions and revisions to the Misdemeanor and Infraction Bail Schedule would result in a fiscal impact in terms of fine and penalty income.

Attachment(s)
Resolution Amending the City of San Marcos Infraction and Misdemeanor Bail Schedule With Respect to Fines and Penalties to be Imposed for Violations of San Marcos Municipal Code section 17.64.260 (Fireworks), and Attachment 1

Prepared by: Helen Holmes Peak, City Attorney
Reviewed by: Michelle Bender, City Manager

RESOLUTION NO. 2026-XXXX

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS, CALIFORNIA, AMENDING THE INFRACTION AND MISDEMEANOR BAIL SCHEDULE WITH RESPECT TO FINES AND PENALTIES TO BE IMPOSED FOR VIOLATIONS OF SAN MARCOS MUNICIPAL CODE SECTION 17.64.260 (FIREWORKS)

WHEREAS, the City of San Marcos ("City") has established in Title 1, Chapter 1.12 of the Municipal Code and Charter that any person violating any provision or failing to comply with any requirement of the Municipal Code shall be guilty of an infraction or misdemeanor as delineated in Title 1, Chapter 1.12; and

WHEREAS, San Marcos Municipal Code (SMMC) section 1.12.060 authorizes the City Council to approve fine amounts imposed for violations of the SMMC; and

WHEREAS, SMMC section 1.12.020 provides that any person convicted of a misdemeanor shall be punished by a fine or imprisonment for a term not exceeding six (6) months, or both; and

WHEREAS, SMMC Chapter 17.64 regulates the City's application of the California Fire Code and associated codes and regulations, and SMMC section 17.64.290 provides that any violation of Chapter 16.64 constitutes a misdemeanor; and

WHEREAS, SMMC section 17.64.260 prohibits the sale, discharge, firing, or use of all firecrackers, party poppers, bombs, rockets, torpedoes, Roman candles, Sky Lanterns or other fireworks or substances designed and intended for pyrotechnic display, and of all firework pistols/cannons, or other appliances using blank cartridges or caps containing chlorate of potash mixture or other mixtures designed to make an explosive sound, within the City except as specifically permitted by the City Council; and

WHEREAS, the current San Marcos Misdemeanor and Infraction Bail Schedule sets the fine amount for violations of SMMC Chapter 17.64, which includes SMMC section 17.64.260 (Fireworks), at $1000 per violation; and

WHEREAS, the City Council desires to modify the fine amounts to be imposed for violations of SMMC section 17.64.260 to reflect the serious threat to public health and safety represented by fireworks, with respect to the potential for personal injury as well as the threat of fire, as much of the City is located within Very High Fire Hazard Severity Zones as identified by the State Fire Marshal pursuant to Government Code section 51178, with additional areas falling within High and Moderate Fire Hazard Severity Zones; and

WHEREAS, staff recommends that the City of San Marcos Misdemeanor and Infraction Bail Schedule attached herein as Attachment 1 be amended to include additional bail/fine amounts for second and third violations of SMMC 17.64.260, as delineated in Attachment 1.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of San Marcos makes the following determinations:

1. The above recitals are true and correct.

2. This action does not constitute a “project” as defined under Section 15378 of the California Environmental Quality Act Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000 – 15387) and is therefore not subject to environmental review pursuant to Guidelines Section 15060(c)(3).

3. The City of San Marcos Infraction and Misdemeanor Bail Schedule is hereby amended to include the fine and penalty amounts of $1,000.00 for first violations, $2,500 for second violations, and $5,000 for third violations, which will now collectively serve as the fines and penalties for violations of SMMC section 17.64.260, as delineated in Attachment 1.

4. Hereafter, any person convicted of a violation of SMMC section 17.64.260 shall be fined in accordance with the amount set forth in the attached City of San Marcos Infraction and Misdemeanor Bail Schedule.

5. The City of San Marcos Infraction and Misdemeanor Bail Schedule may be amended from time to time by Resolution of the City Council.

PASSED, APPROVED, AND ADOPTED by the City Council of the City of San Marcos, State of California at its regular meeting held on this 26th day of May 2026, by the following roll call vote:

AYES: COUNCILMEMBERS:
NOES: COUNCILMEMBERS:
ABSENT: COUNCILMENBERS:

_____
Rebecca D. Jones, Mayor
City of San Marcos

ATTEST:

_____
Phillip Scollick, City Clerk
City of San Marcos

ATTACHMENT 1

ADDITIONS AND AMENDMENTS TO
SAN MARCOS MISDEMEANOR AND INFRACTION BAIL SCHEDULE
RELATING TO VIOLATIONS OF SAN MARCOS MUNICIPAL CODE SECTION 17.64.260

I/M	CODE SECTION	DESCRIPTION OF VIOLATION	FINE/BAIL	PA[1]	CT[2]
M	Chapter 17.64 [3]	CA Fire Code – Failure to comply	$1,000.00		✓
M	Section 17.64.260	Fireworks • 1st offense • 2nd offense • 3rd offense	$1,000.00 $2,500.00 $5,000.00		✓ ✓ ✓

Note: new provisions shown in red

[1] Penalty Assessed (in accordance with the San Diego Superior Court Bail Schedule, a penalty assessed is not to be added when a court appearance is mandatory)
[2] Mandatory Court Appearance
[3] Previously applicable to all violations of San Marcos Municipal Code Chapter 17.64, including violations of section 17.64.260 (Fireworks).

File #:TMP-2456

MEETING DATE:
MAY 26, 2026

SUBJECT:

RESOLUTION NO. 2026-9598 - APPROVING AMENDMENT 01 TO THE COMMUNITY FACILITIES DISTRICT FUNDING AGREEMENT WITH URBAN VILLAGES SAN MARCOS, LLC (AGREEMENT 6999)

Recommendation
ADOPT a resolution approving an amendment to the Community Facilities District Funding Agreement with Urban Villages San Marcos, LLC ("UVSM").

Board or Commission Action
Not Applicable

Relevant Council Strategic Theme
Good Governance

Relevant Department Goal
Not Applicable

Executive Summary
In 2022, pursuant to Resolution 2022-9066, the City entered into a Community Facilities District ("CFD") Funding Agreement ("Agreement") with UVSM providing for reimbursement of eligible bridge construction costs using CFD 2011-01 Congestion Management special tax revenues generated within the University District Specific Plan area. The agreement was approved via Resolution 2022-9066.

The proposed amendment seeks to clarify the applicable reimbursement area and the parcels from which CFD special tax revenues may be utilized for reimbursement purposes. The pedestrian bridge serves and benefits the entire University District Specific Plan area by improving pedestrian circulation and reducing congestion impacts throughout the area. The Agreement and proposed Amendment are consistent with the intent and authorized use of the CFD, which was established to fund congestion management improvements associated with new development.

The proposed amendment does not modify the overall reimbursement obligation, repayment terms, or eligible project costs established in the original agreement.

Discussion

In 2011, the City established Community Facilities District 2011-01, referred to as the Congestion Management Fund ("CFD"). The CFD imposes a special tax on new development throughout the City occurring after 2011. Special tax revenues generated by the CFD are to be used for equipment, services, and facilities that reduce traffic congestion associated with new development.

In 2019, Urban Villages San Marcos, LLC ("UVSM") constructed a pedestrian bridge connecting the University District Specific Plan Area directly to the campus of California State University San Marcos ("CSUSM"). The bridge is part of the planned infrastructure contained within the University District Specific Plan, spans Barham Road, and provides a safe and convenient pedestrian crossing for students, faculty, residents, and visitors traveling between the University District area and the university campus.

The project was determined to be eligible for CFD 2011-01 Congestion Management funds and in 2022, the City and UVSM entered into a CFD Funding Agreement providing for reimbursement of project costs through CFD special tax revenues generated within the University District Specific Plan area. The Agreement was approved via Resolution 2022-9066.

Since execution of the Agreement, the parties have reviewed the language concerning the reimbursement area and the applicable parcels generating CFD special tax revenue toward the reimbursement of the bridge costs and seek to clarify the parcels to be utilized for reimbursement. The proposed Amendment is intended to clarify that CFD 2011-01 special tax revenues generated from parcels throughout the applicable University District Specific Plan area identified in the Amendment may be utilized for reimbursement purposes because the bridge provides congestion management and circulation benefits to North City, CSUSM, and the travelling public, in general, rather than to only funds that UVSM pays into the CFD.

The amendment does not increase the reimbursement obligation of the City, which includes the project cost eligible for reimbursement, or the repayment schedule, nor does it modify any substantive financing terms established under the original agreement. Rather, it clarifies the properties from which congestion management special tax proceeds will be applied towards the reimbursement obligation. The Amendment is financially beneficial to both the City and UVSM and its partners because it allows for faster repayment of the reimbursable amount, which reduces the City's interest costs associated with the Agreement. Faster repayment would also benefit UVSM and its partners by returning funds more expeditiously to be utilized for other purposes.

Staff recommends City Council approve the proposed amendment to the Agreement between the City of San Marcos and Urban Villages San Marcos, LLC, and authorizes the City Manager to negotiate, finalize, and execute the amendment documents.

Environmental Review

The proposed Amendment does not constitute a "project" as defined under Section 15378 of the California Environmental Quality Act Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000 - 15387), and is therefore not subject to environmental review pursuant to Guidelines Section 15060(c)(3).

Fiscal Impact

The proposed amendment does not increase the City's reimbursement obligation or create any additional financial commitment beyond that established in the original CFD Funding Agreement. Reimbursements will be limited to CFD 2011-01 special tax revenues generated within the applicable University District Specific Plan area identified in the amendment. Approval of the proposed Amendment would reduce the City's interest costs under the Agreement.

Attachment(s)
Resolution
Amendment 01 to CFD Funding Agreement

Prepared by: Jeffrey Jorgenson, Accounting and Treasury Manager
Submitted by: Donna Apar, Finance Director
Reviewed by: Donna Apar, Finance Director
Approved by: Michelle Bender, City Manager

RESOLUTION NO. 2026-XXXX

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS APPROVING AMENDMENT #1 TO THE COMMUNITY FACILITIES DISTRICT FUNDING AGREEMENT WITH URBAN VILLAGES SAN MARCOS, LLC (CONTRACT 6999).

WHEREAS, in 2011, the City of San Marcos ("City") established Community Facilities District No. 2011-01 ("CFD") for the purpose of funding congestion management improvements associated with new development within the City; and

WHEREAS, Urban Villages San Marcos, LLC ("UVSM") constructed a pedestrian bridge over Barham Road connecting North City to the campus of California State University San Marcos ("CSUSM") to reduce congestion impacts associated with pedestrian crossings along Barham Road; and

WHEREAS, on September 13, 2022, the City Council approved Resolution 2022-9066 which established a Community Facilities District Funding Agreement ("Agreement") with UVSM and North City University One, LLC providing for reimbursement to UVSM of pedestrian bridge construction costs from CFD revenues generated within the University District Specific Plan area; and

WHEREAS, the City and UVSM desire to enter into the First Amendment to the Agreement to remove UVSM ownership and/or beneficial interest as criteria relative to the parcels from which applicable CFD revenues may be utilized for reimbursement purposes; and

WHEREAS, the City finds that the pedestrian bridge provides circulation and congestion management benefits to the broader North City and University District Specific Plan area, CSUSM, and the public in general, and that the proposed clarification remains consistent with the intent and authorized use of CFD proceeds, and that the proposed First Amendment to the Agreement will also serve to reduce the interest payable on the reimbursement obligation.

NOW, THEREFORE, BE IT RESOLVED, the City Council hereby approves the First Amendment to the Community Facilities District Funding Agreement (#6999) between the City of San Marcos, Urban Villages San Marcos, LLC, attached hereto as Exhibit A and incorporated herein by reference, and authorizes the City Manager to negotiate, finalize, and execute the amendment documents.

PASSED, APPROVED, and ADOPTED by the City Council of the City of San Marcos, California, on the 26th of May, 2026, by the following vote:

AYES: COUNCIL MEMBERS:
NOES: COUNCIL MEMBERS:
ABSENT: COUNCIL MEMBERS:

Rebecca D. Jones, Mayor
City of San Marcos

ATTEST:

Phillip Scollick, City Clerk
City of San Marcos

AMENDMENT NUMBER 01
TO CITY OF SAN MARCOS
COMMUNITY FACILITIES DISTRICT FUNDING AGREEMENT

This Amendment Number 01 to Community Facilities District Funding Agreement ("Amendment 01") is entered into as of _____ [Date] by and between the City of San Marcos, a chartered municipal corporation ("City"), and Urban Villages San Marcos LLC ("UVSM"), a California limited liability company ("Developer" or "Owner"), collectively "Parties," with respect to Original Agreement No. 6999 between the Parties dated November 30, 2022 and any previous amendments thereto ("Agreement").

1. **Recitals**

A. Pursuant to Resolution 2022-9066, the City and Developer entered into Agreement No. 6999 for the funding and reimbursement of certain costs associated with the construction of the pedestrian bridge over Barham Road connecting the University District Specific Plan Area and California State University San Marcos, utilizing Community Facilities District ("CFD") 2011-01 special tax revenues from properties within the University District Specific Plan Area depicted on Exhibit A and referred to therein as the CFD Reimbursement Area.

B. The Parties now desire to amend the Agreement to revise the CFD Reimbursement Area and related reimbursement provisions, and to supersede and replace the Exhibits attached to the Agreement with updated versions.

C. The Parties acknowledge that this Amendment 01 modifies the term "Property" as originally described in Recital B of the Agreement, to include all parcels located within the CFD Reimbursement Area whether or not Developer holds or has held an ownership and/or beneficial interest therein.

D. This Amendment 01 is approved by City Council Resolution No. _____.

2. **Section 5 Reimbursement**

Section 5(c)(ii) of the Agreement is hereby amended to read as follows:

Developer understands and acknowledges that CFD payments are made by City in two (2) annual installments, and that written accounting of CFD payments and Cash reimbursement payments described in Section 5(c)(iv) will be included with those installment payments.

Section 5 is further amended by the addition of the following subparagraphs:

(g) For purposes of Section 5 and reimbursement eligibility under the Agreement, "Property" shall include all parcels located in whole or in part within the CFD Reimbursement Area boundaries whether or not Developer holds or has held an ownership and/or beneficial interest therein.

(h) Notwithstanding anything to the contrary in the Agreement, reimbursement eligibility shall apply to all parcels located within the CFD Reimbursement Area depicted in Exhibit A-1 and listed in Exhibit A-2. Exhibits A-1 and A-2 shall be used to determine those parcels from which CFD 2011-01 special tax revenues will be used to make the reimbursement payments.

(i) CFD 2011-01 special tax revenues generated from parcels within the CFD Reimbursement Area, including parcels the Developer neither owns nor holds any beneficial interest in, shall be used for reimbursement to Developer in accordance with this Section.

(j) Given these amendments to the Agreement represented by this Amendment 01, and notwithstanding any contrary provisions of the Agreement, Developer shall no longer be required to document ownership or beneficial interest in parcels, and/or to provide notice or documentation to City regarding acquisition, transfer, or disposition of such interests, for purposes of determining eligibility for reimbursement from CFD 2011-01 special tax revenue generated within the CFD Reimbursement Area under this Amendment 01 and the Agreement.

3. **Exhibit A**

Exhibit A is hereby superseded and replaced in its entirety with the following:

- Attached Exhibit A-1: Depiction of CFD Reimbursement Area. Incorporated herein by reference.
- Attached Exhibit A-2: List of Parcels Within the CFD Reimbursement Area, incorporated herein by reference.

All parcels identified and depicted in Exhibit A-1 and Exhibit A-2 shall be included within the CFD Reimbursement Area for purposes of the Agreement and/or this Amendment 01.

Revised Exhibit A-2 is intended as a reference list of the current Assessor's Parcel Numbers ("APNs") located within the CFD Reimbursement Area and said APNs may be updated from time to time consistent with the boundaries depicted on Exhibit A-1 without requiring amendment to the Agreement and/or this Amendment 01.

Any future changes to APNs, parcel configurations, lot mergers, lot splits, subdivisions, or similar modifications affecting parcels located within the CFD Reimbursement Area shall not require further amendment to the Agreement and/or this Amendment 01, provided the affected parcels or portions thereof remain within the CFD Reimbursement Area boundaries shown on Exhibit A-1.

Future changes to the University District Specific Plan Area boundaries shall be construed as modification of the CFD Reimbursement Area boundaries for purposes of determining whether CFD 2011-01 special tax revenues are subject to the reimbursement obligation documented by the Agreement and this Amendment 01, and shall not require further amendment to the Agreement and/or this Amendment 01.

4. This Amendment 01 and the Agreement contain the entire agreement between the Parties with respect to the subject matter hereof, and they supersede all prior or contemporaneous agreements in connection with the subject matter. Nothing in this Amendment 01 relieves the Developer of its obligation to perform as required by the Agreement or any previous addendums or amendments unless expressly stated herein. No modification of this Amendment 01 or the Agreement shall be binding unless executed in writing by the Parties hereto. Except as expressly modified herein, the terms and provisions of the Agreement remain in full force and effect.

5. This Amendment 01 and other actions and documents related to the Agreement may be executed in any number of counterparts, each of which when executed and delivered will for all purposes be deemed to be an original, and all of which taken together will constitute one and the same document. The counterparts of this Amendment 01 and all other actions and documents executed in connection herewith may be executed and delivered by facsimile or other electronic signature by any of the parties to any other party and the receiving party may rely on the receipt of such document so executed and delivered by facsimile or other electronic means as if the original had been received. The parties agree that the electronic signature of a party to this Amendment 01 and any other actions and documents related to the Agreement, shall be as valid as an original signature of such party and shall be effective to bind such party to this Amendment 01. The parties agree that any electronically signed document (including this Amendment 01) shall be deemed (i) to be "written" or "in writing," (ii) to have been signed and (iii) to constitute a record established and maintained in the ordinary course of business and an original written record when printed from electronic files.

[SIGNATURES APPEAR ON THE FOLLOWING PAGE]

IN WITNESS WHEREOF, the Parties have caused this Amendment 01 to be entered into as of the date first set forth above.

AGENCY:
City of San Marcos,
a chartered municipal corporation

By:_____
Michelle Bender, City Manager
or delegated designee

APPROVED AS TO FORM:

By: _____
Helen Holmes Peak, City Attorney

ATTEST:

By:_____
Phillip Scollick, City Clerk

DEVELOPER:
Urban Villages San Marcos, LLC
a California limited liability company

By: _____

Name: _____

Title: _____

By:_____

Name: _____

Title: _____

***The signer(s), for all forms of business, shall provide evidence that the individual(s) signing the Agreement has full power to execute this Agreement and related documents on behalf of the Developer.**

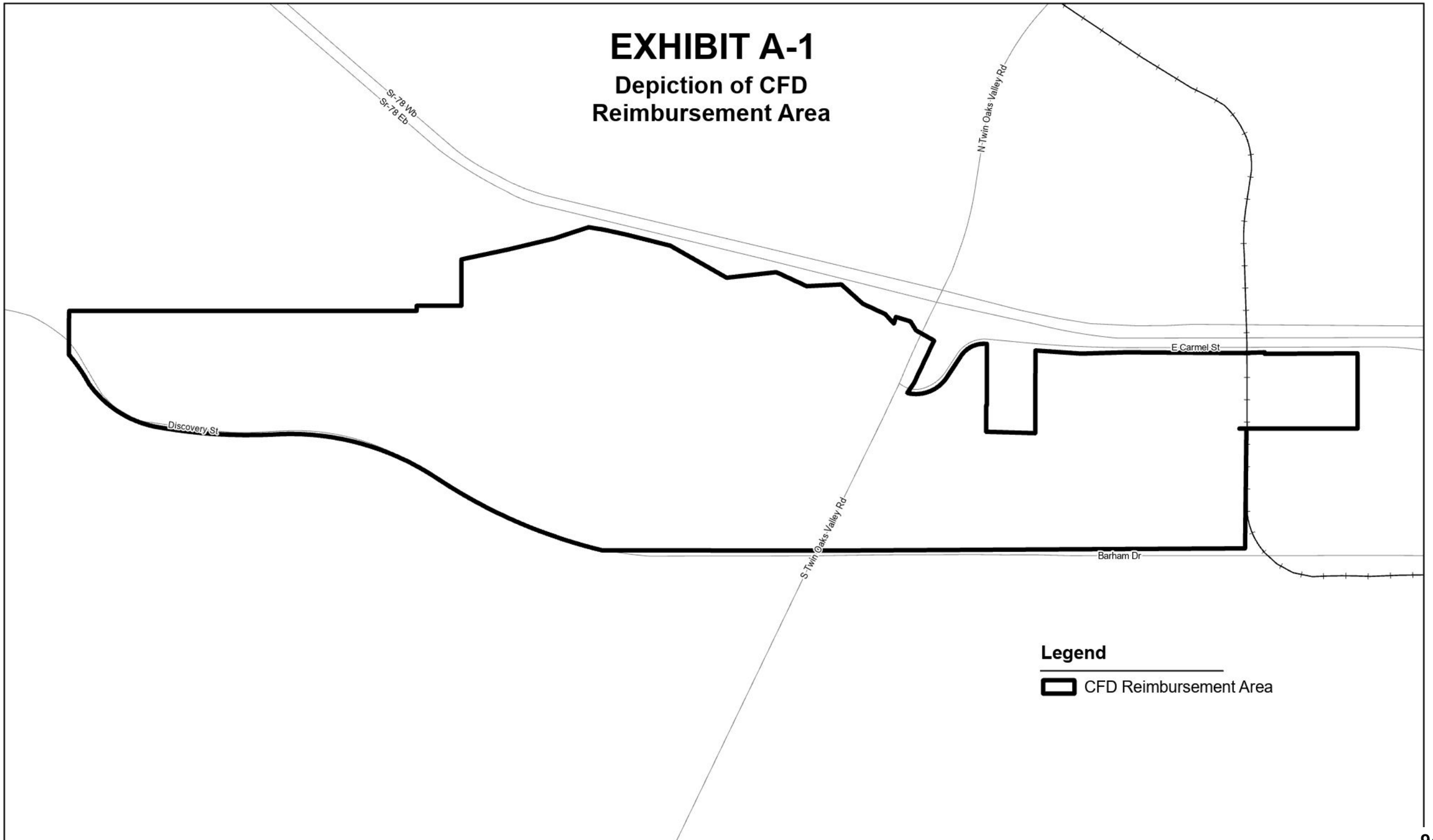
EXHIBIT A-1 and A-2

Exhibit A-1: Depiction of CFD Reimbursement Area

Exhibit A-2: List of Parcels Within the CFD Reimbursement Area

EXHIBIT A-1

Depiction of CFD Reimbursement Area



5/14/2026 03:30 PM

Exhibit A-2
List of Parcels Within the CFD Reimbursement Area

APN	APN	APN	APN
220-172-01-01	220-172-03-13	220-172-07-23	220-172-09-15
220-172-01-02	220-172-03-14	220-172-07-24	220-172-09-16
220-172-01-03	220-172-03-15	220-172-07-25	220-172-09-17
220-172-01-04	220-172-03-16	220-172-07-26	220-172-09-18
220-172-01-05	220-172-03-17	220-172-07-27	220-172-09-19
220-172-01-06	220-172-03-18	220-172-07-28	220-172-09-20
220-172-01-07	220-172-03-19	220-172-07-29	220-172-09-21
220-172-01-08	220-172-03-20	220-172-07-30	220-172-09-22
220-172-01-09	220-172-03-21	220-172-07-31	220-172-09-23
220-172-02-01	220-172-03-22	220-172-07-32	220-172-09-24
220-172-02-02	220-172-03-23	220-172-07-33	220-172-09-25
220-172-02-03	220-172-03-24	220-172-07-34	220-172-09-26
220-172-02-04	220-172-03-25	220-172-07-35	220-172-09-27
220-172-02-05	220-172-03-26	220-172-07-36	220-172-09-28
220-172-02-06	220-172-03-27	220-172-07-37	220-172-09-29
220-172-02-07	220-172-03-28	220-172-07-38	220-172-09-30
220-172-02-08	220-172-03-29	220-172-07-39	220-172-09-31
220-172-02-09	220-172-03-30	220-172-07-40	220-172-09-32
220-172-02-10	220-172-03-31	220-172-07-41	220-172-09-33
220-172-02-11	220-172-03-32	220-172-07-42	220-172-09-34
220-172-02-12	220-172-03-33	220-172-07-43	220-172-09-35
220-172-02-13	220-172-03-34	220-172-07-44	220-172-09-36
220-172-02-14	220-172-03-35	220-172-07-45	220-172-09-37
220-172-02-15	220-172-03-36	220-172-07-46	220-172-09-38
220-172-02-16	220-172-03-37	220-172-07-47	220-172-09-39
220-172-02-17	220-172-03-38	220-172-07-48	220-172-09-40
220-172-02-18	220-172-03-39	220-172-07-49	220-172-09-41
220-172-02-19	220-172-04-01	220-172-07-50	220-172-09-42
220-172-02-20	220-172-04-02	220-172-07-51	220-172-09-43
220-172-02-21	220-172-04-03	220-172-07-52	220-172-09-44
220-172-02-22	220-172-04-04	220-172-07-53	220-172-09-45
220-172-02-23	220-172-04-05	220-172-07-54	220-172-09-46
220-172-02-24	220-172-04-06	220-172-07-55	220-172-09-47
220-172-02-25	220-172-04-07	220-172-07-56	220-172-09-48
220-172-02-26	220-172-04-08	220-172-07-57	220-172-09-49
220-172-02-27	220-172-04-09	220-172-07-58	220-172-09-50
220-172-02-28	220-172-05-01	220-172-07-59	220-172-09-51
220-172-02-29	220-172-06-01	220-172-07-60	220-172-09-52
220-172-02-30	220-172-07-01	220-172-07-61	220-172-09-53
220-172-02-31	220-172-07-02	220-172-07-62	220-172-09-54
220-172-02-32	220-172-07-03	220-172-07-63	220-172-09-55
220-172-02-33	220-172-07-04	220-172-07-64	220-172-09-56
220-172-02-34	220-172-07-05	220-172-07-65	220-172-09-57
220-172-02-35	220-172-07-06	220-172-07-66	220-172-09-58
220-172-02-36	220-172-07-07	220-172-07-67	220-172-09-59
220-172-02-37	220-172-07-08	220-172-08-00	220-172-09-60
220-172-02-38	220-172-07-09	220-172-09-01	220-172-09-61
220-172-02-39	220-172-07-10	220-172-09-02	220-172-09-62
220-172-03-01	220-172-07-11	220-172-09-03	220-172-09-63
220-172-03-02	220-172-07-12	220-172-09-04	220-172-09-64
220-172-03-03	220-172-07-13	220-172-09-05	220-172-09-65
220-172-03-04	220-172-07-14	220-172-09-06	220-172-09-66
220-172-03-05	220-172-07-15	220-172-09-07	220-172-09-67
220-172-03-06	220-172-07-16	220-172-09-08	220-172-09-68
220-172-03-07	220-172-07-17	220-172-09-09	220-172-09-69
220-172-03-08	220-172-07-18	220-172-09-10	220-172-09-70
220-172-03-09	220-172-07-19	220-172-09-11	220-172-09-71
220-172-03-10	220-172-07-20	220-172-09-12	220-172-09-72
220-172-03-11	220-172-07-21	220-172-09-13	220-172-09-73
220-172-03-12	220-172-07-22	220-172-09-14	220-172-09-74

Exhibit A-2
List of Parcels Within the CFD Reimbursement Area

APN	APN	APN	APN
220-172-09-75	220-172-23-43	220-202-27-00	221-100-71-00
220-172-09-76	220-172-23-44	220-202-28-00	221-100-72-00
220-172-09-77	220-172-24-01	220-202-32-00	221-100-73-00
220-172-09-78	220-172-24-02	220-202-35-00	221-100-74-00
220-172-09-79	220-172-24-03	220-202-37-00	221-100-76-00
220-172-10-00	220-172-24-04	220-202-38-00	221-100-77-00
220-172-11-00	220-172-24-05	220-202-41-00	221-100-78-00
220-172-12-00	220-172-24-06	220-202-43-00	221-100-79-00
220-172-13-00	220-172-24-07	220-202-45-00	221-100-80-00
220-172-14-00	220-172-24-08	220-202-47-00	221-110-09-00
220-172-15-00	220-172-24-09	220-202-48-00	221-110-10-00
220-172-16-00	220-172-24-10	220-202-58-00	221-110-12-00
220-172-17-00	220-172-24-11	220-202-59-00	221-110-16-00
220-172-18-00	220-172-24-12	220-202-60-01	221-110-17-00
220-172-19-00	220-172-24-13	220-202-60-02	221-110-18-00
220-172-20-00	220-172-24-14	220-202-61-00	221-110-22-00
220-172-21-00	220-172-24-15	220-202-62-01	221-110-23-00
220-172-22-00	220-172-24-16	220-202-62-02	221-110-24-00
220-172-23-01	220-172-24-17	220-202-62-03	221-110-26-00
220-172-23-02	220-172-24-18	220-202-62-04	221-110-27-00
220-172-23-03	220-172-24-19	220-202-63-00	221-110-28-00
220-172-23-04	220-172-24-20	220-202-66-00	221-110-29-00
220-172-23-05	220-172-24-21	220-202-70-00	221-110-32-00
220-172-23-06	220-172-24-22	220-202-76-00	221-110-33-00
220-172-23-07	220-172-24-23	220-202-77-00	221-110-42-00
220-172-23-08	220-172-24-24	221-080-18-00	221-110-63-00
220-172-23-09	220-172-24-25	221-080-23-00	221-110-67-00
220-172-23-10	220-172-24-26	221-080-24-00	221-110-68-00
220-172-23-11	220-172-24-27	221-080-25-00	221-110-71-00
220-172-23-12	220-172-24-28	221-080-27-00	221-110-72-00
220-172-23-13	220-172-24-29	221-080-28-00	221-110-73-00
220-172-23-14	220-172-24-30	221-080-30-00	221-110-74-00
220-172-23-15	220-172-24-31	221-080-31-00	221-110-75-00
220-172-23-16	220-172-24-32	221-100-02-00	221-110-84-00
220-172-23-17	220-172-24-33	221-100-03-00	221-110-85-00
220-172-23-18	220-172-24-34	221-100-04-00	221-111-01-00
220-172-23-19	220-172-24-35	221-100-09-00	221-111-02-00
220-172-23-20	220-172-24-36	221-100-10-00	221-111-03-00
220-172-23-21	220-172-24-37	221-100-21-00	221-111-04-00
220-172-23-22	220-172-24-38	221-100-22-00	221-111-05-00
220-172-23-23	220-172-25-00	221-100-24-00	221-142-19-00
220-172-23-24	220-172-26-00	221-100-35-00	221-142-20-00
220-172-23-25	220-172-27-00	221-100-37-00	221-142-22-00
220-172-23-26	220-172-28-00	221-100-38-00	221-142-23-00
220-172-23-27	220-172-29-00	221-100-40-00	221-142-24-00
220-172-23-28	220-190-52-00	221-100-45-00	221-142-25-00
220-172-23-29	220-201-91-00	221-100-46-00	760-167-62-00
220-172-23-30	220-201-92-00	221-100-47-00	760-248-15-00
220-172-23-31	220-202-12-00	221-100-48-00	760-248-16-00
220-172-23-32	220-202-13-00	221-100-54-00	760-248-55-04
220-172-23-33	220-202-14-00	221-100-55-00	
220-172-23-34	220-202-15-00	221-100-56-00	
220-172-23-35	220-202-16-00	221-100-58-00	
220-172-23-36	220-202-17-00	221-100-59-00	
220-172-23-37	220-202-18-00	221-100-60-00	
220-172-23-38	220-202-19-00	221-100-61-00	
220-172-23-39	220-202-20-00	221-100-62-00	
220-172-23-40	220-202-21-00	221-100-63-00	
220-172-23-41	220-202-24-00	221-100-65-00	
220-172-23-42	220-202-26-00	221-100-66-00	

Staff Report

File #:TMP-2444

MEETING DATE:
MAY 26, 2026

SUBJECT:

RESOLUTION NOS. 2026-9599, 2026-9600 & 2026-9601 - AUTHORIZING PARTICIPATION IN THE CALIFORNIA JOINT POWERS INSURANCE AUTHORITY EXCESS WORKERS' COMPENSATION PROGRAM AND RELATED ACTIONS

Recommendation
Adopt the following:

1. Resolution authorizing the City of San Marcos to participate in the California Joint Powers Insurance Authority (JPIA) Excess Workers' Compensation Protection Program.
2. Resolution authorizing submission of an application to the California Department of Industrial Relations for a Certificate of Consent to Self-Insure.
3. Resolution authorizing inclusion of City volunteers in the workers' compensation coverage program.

Board or Commission Action
Not applicable

Executive Summary
The City conducted a best value analysis comparing its existing workers' compensation structure with alternative options, including participation in the CJPIA's Excess Workers' Compensation Protection Program.

The analysis determined that joining the CJPIA program offers the best overall value to the City by improving cost stability, reducing exposure to large or catastrophic claims, and providing access to comprehensive claims management and risk control services.

To implement this transition, three related actions are required: (1) authorization to join the JPIA Excess Workers' Compensation Program, (2) approval to apply for a Certificate of Consent to Self-Insure from the State, and (3) authorization to continue to include volunteers within the City's workers' compensation coverage under this new insurance program provider.

In connection with this transition, the City is coordinating with the Public Agency Self Insurance System (PASIS) regarding the City's withdrawal from the current workers' compensation program. Related transition and withdrawal matters are currently under development and are expected to be considered by the PASIS Board in mid-June 2026. Staff will return to the City Council with any additional actions or agreements, if necessary.

Discussion
Adoption of the proposed resolutions will allow the City to maintain required workers' compensation coverage while transitioning to the CJPIA excess coverage program. Bringing both general liability and workers' compensation claims under the same risk management portfolio increases the city's ability to more effectively manage claims and access the value-added services from a robust, risk management agency specializing in the needs of the public sector.

Resolution 1 - Participation in CJPIA Program
Authorizes the City to participate in the CJPIA Excess Workers' Compensation Protection Program effective July 1, 2026, for a minimum three-year commitment. This provides excess insurance coverage above the City's self-insured retention level and protects against large losses.

Under this program:

- The City will self-insure for workers' compensation claims up to a defined retention level. After a review of the claim experience, it was determined to continue with the existing self insured retention (SIR) level.
- CJPIA will provide excess insurance coverage above that level, protecting the City from catastrophic losses.

Participation in the program offers several advantages:

- **Cost Stability:** Pooling risk reduces volatility in annual workers' compensation costs.
- **Financial Protection:** Excess coverage limits exposure to large or catastrophic claims.
- **Administrative Efficiency:** CJPIA provides claims administration, risk management, and regulatory compliance support.
- **Member Collaboration:** Access to best practices and shared expertise among participating agencies.

Resolution 2 - Certificate of Consent to Self-Insure
Authorizes the City Manager or designee to apply to the California Department of Industrial Relations for a Certificate of Consent to Self-Insure, a required step for implementing a self-insured workers' compensation program under a new carrier.

Resolution 3 - Inclusion of Volunteers
Authorizes the City to provide workers' compensation coverage to qualified City volunteers pursuant to California Labor Code Section 3363.5. Under this provision, volunteers performing authorized services for the City may be deemed employees solely for the purpose of workers' compensation coverage, without receiving any other rights or benefits of employment.

This action aligns with best practices in risk management and ensures that individuals providing volunteer services on behalf of the City are appropriately covered in the event of a work-related injury and limits general liability exposure for incidents that arise out of volunteer duties.

Environmental Review
Not applicable

Fiscal Impact

The initial annual contribution for participation in the Excess Workers' Compensation Protection Program is **$479,100**, subject to adjustment based on CJPIA determinations. Additional deposits or adjustments may be required in accordance with the CJPIA Joint Powers Agreement. Funding for this program is included in the proposed Fiscal Year 2026-27 budget within the Human Resources department.

Attachment(s)

Resolution 1
Resolution 2
Resolution 3

Prepared by: Jacob Lizarraga, Senior Management Analyst, HR/Risk
Submitted by: Jacob Lizarraga, Senior Management Analyst, HR/Risk
Reviewed by: Janelle Laughlin, Administrative Services Director
Approved by: Michelle Bender, City Manager

RESOLUTION NO. 2026-XXXX

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS, CALIFORNIA, TO AUTHORIZE AND APPROVE POOLING OF SELF-INSURANCE THROUGH THE EXCESS WORKERS' COMPENSATION PROGRAM OF THE CALIFORNIA JOINT POWERS INSURANCE AUTHORITY

WHEREAS, pursuant to the provisions of Section 6500 et seq. and also Sections 990.4 and 990.8 of the California Government Code, the California Joint Powers Insurance Authority ("California JPIA") was created in 1977; and

WHEREAS, the City of San Marcos has executed the Joint Powers Agreement to become a member of the California JPIA; and

WHEREAS, the California JPIA has established and administered a number of successful Workers' Compensation Self-Insurance and Loss Pooling Programs for its members since April 1, 1978; and

WHEREAS, there are significant financial and administrative advantages for the City of San Marcos to provide workers' compensation coverage for its employees through the Excess Workers' Compensation Protection Program of California JPIA.

NOW, THEREFORE, the City Council of the City of San Marcos, California, does hereby resolve as follows:

SECTION 1. Workers' Compensation coverage for the City of San Marcos through the Excess Workers' Compensation Protection Program of the California JPIA is hereby authorized and directed, effective July 1, 2026, for a minimum commitment period of three years, pursuant to the terms of the Excess Workers' Compensation Protection Program Memorandum of Coverage in effect at the time of any occurrence covered by the Memorandum of Coverage.

SECTION 2. The City Manager or his/her designee of the City of San Marcos is authorized and directed to apply to the Department of Industrial Relations for a Certificate of Consent to Self-Insure, and to take such other actions as necessary to effectuate self-insurance of workers' compensation for employees of the City of San Marcos.

SECTION 3. An initial annual contribution of $479,100, or such pro-rata part thereof as the California JPIA might determine for coverage of less than a fiscal period, for the Excess Workers' Compensation Protection Program is approved and appropriate officers of the City of San Marcos are authorized to pay the same to the California JPIA.

SECTION 4. The City of San Marcos will subsequently be required to make deposits and deposit adjustments as provided in Articles 17 and 21 of the California JPIA Joint Powers Agreement.

SECTION 5. The City Clerk shall certify to the adoption of this resolution.

SECTION 6. That the City Clerk is directed to forward a certified copy of this Resolution to the California JPIA, 8081 Moody Street, La Palma, CA 90623.

PASSED, APPROVED AND ADOPTED by the City Council of the City of San Marcos, California, this 26th day of May 2026, by the following roll call vote:

AYES: COUNCILMEMBERS:
NOES: COUNCILMEMBERS:
ABSENT: COUNCILMENBERS:

_____
Rebecca D. Jones, Mayor
City of San Marcos

ATTEST:

_____
Phillip Scollick, City Clerk
City of San Marcos

RESOLUTION NO. 2026-XXXX

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS AUTHORIZING APPLICATION TO THE DIRECTOR OF INDUSTRIAL RELATIONS, STATE OF CALIFORNIA, FOR A CERTIFICATE OF CONSENT TO SELF-INSURE WORKERS' COMPENSATION LIABILITIES

WHEREAS, the City of San Marcos (City) is a municipal corporation organized and existing under the laws of the State of California; and

WHEREAS, the City is a chartered municipal corporation organized and existing under the laws of the State of California; and

WHEREAS, the City Council finds it to be in the best interest of the City to authorize such application and designate representatives to execute the necessary documents.

WHEREAS, there are significant financial and administrative advantages for the City to provide workers' compensation coverage for its employees through the Excess Workers' Compensation Protection Program of California JPIA.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of San Marcos as follows:

SECTION 1. The City is hereby authorized and empowered to make application to the Director of Industrial Relations, State of California, for a Certificate of Consent to Self-Insure workers' compensation liabilities.

SECTION 2. The City Manager, or their designee, is hereby authorized to execute any and all documents required for such application and to take any additional actions as may be necessary to carry out the intent of this Resolution.

PASSED, APPROVED AND ADOPTED by the City Council of the City of San Marcos, California, this 26th day of May 2026, by the following roll call vote:

AYES: COUNCILMEMBERS:

NOES: COUNCILMEMBERS:

ABSENT: COUNCILMENBERS:

_____
Rebecca D. Jones, Mayor
City of San Marcos

ATTEST:

_____
Phillip Scollick, City Clerk
City of San Marcos

RESOLUTION NO. 2026-XXXX

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS TO PROVIDE WORKERS' COMPENSATION COVERAGE FOR CERTAIN CITY VOLUNTEERS PURSUANT TO THE PROVISIONS OF SECTION 3363.5 OF THE LABOR CODE

WHEREAS, the City of San Marcos (City) utilizes the services of volunteers; and

WHEREAS, California Labor Code (Labor Code) section 3363.5 (a) provides that "a person who performs voluntary service without pay for a public agency, as designated and authorized by the governing body of the agency or its designee, shall, upon adoption of a resolution by the governing body of the agency so declaring, be deemed to be an employee of the agency for the purpose of this division while performing such service;" and

WHEREAS, Labor Code section 3363.5 (b) defines voluntary service without pay as "services performed by any persons who receive no remuneration other than meals, transportation, lodging, or reimbursement for incidental expenses;" and

WHERAS, the City wishes to extend Workers' Compensation coverage to volunteers as provided by California law as provided in Labor Code section 3363.5, subsections (a) and (b).

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF SAN MARCOS DOES HEREBY RESOLVE, ORDER, AND DETERMINE THE FOLLOWING:

SECTION 1. That those persons performing voluntary service for the City as defined by Labor Code section 3363.5 (a) and (b) shall be deemed to be employees of the City of San Marcos for the purpose of Workers' Compensation coverage as provided in Division 4 of the Labor Code while they are performing such services.

SECTION 2:That such individuals designated in Section 1, above, will not be considered employees of the City of San Marcos for any purpose other than such Workers' Compensation coverage and only while they are performing such services, nor will such persons be granted any other duty, right, or responsibility, nor will such persons be allowed to claim any other benefit(s) or right(s) earned by, or provided to, paid employees of the City.

SECTION 2. The City Clerk shall certify the adoption of this Resolution.

PASSED, APPROVED AND ADOPTED by the City Council of the City of San Marcos, California, this 26th day of May 2026, by the following roll call vote:

AYES: COUNCILMEMBERS:

NOES: COUNCILMEMBERS:

ABSENT: COUNCILMENBERS:

_____

Rebecca D. Jones, Mayor
City of San Marcos

ATTEST:

_____

Phillip Scollick, City Clerk
City of San Marcos

File #:26-2885

MEETING DATE:
MAY 26, 2026

SUBJECT:

RESOLUTION NO. MHP 2026-50 - SPRINGDALE ESTATES MONTHLY RENT INCREASE FOR THE SPACES AFFECTED BY THE SEPTEMBER 2025 RENT INCREASE NOTICE

Recommendation
ADOPT resolution granting Springdale Estates a monthly rent increase for the spaces affected by the September 2025 rent increase notice.

Board or Commission Action
The San Marcos Mobilehome Rent Review Commission (Commission) held a hearing on May 19, 2026 pursuant to San Marcos Municipal Code (SMMC) Chapter 16.16 and the Commission Procedures (Procedures), adopted by the Commission for the conduct of rent review hearings.

Executive Summary
The Commission is the authority for proposed mobilehome space rent increases, pursuant to “SMMC” Chapter 16.16. In September 2025, the owners of Springdale Estates mobilehome park (Springdale) notified the park tenants of a proposed 4% rent increase, to be effective January 1, 2026. In response, a majority of the affected park tenants signed a petition, which was filed with the City, requesting review of the proposed increase. The hearing was conducted and the Commission, based on the evidence submitted by the parties, the evaluation of the Commission consultants, and testimony presented at the hearing, granted a rent increase as to those spaces affected by the September 2025 notice.

Discussion
Springdale Estates is an all-ages mobile home park located at 2907 South Santa Fe Avenue with 85 spaces. It is owned by Kleege Enterprises. On September 25, 2025, the City received notice that the park owner had notified its tenants of its intent to increase space rents by 4%, beginning January 1, 2026, affecting 84 of the 85 spaces. On October 26, 2025, the City received a petition signed by a majority of the affected Springdale tenants in response to the rent increase notice distributed to them in September 2025 (the Petition). Upon receiving the Petition, the City determined that it met the requirements of SMMC Chapter 16.16 and notified the park owner and tenant representative that the rent increase was stayed pending a review and decision by the Commission.

At its hearing on May 19, the Commission received and considered testimony from the parties and from its fair return expert Dr. Baar, deliberated on the matter, and reached its decision based upon the evidence

presented. The Commission determined that a monthly space rent increase equivalent to 75% of the applicable CPI of 4%, calculated to be 3%, was reasonable and necessary to enable the park owner to receive a just and reasonable return on its investment, to be applied as a uniform dollar amount per space. Based on the average Springdale space rent of $879, the Commission unanimously approved a uniform rent increase of $26.37 per space, per month, effective May 26, 2026 pursuant to the Procedures, for the affected 84 spaces.

The attached Resolution memorializing the Commission's determination is presented for its consideration and action.

Attachments:
Resolution

Prepared by: Jill D.S. Maland, Assistant City Attorney
Approved by: Helen Holmes Peak, City Attorney
Reviewed by: Michelle Bender, City Manager

RESOLUTION NO. MHP 2026-50

A RESOLUTION OF THE SAN MARCOS RENT REVIEW COMMISSION GRANTING SPRINGDALE ESTATES A MONTHLY RENT INCREASE FOR THE SPACES AFFECTED BY THE SEPTEMBER 2025 RENT INCREASE NOTICE

WHEREAS, Springdale Estates, is an all-ages mobilehome park located at 2907 South Santa Fe Avenue, San Marcos, California (Park); and

WHEREAS, on September 25, 2025, the Park Owner (Kleege Enterprises) sent a notice of monthly space rent increase to the tenants of spaces 2 through 85, noticing an increase of 4%, to commence on January 1, 2026 (Notice); and

WHEREAS, on October 26, 2026, the City of San Marcos (City) received a petition submitted by the tenants to review the proposed monthly space rent increase, which petition was in the appropriate format, contained the required minimum number of signatures of affected tenants, designated a Tenant Representative, and was timely filed pursuant to the provisions of the City of San Marcos Mobilehome Rent Review Ordinance [San Marcos Municipal Code (SMMC), Chapter 16.16] (Petition); and

WHEREAS, on October 31, 2026, the City Clerk certified that the rent review Petition complied with the requirements of the Rent Review Ordinance, and notified the Park Owner and Tenant Representative that the increase was stayed pending review by the San Marcos Mobilehome Rent Review Commission, pursuant to SMMC section 16.16.060; and

WHEREAS, in accordance with SMMC section 16.16.070, the Commission hearing on the Petition was set for March 10, 2026, with the Park Owner's initial submission due on January 27, 2026, pursuant to the Commission Procedures, adopted by the Commission for the conduct of rent review hearings; and

WHEREAS. SMMC Chapter requires park owners to provide certain income and expense information and other specified information in advance of a rent review petition hearing; and

WHEREAS, in accordance with SMMC chapter 16.16 and the Commission's Procedures, the Park Owner's initial submission of information supporting the proposed

increase was due on January 27, 2026; and

WHEREAS, the Park Owner did not file its submission by the deadline and was notified by the City on January 28, 2026, that the City had not received its submission, and the Park Owner and Tenant Representative agreed to reschedule the hearing for April 14, 2026; and

WHEREAS, the Park Owner filed its initial written submission for the continued hearing on March 3, 2026, and the Tenant Representative filed their written response on March 24, 2026, in accordance with the Commission's Procedures; and

WHEREAS, upon review of the Park Owner's submittal, the Commission's fair return expert, Dr. Kenneth Baar, noted that it was lacking certain necessary information and that the lack of such information inhibited his ability to conduct the necessary fair return analysis and, as a result, the Park Owner and Tenant Representative agreed to further continue the hearing date to May 19, 2026; and

WHEREAS, Dr. Baar issued his Analysis of the Springdale Estates Rent Increase Application on April 28, 2026, and the Park Owner and Tenant Representatives filed their final submittals on May 7, 2026, and May 12, 2026, respectively; and

WHEREAS, a hearing was held on May 19, 2026, pursuant to Chapter 16.16 and the Commission Procedures; and

WHEREAS, at the May 19, 2026 hearing, the Commission heard testimony and considered evidence presented by George Gregory on behalf of the Park Owner, Tim Sheahan, the Tenant Representative, affected tenants, and Dr. Kenneth Baar, and considered such other information presented at the hearing and in the parties' submissions and in Dr. Baar's report, as evidenced in the hearing record; and

WHEREAS, San Marcos Municipal Code section 16.16.070(g) provides, in part, that the Park Owner shall bear the burden of proving by a preponderance of the evidence, that a proposed space rent increase is reasonable and necessary to enable it to receive a just and reasonable return on its investment; and

WHEREAS, Section 16.16.070(g) states that: *"In evaluating a proposed space rent increase the Commission shall consider the following non-exclusive factors in addition to such other factors as the Commission deems relevant."* and establishes the following seven (7) non-exclusive factors which the Commission shall consider in evaluating the

proposed space rent increase:

(1) Changes in the mobilehome parkowner's gross income from the operation of the mobilehome park;

(2) Changes in the reasonable operating expenses relating to the operation of the mobilehome park;

(3) Whether the proposed rent increase will result in an increase in net income to the parkowner from the operation of the park;

(4) Changes in the Consumer Price Index ("CPI") for the time period since the last rent increase;

(5) Changes in the services, amenities, maintenance and condition of the mobilehome park and the extent to which the rent increase is necessary to provide the services or amenities or to insure maintenance and good operating condition of the park;

(6) The extent to which the rent increase is necessary to pay for capital improvements, and the amount of money allocated by the owner to a capital improvement or maintenance fund, along with the parkowner's budget for maintenance, care and capital improvements for the park; and,

(7) The extent to which the landlord [parkowner] receives net income from fees or charges for utilities, or incidental fees or changes for services billed separately from rent; and

WHEREAS, at the May 19, 2026 hearing, the individual Commissioners deliberated and came to a decision based upon the evidence presented.

NOW, THEREFORE, the Mobilehome Rent Review Commission of the City of San Marcos resolves:

1. The foregoing recitations are true and correct and are incorporated into the Commission's findings set forth below.

2. The Commission finds as follows:

a. The Park contains 84 rent-controlled spaces, with current monthly rents ranging from approximately $496 to more than $1,200, and an average monthly rent of approximately $879. The substantial disparity in rents, and the fact that some space rents are significantly above the average, is largely attributable to

the fact that, for significant periods, many Park spaces were subject to long-term leases exceeding twelve (12) months in duration, which, under California law then in effect, were exempt from local mobilehome park rent regulation. Under those exempt leases, annual rent increases were not subject to the City's rent control ordinance and were not tied to the Consumer Price Index (CPI"). In some instances, exempt leases in Springdale authorized annual rent increases of 10% to 12% during periods in which inflation was only a few percent or less. In 2020, California enacted AB 2782, which repealed the exemption from local rent regulation for such long-term leases effective January 1, 2025. In addition to space rent, Park Tenants also pay utility charges, including submetered gas and electricity, water, trash, and sewer charges, which average approximately $227 per month.

b. The Park Owner requested a 4% monthly space rent increase, effective January 1, 2026, based upon the 4% increase in the CPI from July 2024 through July 2025. The Park Owner's justification for the requested increase was based solely upon the CPI factor and was not predicated upon any claimed increase in actual operating expenses.

c. Excluding utility expenses that are passed through directly to Tenants, the remaining operating expenses in the Park are approximately 25% of rental income. Although the Park Owner described several planned capital improvements, the Park Owner did not rely upon those costs, or other increased operating expenses, to justify the proposed rent increase.

d. The Tenants opposed the proposed 4% CPI increase, arguing that the Park Owner had not met its burden of proof by a preponderance of the evidence and proposing various alternative rent adjustment approaches.

e. The Tenant Representative testified that Park rents are well-above those in comparable parks and that the Park Owner had obtained substantial increases pursuant to leases previously exempt from the City's Rent Review Ordinance.

f. The Tenant Representative submitted testimony and historical documentation indicating that the Park's current average rent of approximately $879 per month was substantially higher than average rents at comparable mobilehome parks in San Marcos and argued that, if the comparable-rent analysis utilized by the Commission in some prior proceedings were applied currently, no rent increase should be granted.

g. Alternatively, relying upon a comparable rent approach, the Tenant Representative proposed that the Commission authorize a fixed-dollar increase of approximately $20 per month, which they asserted was consistent with the most recent rent increase implemented at Vista Meadows Mobilehome Park, which they identified as the most comparable park.

h. As a further alternative, the Tenant Representative proposed that the Commission utilize a rent adjustment standard based upon 75% of the CPI increase, noting that several California jurisdictions with mobilehome rent control ordinances utilize 75% of CPI as the benchmark for annual rent adjustments. The Tenant Representative also noted that the cities of Chula Vista and Santee, where the Park Owner owns other mobilehome parks, utilize a 75% CPI standard.

i. In addition, because of the substantial disparity among existing space rents within the Park, the Tenant Representative suggested that any approved rent increase should be implemented as a fixed dollar increase rather than as a uniform percentage increase.

j. The Tenant Representative also contended that, under the Park's recent ownership, there had been reductions in services and amenities and that no increase should be granted until amenities were restored and various water service issues resolved. The Commission considered testimony from the Park Owner regarding planned and ongoing improvements, which was corroborated in part by statements from certain tenants, and found that efforts were being

undertaken to remedy issues that had not been adequately addressed by prior ownership, including water pressure issues, fence repairs, and clearing of debris.

k. Staff Consultant Dr. Baar began his report by confirming that there was a wide discrepancy in current park rents and that from 2019 through 2025, annual rent increases for rent-controlled spaces in the Park had ranged from approximately 61% to 100% of the annual CPI increase.

l. After reviewing the claims presented by the Park Owner, the Tenant Representative, and affected tenants, and considering the rent adjustment factors set forth in the City's Rent Ordinance, Dr. Baar explained that, assuming Park operating expenses equal approximately 50% of rental income and increase at the same rate as the CPI, a rent increase equal to approximately 88% of the CPI increase would allow the Net Operating Income ("NOI") portion of rental income to increase by approximately 75% of the CPI increase. Dr. Baar further noted that, in at least some recent proceedings, the Commission had approved rent increases resulting in NOI increases of approximately 75% of CPI. Based upon those assumptions, Dr. Baar concluded that a rent increase equal to 88% of the 4% increase in the CPI would permit the Park's space rents to increase by approximately 3.5%.

m. Dr. Baar noted that rent control ordinances typically authorize increases on a fixed percentage basis. However, he indicated that a fixed-dollar increase may be appropriate in a mobile home park with substantial disparities in rents among spaces because operating cost increases generally affect spaces uniformly in dollar terms, rather than varying among spaces depending on differences in their rent levels. Applying a 3.5% increase to the Park's overall average rent of $879, Dr. Baar calculated a fixed-dollar increase of approximately $30.79 per month, which he recommended.

n. Dr. Baar further discussed an alternative methodology referenced in his report based upon a rent increase equal to 75% of the CPI increase, which would permit growth in net operating income adequate to meet the standards

established in California appellate court decisions. Assuming operating expenses equal approximately 50% of rental income, Dr. Baar explained that a rent increase equal to 75% of CPI would permit NOI portion of rental income to increase by approximately 50% of the CPI increase. Dr. Baar noted that California appellate courts have upheld fair-return formulas allowing NOI increases in the range of 40% to 50%. Dr. Baar calculated that a rent increase equal to 75% of the CPI increase would result in a 3% increase in space rents and that applying a 3% increase to the Park's overall average rent of $879 would result in a fixed-dollar increase of approximately $26.37 per month.

o. During the hearing, the Tenant Representative expressed concern that any approved increase might be made retroactive to January 1, 2026, the date originally proposed by the Park Owner. Pursuant to San Marcos Municipal Code section 16.16.070(a), the fact that the hearing was continued and not conducted within sixty (60) days after receipt of the Tenant Petition does not render the increase retroactive to January 1, 2026, unless the Park Owner objects to such a continuance. Here the Park Owner did not object. Furthermore, the hearing was continued from March 10, 2026 to April 14, 2026, by mutual agreement of the parties, due to the Park Owner's failure to submit its initial submission by the required deadline, and was continued again to May 19, 2026, by mutual agreement of the parties, after review of the Park Owner's initial submission identified certain required information was not included and additional time was needed after the information was ultimately provided.

p. Pursuant to Section 2(g) of the San Marcos Mobilehome Rent Review Commission Procedures, the approved increase shall become effective upon full execution of this Resolution, because the Commission approved a rent increase in an amount less than that set forth in the Park Owner's original notice of rent increase, and more than ninety (90) days have elapsed since service of that notice.

3. The Commission considered all evidence presented at the hearing, including: (1) the Tenants Representative's position that no rent increase should be approved or, alternatively, that any increase should be limited to approximately $20 per month; (2) Dr. Baar's report and recommendation that the Commission approve a 3.5% CPI adjustment, resulting in a fixed monthly rent increase of $30.79; (3) the Park Owner's agreement that a fixed monthly increase of $30.79 would be reasonable; (4) evidence that the Park's average rents are substantially higher than rents at comparable parks; (5) evidence that the Park's operating expenses, excluding utility costs passed through to tenants, are approximately 25% of rental income; (6) the fact that the Park Owner did not base its requested increase on increased operating expenses or prior capital improvement expenditures; (7) evidence that several other California jurisdictions apply a 75% CPI standard in mobilehome space rent regulation; and (8) Dr. Baar's alternative opinion that a 3% CPI adjustment, resulting in a fixed monthly increase of $26.37 as discussed in his report, would also provide the Park Owner with a constitutionally adequate fair return.

4. Based upon the foregoing findings, the evidence presented to the Commission, and the testimony and information considered at the hearing, the Commission authorizes Springdale Estates to increase space rents by an amount equal to 75% of the annual CPI increase, which in this instance equals a 3% increase. Applied to the Park's overall average space rent of $879, this results in an approved fixed-dollar rent increase of $26.37 per month, effective upon full execution of this Resolution.

PASSED AND APPROVED at a special meeting of the San Marcos Rent Review Commission held on the 26th day of May 2026, by the following roll call vote.

AYES: COMMISSIONERS:
NOES: COMMISSIONERS:
ABSENT: COMMISSIONERS:

_____

Rebecca D. Jones, Chair
Mobilehome Rent Review Commission
City of San Marcos

ATTEST:

_____

Phillip Scollick, Commission Clerk
Mobilehome Rent Review Commission
City of San Marcos

Staff Report

File #:TMP-2452

MEETING DATE:
MAY 26, 2026

SUBJECT:

RESOLUTION NOS. 2026-9602 & 2026-9603 - BROWN ACT UPDATES (SB 707) MEETING POLICIES REGARDING PROTOCOLS INCLUDING TECHNOLOGY DISRUPTION AND OUTREACH POLICIES

Recommendation

1. ADOPT resolution regarding Brown Act updates including meeting policies and procedures regarding technology disruptions in compliance with Government Code § 54953.4.
2. ADOPT resolution related to “reasonable efforts” for outreach to encourage participation in City Council meetings under Government Code § 54953.4.

Board or Commission Action
Not Applicable

Executive Summary
The Ralph M. Brown Act (Government Code § 54950 et seq.) establishes requirements for open meetings of local legislative bodies. SB 707 updates provisions related to teleconferencing, including requirements for remote participation, accessibility, and procedures for addressing disruptions to meeting access for City Council meetings.

Among other requirements, SB 707 requires the City Council to adopt a technology disruption policy and to determine what constitutes reasonable efforts for outreach to encourage public participation in City Council meetings, particularly among underrepresented and non-English-speaking communities. These policies must be adopted by July 1, 2026.

Discussion
Senate Bill 707 (SB 707, 2025) updates teleconferencing and accessibility requirements under the Brown Act, including new provisions related to remote participation and public access to meetings. By July 1, 2026, legislative bodies must adopt policies addressing technology disruptions and defining reasonable efforts for outreach to encourage public participation, particularly among underrepresented and non-English-speaking communities.

Government Code § 54953.4 requires the City Council to adopt, by July 1, 2026, a technology disruption policy. The policy must address procedures for responding to disruptions of telephonic or internet service during a meeting and the efforts the legislative body will make to restore service.

The statute further requires that if a disruption occurs that prevents members of the public from observing or

participating in a City Council meeting through the two-way telephonic or audiovisual platform, the City Council must recess the open session for at least one hour and make a good faith effort to restore service. During this time, the City Council may meet in closed session, as permitted by law.

The City Council may not reconvene open session until at least one hour has passed or service has been restored, whichever occurs first. If service has not been restored upon reconvening, the City Council must make findings by roll call vote that good faith efforts were made to restore access and that the public interest in continuing the meeting outweighs the public interest in providing remote access. Alternatively, the meeting may be adjourned.

Government Code § 54953.4 requires the City Council to determine and adopt what constitutes “reasonable efforts” to encourage participation in City Council meetings, particularly among underrepresented communities and non-English-speaking communities. The proposed resolution establishes the City’s approach to outreach, which may include inviting participation in City Council meetings from media organizations serving the City, including those serving non-English-speaking communities, as well as civic, neighborhood, community-based, civil rights, and good government organizations.

The statute provides the City Council with broad discretion in defining these reasonable efforts and clarifies that failure to provide notice to any specific group does not create a basis for legal action. The proposed policy is intended to provide flexibility while supporting expanded public awareness and participation.

The Brown Act now expressly allows teleconferencing by a member as an accommodation under the Americans with Disabilities Act (ADA), as well as a limited number of instances of remote participation due to “just cause,” which may be used up to five to seven times per calendar year, depending on the number of regular meetings held per month. For San Marcos, that would be up to five times per calendar year, as it holds regular meetings twice per month. ADA-related teleconferencing must be provided when applicable legal requirements are met, whereas participation based on “just cause” is subject to the statutory annual limit. “Just cause” includes circumstances such as childcare or caregiving needs; a contagious illness; a physical or mental condition; travel on official business; the need to care for an immunocompromised family member; a personal or family medical emergency; or military service obligations that prevent in-person attendance.

Staff recommends that the City Council approve the attached revised version of the City’s existing City Council Meeting Policy and Procedures to address the requirements of SB 707. A finalized version of the proposed Meeting Policies and Procedures is also attached for ease of review.

Environmental Review
The proposed activity has been determined to not be a “Project” as defined under Section 15378 of the State CEQA Guidelines because it will not result in a physical change in the environment. Therefore, pursuant to Section 15060(c)(3) of the State CEQA Guidelines, the activity is not subject to CEQA.

Fiscal Impact
Fiscal impacts for this state mandate are being absorbed through current fiscal year departmental and PEG fund budgets for the necessary technical hardware and software purchases, estimated to be approximately $25,000. The hardware expenses are one-time costs, but ongoing software licenses, operation, and

maintenance costs will be ongoing.

Attachment(s)
City Council Meeting Policies and Procedures Resolution
Attachment A: Redlined Version of City Council Meeting Policies and Procedures
Finalized Version of City Council Meeting Policies and Procedures
Meeting Outreach Resolution

Prepared by: Phillip Scollick, City Clerk
Reviewed by: Jill D.S. Maland, Assistant City Attorney
Approved by: Michelle Bender, City Manager

RESOLUTION NO. 2026-xxx

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS CALIFORNIA ADOPTING A POLICY ADDRESSING DISRUPTION OF TELEPHONIC OR INTERNET SERVICE DURING PUBLIC MEETINGS

WHEREAS, the Ralph M. Brown Act (Government Code § 54950 et seq.) establishes requirements for open and public meetings of local legislative bodies; and

WHEREAS, Senate Bill 707 (2025) amended the Brown Act to update teleconferencing and accessibility requirements, including provisions related to remote participation in public meetings; and

WHEREAS, Government Code § 54953.4(b)(1)(A) requires eligible legislative bodies, on or before July 1, 2026, to adopt at a noticed public meeting in open session, and not on the consent calendar, a policy addressing disruption of telephonic or internet service during meetings conducted with remote participation; and

WHEREAS, the required policy must address procedures for recessing and reconvening a meeting in the event of a disruption and the efforts the legislative body will make to attempt to restore service; and

WHEREAS, Government Code § 54953.4 further requires that, in the event of a disruption preventing members of the public from observing or participating in the meeting through a two-way telephonic or audiovisual platform, the legislative body shall recess the open session for at least one hour and make a good faith effort to restore service, and may not reconvene open session until at least one hour has passed or service has been restored, whichever occurs first; and

WHEREAS, if telephonic or internet service has not been restored upon reconvening, the legislative body must make findings by roll call vote that good faith efforts to restore service have been made and that the public interest in continuing the meeting outweighs the public interest in remote public access; and

WHEREAS, adoption of a technology disruption policy as part of the City Council Meeting Policy and Procedures is required to ensure compliance with state law and to promote transparency and continuity of public meetings; and

WHEREAS, the proposed policy addressing disruption of telephonic or internet service during meetings of the City Council has been prepared in accordance with Government Code § 54953.4 and is attached hereto as Exhibit A; and

WHEREAS, the activity is not a “Project” as defined under Section 15378 of the California Environmental Quality Act (CEQA) State Guidelines; therefore, pursuant to State Guidelines Section 15060(c)(3), no environmental review is required.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of San Marcos, California as follows:

Section 1. Adoption of Policy. The San Marcos City Council hereby adopts the policy entitled “City Council Meeting Policy and Procedures,” substantially in the form attached hereto as Exhibit A.

Section 2. Implementation. The City Clerk is authorized and directed to implement the policy in coordination with agency staff, legal counsel, and technology support staff, as appropriate.

Section 3. Minor Modifications. The City Attorney may approve minor, non-substantive modifications to the policy as necessary to conform to applicable law, agency practices, or formatting requirements, provided such modifications do not materially alter the intent of the policy.

PASSED, APPROVED AND ADOPTED by the City Council of the City of San Marcos at a regular meeting thereof, this 26th day of May, 2026, by the following roll call vote:

AYES: COUNCILMEMBERS:

NOES: COUNCILMEMBERS:

ABSENT: COUNCILMEMBERS:

_____
Rebecca D. Jones, Mayor
City of San Marcos

ATTEST:

_____
Phillip Scollick, City Clerk
City of San Marcos

Exhibit A

Policy

CITY OF SAN MARCOS

SUBJECT: City Council Meeting Policy and Procedures

ADOPTED: May 26, 2026, Resolution 2026-XXXX

SUPERSEDES: Policy No. 2024-06, adopted pursuant to Resolution 2024-9320

Purpose

The City of San Marcos recognizes the need to establish guidelines and procedures for the orderly, reasonable, effective, and timely conduct of municipal business at both regular and special meetings of the City Council and other meetings where the City Council sits as the Board, Commission, Authority, or Committee (collectively, "meetings"). This Policy supersedes and replaces Policy No. 2024-06 in its entirety.

Policy

It shall be the policy of the City of San Marcos City Council to conduct municipal business at regular and special meetings pursuant to the following procedures.

Procedure

I. Notice

It is in the best interests of the entire community that adequate public notice be provided as required by law for any meeting of the City Council or any other meeting where the City Council sits as the Board, Commission, Authority, or Committee.

Regular City Council meetings are held on the 2nd and 4th Tuesday of each month. Council meetings traditionally start at 6:00 pm and conclude by or before 10:30 pm. No business shall be transacted unless it is placed on the agenda in accordance with the Ralph M. Brown Act ("Brown Act") and the administrative procedures adopted by the City Clerk. Matters deemed by the City Council to be an emergency or urgency item are exempted from the provisions relating to prior notice of an agenda item, provided the appropriate findings are made under Government Code section 54954.2 as may be amended from time to time. The Council shall attempt to limit emergency or urgency items to items affected by a time constraint such that action is required to be taken prior to the next regularly scheduled meeting.

Special meetings may be held from time to time as deemed necessary by the City Council. When determined appropriate, special meetings may be called at any time by the Mayor or

a majority of the Council by delivering personally or by email, written notice to each member of the Council and to each local newspaper of general circulation, radio or television station requesting notice in writing. The notice must be delivered personally or by email, and shall be received at least twenty-four (24) hours before the time of the meeting as specified in the notice. The notice shall specify the time and place of the special meeting and identify the business to be transacted. Other than as identified in the notice, no other business shall be considered at the special meeting.

II. Location

Unless specifically designated otherwise by the City Council, meetings will be held in the City Council Chambers at 1 Civic Center Drive within the City of San Marcos.

III. Conduct of Meetings

1. General

   The Mayor or other presiding officer of municipal business meetings ("Mayor") has the authority to chair the meetings in accordance with the Brown Act and Roberts Rules of Order. In the event of any inconsistency or ambiguity between these sources, the Brown Act shall control. All Councilmembers as well as the City Manager and City Attorney are authorized to enforce the policies and protocols established for the conduct of Council meetings.

   City Council meetings are for the conduct of municipal business and as such are not to be used for the purpose of providing forums for political campaigning or rhetoric by Councilmembers or members of the public which is inconsistent with orderly business functions.

   Reserved areas are designated within the Council chambers specifically for staff and media representatives. All other visitors and members of the public should be seated in the general public seating area or in the overflow room.

2. Order of Agenda

   Agenda items will be considered in the order in which they appear on the agenda. However, in particular circumstances, a member of the Council or staff may request that an agenda item be taken out of sequence due to the timeliness of the agenda item, to accommodate the public in terms of saving time and effort, or to address a unique circumstance.

3. Public Access and Participation

   a. Access

i. Members of the public shall be permitted to attend meetings in-person or via two-way, telephonic conferencing at all times when such telephonic service is operational at the meeting location.

ii. Should the two-way telephonic service for public participation become disrupted due to any failure, outage, or other interruption in the service that prevents members of the public participating in the meeting via the telephonic service, the City Council shall follow the below procedures:

A If any member of City staff, or the City Council becomes aware that the service has been disrupted, they shall inform the City Clerk;
B The City Clerk or Mayor shall determine whether there has been a service disruption preventing the public from attending or observing the meeting via the service and, if so, will notify the Mayor;
C The Mayor shall announce the disruption publicly and recess the meeting and City staff shall then make good faith efforts to restore the service, and document those efforts;
D The Mayor shall reconvene the meeting after one hour, or after service is restored, whichever occurs first;
E If service has not been restored when the meeting is reconvened, and the City Council desires to proceed with the meeting, it shall adopt a finding by rollcall vote that good faith efforts to restore the service, as detailed by the City Clerk, were made in accordance with this Policy, and that the public interest in continuing the meeting outweighs the public interest in remote public access; alternatively, the City Council may adjourn the meeting;
F The City Council may meet in closed session while open session is recessed due to the service disruption.

b. Participation

.

i. <u>Requests to Speak</u>

A For the convenience of the public, the City Clerk will provide request to speak forms and a place for depositing completed speaker requests forms in the rear area of the Council chambers. Members of the public are to place their requests to speak in the area designated by the City Clerk so as not to disrupt or distract from the activities of the City Council or staff in the conduct of municipal business. Members of the public participating via two-way telephonic service shall follow the procedures noted on the published agenda and City website for submitting comments and

requesting to speak during the meeting. Such procedures will be promulgated in accordance with Government Code section 54953.4 (SB 707, 2025).

B Members of the public shall deposit their request to speak forms in the area designated by the City Clerk, or follow the published procedures for requesting to participate remotely, promulgated in accordance with, Government Code section 54953.4 (SB 707, 2025). prior to Council's initiation of the agenda item for which the request to speak has been made.

C Members of the public will be permitted to submit only one request to speak for each agenda item they wish to address. Requests to speak will be submitted to the City Council by the City Clerk in random order. Unless specifically approved by the City Council, individual requests with respect to the order of speaker presentations will not be honored.

ii. Time Limitations for Public Speakers

Public speakers addressing the Council are provided a maximum of three (3) minutes when speaking as an individual. Their time will be monitored by the City Clerk. The three (3) minute time limitation will be announced at the beginning of each hearing. Speakers may not cede their time to another speaker. There are three lights at the speaker podium. When the speaker begins, the green light appears; when only one minute remains for speaking, the yellow light appears to allow the speaker to conclude their comments. When the red light appears, the speaker's time has expired. For public speakers addressing the City Council via two-way telephonic service, the City Clerk will ensure that each speaker is advised when the speaker's time begins, when there is one minute remaining, and when the speaker's time has expired, pursuant to published procedures promulgated in accordance with, Government Code section 54953.4 (SB 707, 2025). Notwithstanding the foregoing, at least twice the allotted time will be provided to public speakers who utilize a translator, unless simultaneous translation equipment is utilized during the meeting in question. For purposes of this Policy, "simultaneous translation" means a translation being provided to the Council, staff, and members of the public at the same time that the person addressing the Council is speaking, and does not mean a post-utterance translation.

Groups are encouraged to designate one (1) spokesperson to speak on behalf of the group, which helps streamline discussions and ensures meetings run efficiently.

Upon conclusion of speaker comments, the Council, at its discretion, will determine whether Council questions and/or any Council and staff responses should be immediate or made at a later time in a more comprehensive approach. Speakers are not to engage Council or staff in a debate and/or question/answer period while at the podium.

c. Further Time Limitations. Pursuant to Government Code section 54954.3, as may be amended from time to time, this Policy constitutes the reasonable regulations adopted by the City Council which limit the total amount of time allocated for public testimony on particular issues and for each individual speaker. The Mayor has the discretion to set additional limitations to equally reduce speaking time for individuals and for groups when multiple persons have submitted a request to speak on any given agenda item, to accommodate a larger number of speakers.

4. Visual & Presentation Aids. Visual aids (slides, photographs, video) may be used by members of the public as part of an individual or group presentation under the following restrictions, but such use must be within the time per speaker set forth in the applicable provision of Section 3, above.

    a. No Use of or Connection of External Storage Devices on City Devices. No CD, CD-RW, DVD, DVD-RW, flash drive, usb drive, memory stick, thumb drive, or other external storage device or drives may be used on City-owned devices. Presentations and other materials that speakers wish to present electronically must be provided to the City Clerk in .pdf format at least twenty-four (24) hours prior to the City Council meeting at which the speaker will make their presentation. The file size of emailed presentation materials may not exceed 20mb, and should be sent to: cityclerk@sanmarcosca.gov in .pdf form with the subject line noting the applicable City Council hearing date and using the words “Presentation Materials.”
    b. Members of the public are prohibited from connecting their device(s) to the City’s system for purposes of a presentation.
    c. If the presentation materials collectively exceed 20mb in size, the materials should be submitted to the City Clerk in hard copy at least twenty-four (24) hours prior to the City Council at which the speaker intends to speak.
    d. Hard copies of presentation materials may be provided to the City Clerk for upload and/or distribution to the City Council. If provided in hard copy, at least ten (10) copies must be submitted.

5. Meeting Decorum. The City Council is committed to safe and orderly meetings for the conduct of City business. The public is encouraged to participate in meetings, provided they abide by the rules of procedure and decorum that are set forth in this Policy. For purposes of this Policy, “meeting participant” includes all persons in attendance at a City Council meeting, whether attending in-person or telephonically.

a. Placards, banners, signs, and/or other objects larger than 22” x 28” are prohibited in the City Council chambers, unless the item is part of a staff presentation, agendized presentation, and/or City Council proclamation item, which has been submitted to the City Clerk in advance of the meeting in question. Further, all placards, banners, signs, and/or other objects must be hand-held and supported throughout the meeting; that is, any placard, banner, sign, and/or other object secured and/or affixed to items including, but not limited to, stakes, poles, sticks, braces, or like support, is prohibited in the Council Chambers or other location for the City Council meeting. Additionally, no meeting participant may use such placards, banners, signs, and/or other objects to obscure the vision or block the location of any other meeting participant.
b. Weapons and any object that may be used to inflict serious bodily injury are prohibited at City meetings except those lawfully in the possession of authorized City and law enforcement personnel.
c. Meeting participants will interact in a mutually respectful manner and refrain from intimidating, threatening, demeaning, and/or insulting other participants.
d. Conduct that disrupts, disturbs, impedes, or renders infeasible the orderly conduct of the City Council meeting is prohibited. This includes, but is not limited to, uttering loud and/or threatening verbiage, whistling, clapping, stamping of feet, speaking over and/or interrupting the recognized speaker, repeated waving of arms or signs, or other disruptive acts such that the orderly conduct of the City Council meeting is disrupted, disturbed, impeded, or rendered infeasible. The failure to comply with the regulations set forth in this Policy, and/or engaging in behavior that constitutes the use of force or a true threat of force as described in Government Code § 54957.95.
e. The Mayor has the authority to direct any meeting participant who is in violation of this Policy to cease their disruptive behavior and warn that their failure to cease disruptive behavior described in subsection (c), above, may result in their removal from the meeting. In the event that a meeting participant who has been issued such a warning continues to violate this Policy and continues to disrupt, disturb, impede, or otherwise render infeasible the orderly conduct of the City Council meeting, the Mayor may recess the meeting or require that participant to leave the meeting, whether in-person or telephonically, or be removed.
f. If the meeting participant who is disrupting, disturbing, impeding, or rendering infeasible the orderly conduct of the City Council meeting does not timely leave the meeting following such warning and an order for removal, the Mayor may direct the Sheriff’s Department personnel to remove the meeting participant in question from the meeting, or direct the City Clerk to discontinue the participant’s telephonic participation.
g. Any meeting participant who is removed from a meeting, or whose telephonic service is discontinued pursuant to (f), above, is precluded from attending the remainder of the meeting in question. Sheriff’s Department personnel , or the

City Clerk when participation is telephonic, will enforce this exclusion after having been so directed by the Mayor.

h. If a meeting is willfully interrupted by individuals, a group, or groups of persons and order cannot be restored by the removal of those meeting participants, the Mayor, subject to objection by a majority of Council Members in attendance, may order the cessation of telephonic participation and the meeting room cleared of all participants other than the press and such City staff members as are necessary for the conduct of City business, and the meeting may continue as provided by Government Code § 54957.9.
i. The Sheriff's Department personnel, as the law enforcement agency of the City, shall function as the sergeant-at-arms of the City Council, and shall enforce the order of the Mayor in a manner they deem reasonable under the circumstances.

Policy

CITY OF SAN MARCOS

SUBJECT: City Council Meeting Policy and Procedures

ADOPTED: ~~June 25, 2024~~May 26, 2026, Resolution 2026~~4~~-XXXX~~9320~~

SUPERSEDES: Policy No. 20~~24~~13-06, adopted pursuant to Resolution 20~~24~~13-9320~~7748;~~
~~Policies A-6, A-11, and A016~~

Purpose

The City of San Marcos recognizes the need to establish guidelines and procedures for the orderly, reasonable, effective, and timely conduct of municipal business at both regular and special meetings of the City Council and ~~. This City Council Meeting Policy and Procedures (Policy) will also apply to the conduct of any~~ other meetings where the City Council sits as the Board, Commission, Authority, or Committee (collectively, "meetings"). This Policy ~~, and~~ supersedes and replaces Policy No. 20~~24~~13-06~~, Policy No. A-6, Policy No. A-11, and Policy No. A-16, and each of them,~~ in its~~their~~ entirety.

Policy

It shall be the policy of the City of San Marcos City Council to conduct municipal business at regular and special meetings pursuant to the following procedures.

Procedure

I. Notice

It is in the best interests of the entire community that adequate public notice be provided as required by law for any meeting of the City Council or any other meeting where the City Council sits as the Board, Commission, Authority, or Committee.

Regular City Council meetings are held on the 2nd and 4th Tuesday of each month. Council meetings traditionally start at 6:00 pm and conclude by or before 10:30 pm. No business shall be transacted unless it is placed on the agenda in accordance with the Ralph M. Brown Act ("Brown Act") and the administrative procedures adopted by the City Clerk. Matters deemed by the City Council to be an emergency or urgency item are exempted from the provisions relating to prior notice of an agenda item, provided the appropriate findings are made under Government Code section 54954.2 as may be amended from time to time. The Council shall attempt to limit emergency or urgency items to items affected by a time

constraint such that action is required to be taken prior to the next regularly scheduled meeting.

Special meetings may be held from time to time as deemed necessary by the City Council. When determined appropriate, special meetings may be called at any time by the Mayor or a majority of the Council by delivering personally or by email, written notice to each member of the Council and to each local newspaper of general circulation, radio or television station requesting notice in writing. The notice must be delivered personally or by email, and shall be received at least twenty-four (24) hours before the time of the meeting as specified in the notice. The notice shall specify the time and place of the special meeting and identify the business to be transacted. Other than as identified in the notice, no other business shall be considered at the special meeting.

II. Location

Unless specifically designated otherwise by the City Council, meetings will be held in the City Council Chambers at 1 Civic Center Drive within the City of San Marcos.

III. Conduct of Meetings

1. General

   The Mayor or other presiding officer of municipal business meetings ("Mayor") has the authority to chair the meetings in accordance with the Brown Act and Roberts Rules of Order. In the event of any inconsistency or ambiguity between these sources, the Brown Act shall control. All Councilmembers as well as the City Manager and City Attorney are authorized to enforce the policies and protocols established for the conduct of Council meetings.

   City Council meetings are for the conduct of municipal business and as such are not to be used for the purpose of providing forums for political campaigning or rhetoric by Councilmembers or members of the public which is inconsistent with orderly business functions.

   Reserved areas are designated within the Council chambers specifically for staff and media representatives. All other visitors and members of the public should be seated in the general public seating area or in the overflow room.

2. Order of Agenda

   Agenda items will be considered in the order in which they appear on the agenda. However, in particular circumstances, a member of the Council or staff may request that an agenda item be taken out of sequence due to the timeliness of the agenda

item, to accommodate the public in terms of saving time and effort, or to address a unique circumstance.

3. ~~3. Presentations by Members of the~~ Public Access and Participation

a. ~~a.~~ Access

i. Members of the public shall be permitted to attend meetings in-person or via two-way, telephonic conferencing at all times when such telephonic service is operational at the meeting location.

ii. Should the two-way telephonic service for public participation become disrupted due to any failure, outage, or other interruption in the service that prevents members of the public participating in the meeting via the telephonic service, the City Council shall follow the below procedures:

A If any member of City staff, or the City Council becomes aware that the service has been disrupted, they shall inform the City Clerk;

B The City Clerk or Mayor~~presiding officer~~ shall determine whether there has been a service disruption preventing the public from attending or observing the meeting via the service and, if so, will notify the Mayor;

C The Mayor ~~or presiding officer~~ shall announce the disruption publicly and recess the meeting and City staff shall then make good faith efforts to restore the service, and document those efforts;

D The Mayor ~~or presiding officer~~ shall reconvene the meeting after one hour, or after service is restored, whichever occurs first;

E If service has not been restored when the meeting is reconvened, and the City Council desires to proceed with the meeting, it shall adopt a finding by rollcall vote that good faith efforts to restore the service, as detailed by the City Clerk, were made in accordance with this Policy, and that the public interest in continuing the meeting outweighs the public interest in remote public access; alternatively, the City Council may adjourn the meeting;

F The City Council may meet in closed session while open session is recessed due to the service disruption.

b. Participation

.

i. Requests to Speak

A For the convenience of the public, the City Clerk will provide request to speak forms and a place for depositing completed speaker requests forms in the rear area of the Council chambers. Members of the public are to place their requests to speak in the area designated by the City Clerk so as not to disrupt or distract from the activities of the City Council or staff in the conduct of municipal business. Members of the public participating via two-way telephonic service shall follow the procedures noted on the published agenda and C~~c~~ity website for submitting comments and requesting to speak during the meeting. Such procedures will be promulgated in accordance with Government Code section 54953.4 (SB 707, 2025).

B Members of the public shall deposit their request~~s~~ to speak forms in the area designated by the City Clerk, or follow the published procedures for requesting to participate remotely, promulgated in accordance with, Government Code section 54953.4 (SB 707, 2025). prior to Council's initiation of the agenda item for which the request to speak has been made.

C Members of the public will be permitted to submit only one request to speak for each agenda item they wish to address. Requests to speak will be submitted to the City Council by the City Clerk in random order. Unless specifically approved by the City Council, individual requests with respect to the order of speaker presentations will not be honored.

ii. Time Limitations for Public Speakers

~~Individual Speakers~~. ~~—~~Public speakers addressing the Council are provided a maximum of three (3) minutes when speaking as an individual. Their time will be monitored by the City Clerk. The three (3) minute time limitation will be announced at the beginning of each hearing. Speakers may not cede their time to another speaker ~~except as provided in section 3.b.2, below~~. There are three lights at the speaker podium. When the speaker begins, the green light appears; when only one minute remains for speaking, the yellow light appears to allow the speaker to conclude their comments. When the red light appears, the speaker's time has expired. For public speakers addressing the City Council via two-way telephonic service, the City Clerk will ensure that each speaker is advised when the speaker's time begins, when there is one minute remaining, and when the speaker's time has expired, pursuant to published procedures promulgated in accordance with, Government Code section 54953.4

(SB 707, 2025). Notwithstanding the foregoing, at least twice the allotted time will be provided to public speakers who utilize a translator, unless simultaneous translation equipment is utilized during the meeting in question. For purposes of this Policy, "simultaneous translation" means a translation being provided to the Council, staff, and members of the public at the same time that the person addressing the Council is speaking, and does not mean a post-utterance translation.

~~Group Speakers. A speaker qualified under the rules set forth in this section as representing members of a group may receive a maximum of ten (10) minutes to address the Council.~~ Groups are encouraged to designate one (1) spokesperson to speak on behalf of the group, which helps streamline discussions and ensures meetings run efficiently. ~~Groups are encouraged to designate one (1) spokesperson to speak on behalf of the group. For those groups that do not designate a spokesperson, the Mayor may request that one be chosen.~~

~~To receive the maximum allotted ten (10) minutes, all group members present at the Council meeting must cede their individual speaking time in favor of the group spokesperson, unless an individual group member desires to speak on a non-related issue or an element of the agenda item that will not be addressed by the group.~~

~~Groups are designated as either a formal or informal organization. The following documentation and information, which shall be retained by the group, must be presented to the City Clerk for review and verification purposes at least one (1) business day prior to the Council meeting at which the group desires to speak. The group is required to update all information annually; previous submissions will not suffice whether or not changes have been made to the applicable documents.~~

~~a) Formal Organization:~~
~~(i) current bylaws, including a statement of the organization's purpose and requirements for membership; and~~

~~(ii) a recently adopted resolution designating those individuals authorized to speak on behalf of the organization.~~

~~b) Informal Organization:~~
~~(i) organization's name;~~

~~(iii) a recently adopted resolution designating those individual(s) authorized to speak on behalf of the organization.~~

Upon conclusion of speaker comments, the Council, at its discretion, will determine whether Council questions and/or any Council and staff responses should be immediate or made at a later time in a more comprehensive approach. Speakers are not to engage Council or staff in a debate and/or question/answer period while at the podium.

c. Further Time Limitations. Pursuant to Government Code section 54954.3, as may be amended from time to time, this Policy constitutes the reasonable regulations adopted by the City Council which limit the total amount of time allocated for public testimony on particular issues and for each individual speaker. The Mayor has the discretion to set additional limitations to equally reduce speaking time for individuals and for groups when multiple persons have submitted a request to speak on any given agenda item, to accommodate a larger number of speakers.

4. Visual & Presentation Aids. Visual aids (slides, photographs, video) may be used by members of the public as part of an individual or group presentation under the following restrictions, but such use must be within the time per speaker set forth in the applicable provision of Section 3, above.

   a. No Use of or Connection of External Storage Devices on City Devices. No CD, CD-RW, DVD, DVD-RW, flash drive, usb drive, memory stick, thumb drive, or other external storage device or drives may be used on City-owned devices. Presentations and other materials that speakers wish to present electronically must be provided to the City Clerk in .pdf format at least twenty-four (24) hours prior to the City Council meeting at which the speaker will make their presentation. The file size of emailed presentation materials may not exceed 520mb, and should be sent to: cityclerk@san-marcos.netcityclerk@sanmarcosca.gov in .pdf form with the subject line noting the applicable City Council hearing date and using the words "Presentation Materials."
   b. Members of the public are prohibited from connecting their device(s) to the City's system for purposes of a presentation.
   c. If the presentation materials collectively exceed 5mb 20mb in size, the materials should be submitted to the City Clerk in hard copy at least twenty-four (24) hours prior to the City Council at which the speaker intends to speak.
   d. Hard copies of presentation materials may be provided to the City Clerk for upload and/or distribution to the City Council. If provided in hard copy, at least ten (10) copies must be submitted.

5. Meeting Decorum. The City Council is committed to safe and orderly meetings for the conduct of City business. The public is encouraged to participate in meetings,

provided they abide by the rules of procedure and decorum that are set forth in this Policy. For purposes of this Policy, "meeting participant" includes all persons in attendance at a City Council meeting, whether attending in-person or telephonically.

a. Placards, banners, signs, and/or other objects larger than 22" x 28" are prohibited in the City Council chambers, unless the item is part of a staff presentation, agendized presentation, and/or City Council proclamation item, which has been submitted to the City Clerk in advance of the meeting in question. Further, all placards, banners, signs, and/or other objects must be hand-held and supported throughout the meeting; that is, any placard, banner, sign, and/or other object secured and/or affixed to items including, but not limited to, stakes, poles, sticks, braces, or like support, is prohibited in the Council Chambers or other location for the City Council meeting. Additionally, no meeting participant may use such placards, banners, signs, and/or other objects to obscure the vision or block the location of any other meeting participant.
b. Weapons and any object that may be used to inflict serious bodily injury are prohibited at City meetings except those lawfully in the possession of authorized City and law enforcement personnel.
c. Meeting participants will interact in a mutually respectful manner and refrain from intimidating, threatening, demeaning, and/or insulting other participants.
d. Conduct that disrupts, disturbs, impedes, or renders infeasible the orderly conduct of the City Council meeting is prohibited. This includes, but is not limited to, uttering loud and/or threatening verbiage, whistling, clapping, stamping of feet, speaking over and/or interrupting the recognized speaker, repeated waving of arms or signs, or other disruptive acts such that the orderly conduct of the City Council meeting is disrupted, disturbed, impeded, or rendered infeasible. The failure to comply with the regulations set forth in this Policy, and/or engaging in behavior that constitutes the use of force or a true threat of force as described in Government Code § 54957.95.
e. The Mayor has the authority to direct any meeting participant who is in violation of this Policy to cease their disruptive behavior and warn that their failure to cease disruptive behavior described in subsection (c), above, may result in their removal from the meeting. In the event that a meeting participant who has been issued such a warning continues to violate this Policy and continues to disrupt, disturb, impede, or otherwise render infeasible the orderly conduct of the City Council meeting, the Mayor may recess the meeting or require that participant to leave the meeting, whether in-person or telephonically, or be removed.
f. If the meeting participant who is disrupting, disturbing, impeding, or rendering infeasible the orderly conduct of the City Council meeting does not timely leave the meeting following such warning and an order for removal, the Mayor may direct the Sheriff's Department personnel to remove the meeting participant in

question from the meeting, or direct the City Clerk to discontinue the participant's telephonic participation.

g. Any meeting participant who is removed from a meeting, or whose telephonic service is discontinued pursuant to (f), above, is precluded from attending the remainder of the meeting in question. Sheriff's Department personnel , or the City Clerk when participation is telephonic, will enforce this exclusion after having been so directed by the Mayor.
h. If a meeting is willfully interrupted by individuals, a group, or groups of persons and order cannot be restored by the removal of those meeting participants, the Mayor, subject to objection by a majority of Council Members in attendance, may order the cessation of telephonic participation and the meeting room cleared of all participants other than the press and such City staff members as are necessary for the conduct of City business, and the meeting may continue as provided by Government Code § 54957.9.
i. The Sheriff's Department personnel, as the law enforcement agency of the City, shall function as the sergeant-at-arms of the City Council, and shall enforce the order of the Mayor in a manner they deem reasonable under the circumstances.

RESOLUTION NO. 2026-xxx

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS CALIFORNIA DETERMINING REASONABLE EFFORTS TO ENCOURAGE PUBLIC PARTICIPATION IN MEETINGS PURSUANT TO GOVERNMENT CODE § 54953.4

WHEREAS, the Ralph M. Brown Act (Government Code § 54950 et seq.) establishes requirements for open and public meetings of local legislative bodies; and

WHEREAS, Senate Bill 707 (2025) amended the Brown Act to include additional requirements intended to encourage participation in public meetings, particularly among communities that do not traditionally participate in public meetings and non-English-speaking communities; and

WHEREAS, Government Code § 54953.4(b)(3)(C) requires City Council of the City of San Marcos, California to determine and make reasonable efforts to invite groups that do not traditionally participate in public meetings to attend those meetings; and

WHEREAS, such reasonable efforts may include outreach to media organizations serving the jurisdiction, including those serving non-English-speaking communities, as well as civic, neighborhood, community-based, civil rights, and good government organizations; and

WHEREAS, Government Code § 54953.4(b)(3)(C)(ii) provides legislative bodies with broad discretion in determining appropriate reasonable efforts and clarifies that no action shall arise from failing to provide notice to any specific group; and

WHEREAS, the City of San Marcos, California is committed to promoting transparency, accessibility, and broad public participation in its public meetings; and

WHEREAS, the City of San Marcos, California currently uses a variety of communication methods to inform the public of meetings and opportunities to participate; and

WHEREAS, the activity is not a “Project” as defined under Section 15378 of the California Environmental Quality Act (CEQA) State Guidelines; therefore, pursuant to State Guidelines Section 15060(c)(3), no environmental review is required.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of San Marcos, California as follows:

Section 1. Determination of Reasonable Efforts. The City Council determines the following to constitute reasonable efforts to encourage participation in meetings pursuant to Government Code § 54953.4(b)(3)(C):

1. Media Outreach. The City may include media organizations serving the jurisdiction, including media organizations serving non-English-speaking communities, in the distribution of meeting agendas, notices, or other meeting-related information, as appropriate.

2. Electronic Access and Agenda Subscriptions. The City shall maintain methods for members of the public to access meeting agendas and related materials electronically, including through the City's website or other regular agenda-posting platform. Where available, the City may also provide options for members of the public to subscribe to receive meeting agendas, notices, or other updates.

3. Multilingual Communication. The City may use multilingual communication methods to increase awareness of meetings and participation opportunities, including translated agendas, translated meeting instructions, multilingual social media posts, website notices, or other communication tools, as appropriate and consistent with applicable law and available resources.

4. Community and Organizational Outreach. The City may provide meeting information through existing communication channels and partnerships with community-based organizations, neighborhood groups, civic organizations, civil rights organizations, good government organizations, and organizations serving non-English-speaking communities, as opportunities arise and consistent with available resources.

5. Use of Existing Communication Channels. The City may use existing outreach methods to share meeting information and participation opportunities, including, but not limited to, the agency website, email notifications, agenda subscription services, newsletters, social media platforms, public counters, bulletin boards, community meetings, and other established communication tools

6. Flexible and Evolving Methods: The efforts identified in this Resolution are intended to provide a flexible framework for outreach and public participation. The City may modify, expand, or adjust its outreach methods over time based on available resources, evolving communication practices, changes in technology, and the needs of the community.

Section 2. Flexible Framework. The efforts identified in this Resolution are intended to provide a flexible framework for outreach and public participation. The City may modify, expand, or adjust its outreach methods over time based on available resources, evolving communication practices, changes in technology, and the needs of the community.

Section 3. No Requirement to Provide Notice to Any Specific Group. Consistent with Government Code Section 54953.4(b)(3)(C)(ii), this Resolution does not require notice to any specific group or organization, and no action shall arise from the failure to provide notice to any specific group or organization.

PASSED, APPROVED AND ADOPTED by the City Council of the City of San Marcos at a regular meeting thereof, this 26th day of May, 2026, by the following roll call vote:

AYES: COUNCILMEMBERS:

NOES: COUNCILMEMBERS:

ABSENT: COUNCILMEMBERS:

_____

Rebecca D. Jones, Mayor
City of San Marcos

ATTEST:

_____

Phillip Scollick, City Clerk
City of San Marcos

Staff Report

File #:TMP-2442

MEETING DATE:
MAY 26, 2026

SUBJECT:

PUBLIC HEARING PURSUANT TO ASSEMBLY BILL 2561 TO REPORT ON VACANCIES, RECRUITMENT, AND RETENTION EFFORTS AT THE CITY OF SAN MARCOS

Recommendation
Receive informational report pursuant to Assembly Bill 2561 (AB2561) regarding vacancies, recruitment, and retention activities at the City of San Marcos.

Board or Commission Action
Not applicable

Executive Summary
Assembly Bill 2561 mandates that public agencies conduct an annual public hearing to present workforce data, including vacancy rates and efforts related to recruitment and retention. This report provides the City Council with a current overview of staffing levels within the City of San Marcos, along with a summary of ongoing strategies to attract and retain a qualified workforce.

Discussion
In compliance with AB 2561, the City is presenting updated vacancy data for full-time authorized positions across all employee groups.

As of the date of this report, the City has the following number of vacancies:

- **San Marcos Classified Miscellaneous Employees' Association (SMCMEA):** 5 vacancies
- **San Marcos Professional Firefighters' Association (SMPFA):** 0 vacancies
- **San Marcos Supervisors' Association (SMSA):** 2 vacancies
- **Unrepresented:** 4 vacancies

Based on the total authorized full-time positions in each employee association, the current vacancy rates are:

- **SMCMEA:** 6.77%
- **SMPFA:** 0%
- **SMSA:** 9.09%
- **Unrepresented:** 4.39%

None of the above groups meet or exceed the 20 percent vacancy threshold outlined in AB 2561 that would require additional notification to recognized employee organizations. However, the City continues to actively

monitor workforce trends to ensure timely response to changing staffing needs.

To maintain a stable and effective workforce, the City continues to invest in a range of recruitment and retention initiatives. Current efforts include expanded outreach through digital platforms and professional networks, compensation and benefits benchmarking to remain competitive within the regional labor market, and ongoing training and development opportunities to support employee growth.

Additionally, the City emphasizes internal mobility by creating promotional opportunities to encourage internal advancement. Programs such as employee referral have also contributed to attracting qualified candidates through existing staff.

Collectively, these strategies support the City's commitment to maintaining a high-performing workforce capable of delivering essential services to the community.

Environmental Review
Not applicable

Fiscal Impact
There is no direct fiscal impact associated with the acceptance of this report.

Attachment(s)
Not applicable

Prepared by: Jacob Lizarraga, Senior Management Analyst, HR/Risk
Submitted by: Jacob Lizarraga, Senior Management Analyst, HR/Risk
Reviewed by: Janelle Laughlin, Administrative Services Director
Approved by: Michelle Bender, City Manager

Staff Report

File #:TMP-2439

MEETING DATE:
MAY 26, 2026

SUBJECT:

RESOLUTION NOS. 2026-9589, 9590 & 9591 AND ORDINANCE NO. 2026-1579 - SANTA FE FLORES TOWNHOMES MULTIFAMILY RESIDENTIAL DEVELOPMENT ENTITLEMENTS INCLUDING: ADDENDUM TO MITIGATED NEGATIVE DECLARATION (ND22-008), GENERAL PLAN AMENDMENT GPA25-0001, REZONE R25-0001, MULTI-FAMILY SITE DEVELOPMENT PLAN MFSDP25-0001, AND TENTATIVE SUBDIVISION MAP TSM25-0001

Recommendation
ADOPT or INTRODUCE of the following in the order set forth below:

1. ADOPT addendum to the previously adopted Mitigated Negative Declaration (ND22-008);
2. ADOPT resolution No. 2026-9589 (General Plan Amendment GPA25-0001) for a land use change of 2.23-net acres from “Medium Density Residential 2” and 0.37-net acres from “Commercial” to “Medium High Density Residential”;
3. INTRODUCE Ordinance No. 2026-1579 (Rezone R25-0001) for a zone reclassification of 2.23-net acres from Multifamily Residential 3 (R-3-10) and 0.37-net acres from Commercial (C) to Multifamily Residential (R-3-6);
4. ADOPT resolution No. 2026-9590 (Multi-Family Site Development Plan MFSDP25-0001) to allow the construction of the proposed 46-unit residential condominium development; and
5. ADOPT Resolution No. 2026-9591 (Tentative Subdivision Map TSM25-0001) for the merger of two existing parcels into one and the creation of up to 46 residential condominium units.

Board or Commission Action
On April 20, 2026, the Planning Commission voted 7-0 recommending approval of the proposed project to the City Council. The Planning Commission Meeting Minutes are attached (Attachment H).

Executive Summary
The applicant is requesting approval of a multi-family residential development consisting of 46 condominium units on a 2.6-acre vacant site, at 17.69 du/ac density, located on the northwest corner of South Santa Fe Avenue and North Las Flores Drive. The project proposal includes seven three-story buildings, consisting of 46 three-bedroom units, each with an attached two-car garage and private open space, with common open space and recreational amenities.

Discussion
Previously Approved Project

On February 28, 2023, the City Council approved entitlements for the previous Santa Fe Flores, LP project upon the then 2.23-acre project site located at 2972 and 2982 South Santa Fe Avenue, allowing development of a 50-unit multi-family apartment building. The project included a General Plan Amendment and Rezone to change the existing Light Industrial and Commercial designations to a Medium Density Residential 2 (MDR2) land use designation and Residential 3 (R-3-10) zoning, respectively.

The approved project featured a stepped building design to respond to site topography and minimize the need for extensive retaining walls. It also included five affordable units pursuant to State Density Bonus Law (Government Code Section 65915) to allow for a concession to exceed the R-3-10 zone's then 45-foot height limit, permitting a maximum height of 63 feet at the building's midpoint and 55 feet at the southerly end to accommodate elevator towers.

The City Council adopted Mitigated Negative Declaration ND22-008 and approved General Plan Amendment GPA21-0008 and Multi-Family Site Development Plan MFSDP21-0002 on February 28, 2023. The associated Rezone (R21-0004) was subsequently approved following second reading on March 14, 2023.

Proposed Project

The 2.6-acre modified project site under consideration is vacant and does not contain any significant vegetation nor sensitive habitat. The existing commercial structure, parking lot, and associated improvements southwest of the project site will remain and will share driveway access with the proposed development. The project site slopes upward from S. Santa Fe Avenue and has been previously rough graded. The surrounding properties include industrial and commercial buildings to the north and west; a mobile home park to the south, across S. Santa Fe Avenue; and an apartment complex to the east across N. Las Flores Drive. N. Las Flores Drive provides access over the Sprinter Rail Line to the Rancho Santalina single-family residential subdivision further to the north but will not provide access to the project.

The project applicant is requesting approval of a General Plan Amendment, Rezone, Multi-Family Site Development Plan, and a Tentative Subdivision Map. If approved, these entitlements would allow the development of the vacant project site with a multifamily residential project consisting of 46 residential condominium units.

General Plan Amendment (GPA) and Rezone (R)

The project site consists of two entirely vacant parcels totaling 2.23 acres (APNs 217-161-18-00 and 217-161-19-00) and the vacant 0.37-acre portion of the adjacent existing commercial property (APN: 217-161-17-00). The two entirely vacant parcels currently have a General Plan land use designation of "Medium Density Residential 2" (MDR2) and Zoning designation of Multifamily Residential 3 (R-3-10). The vacant 0.37-acre portion of the adjacent commercial property has current General Plan land use and Zoning designations of "Commercial". The project applicant is proposing amending the General Plan Land Use designation to "Medium High Density Residential" (MHDR) as well as rezoning to Multi-family Residential (R-3-6) to permit a for sale townhome project, compliant with the R-3-6 zone's maximum density of 30 dwelling units per acre, developing a constrained urban infill site that will assist in providing the City for sale residential units.

To develop the site with the seven three-story townhome buildings on the subject property, the General Plan land use designation must be changed to MHDR through General Plan Amendment (GPA25-0001) and zoning must be changed to R-3-6 through a Rezone (R25-0001). A reclassification of the property to MDHR and R-3-6 would allow development of a quality, for-sale residential townhome project that would provide a transition between industrial to the northwest, the single-family residential neighborhood (Rancho Santalina) further to the north, a multifamily residential apartment complex to the east, commercial to the southwest, and a mixture of multi-family rental projects, a mobile home park, and an older neighborhood consisting of duplexes and single family homes to the south.

The proposed project would implement the overarching goals of the City's General Plan through various proposed components, such as providing housing near transit and employment opportunities; contributes to the growing housing needs of the region; and supporting vehicular, bicycle, and pedestrian modes of travel. Additional objectives of the project include creating high quality architectural and landscape design to provide a distinct built environment pleasing to residents and neighbors alike; using building materials that complement and enhance the surrounding environment and neighborhood; and providing recreational amenities and open space throughout the development. The project complies with General Plan Goals and Policies, including:

San Marcos General Plan Land Use Goal LU-1: The project helps achieve a balanced distribution and compatible mix of land uses to meet the future and present needs of all residents and the business community.

The proposed residential condominium project constitutes an appropriate transition from the industrial and commercial uses to the north and west, the single-family subdivision further north on N. Las Flores Drive, and the mixture of multi-family, single-family duplex, and mobile home park residential uses to the south and east.

San Marcos General Plan Land Use Goal LU-3: Provides community connections through development of land uses compatible with and support a variety of mobility opportunities and choices through development of a walkable, bike friendly and transit-oriented community.

San Marcos General Plan Housing Element Policy 1.1: Designate land for a variety of residential densities sufficient to meet the housing needs for a variety of household sizes and income levels, with higher densities being focused in the vicinity of transit stops in proximity to significant concentrations of employment opportunities.

The proposed project would provide high density housing opportunities within a one-mile radius of transit facilities. The location would increase the customer base to enhance the viability of alternative modes of transportation, such as the existing Sprinter light rail with transit stops located approximately one mile to the east at Palomar College, and the bus stop located along the property frontage on S. Santa Fe Avenue. The current project also implements the Active Transportation Plan (ATP) by providing an irrevocable offer of dedication of right-of-way on S. Santa Fe Avenue for future Class IV one-way separated bicycle and pedestrian facilities consistent with the ATP. In addition, the Inland Rail-Trail is located directly to the north of the project site with access via N. Las Flores Drive. Therefore, the proposed project's land use would support a variety of mobility opportunities and promote multimodal transportation.

General Plan analyses were prepared by the project applicant to discuss the proposed General Plan Amendment and Rezone to change the land use designation and zone of the property from MDR2 and "Commercial" to MDHR in relation to Land Use Compatibility, Public Benefits, Infrastructure, and Community Services. These analyses, in Attachment F, explain that under the current R-3-10 and Commercial (C) zoning, development of the subject property would not be feasible given the topography and access constraints of the site. A commercial development would require large retaining walls to create graded pads large enough to accommodate a viable-sized building(s) with its associated parking, circulation, and loading areas similar to the recently built industrial buildings to the north. In addition, the ability to provide secondary access to the development from N. Las Flores Drive is not possible due to the difference in grade, and these infill properties cannot offer greater than 50 units without providing secondary emergency access. The proposed multi-building 46-unit townhome condominium project will more appropriately integrate development into the site's existing topography, creating upper and lower pads that will provide extensive landscape screening of the retaining walls required between pads and the along the central drive aisle. Analysis of the proposed 46-unit townhome development found the proposed project would have similar impacts to the R-3-10 development and minimal impacts compared to the commercial development that would both be permitted by right. In addition, the for-sale residential condominium development would be suitable and compatible for the subject property and the surrounding area.

Multi-Family Site Development Plan (MFSDP)

Under the Multifamily Site Development Plan (MFSDP), the project's design is evaluated for compliance with the development standards of the Zoning Ordinance (San Marcos Municipal Code Title 20) and other regulatory provisions. The MFSDP addresses the design of the seven buildings, associated common open space and residential amenities, and the floor plans and elevations within the project site. Furthermore, the proposed project includes a right-of-way dedication of eight feet along the southern project boundary which will allow for future Class IV one-way separated bicycle and pedestrian facilities improvements, consistent with the ATP, along S. Santa Fe Avenue. Site and architectural plans for the proposed project are included in Attachment E. The Plan also establishes conditions of approval for the project, including but not limited to architectural design, landscaping, grading, drainage, and it incorporates mitigation measures from the environmental document.

Architecture/Floor Plans

The buildings consist of a contemporary architectural style. Features for each building include "Pro-Ledge Huron" or "Texas Rubble/Texas Cream" stone wainscotting on the ground floor, wall projections, varied roofline with parapets, and enhanced finishes such as textured/colored walls, metal awnings, metal deck rails, and other enhancements. There will be two complementary color schemes offered to provide additional variation in the project. In addition, the project will include solar panels in accordance with Title 24 requirements.

As shown in Attachment E, the project proposes seven buildings of either six or eight single-family attached townhome units that are approximately 35 feet tall. Each unit will feature an attached two-car garage and two stories of living space above. The project will offer two different three-bedroom floor plans, ranging in size from 1,464 square feet for interior units to 1,700 square feet for corner units. Access to all units will be provided

from the building's exterior and directly from their attached garages. Additionally, the project will include five ADA accessible units. These accessible units will provide a powder room on the ground floor as required by the California Building Code.

Table 1 - Residential 3 (R-3-6) Development Standards:		
Development Standard	**Zone**	**Proposed Project**
Residential Density	30 du/ac Maximum	17.69 du/ac
Building Height	3 stories / 45 feet Maximum	3 stories / 35 feet, 4 inches
Primary Street (Project Fronta Setback)	15 feet	43 feet +
Project Exterior Boundary (oth than Primary Street - Project Frontage Setback)	10 feet	11.91 feet +
Parking (Any Property Line)	8 feet	8 feet +

Grading/Utilities

Grading for the project will involve approximately 23,300 cubic yards (CY) of cut and 3,200 CY of fill, resulting in a net export of approximately 20,100 CY of material. The project site contains approximately 48 feet of elevation change, ranging from a low point of 495 feet Above Mean Sea Level (AMSL) along N. Santa Fe Avenue to a high point of 543 feet AMSL at the northern rear of the site. To accommodate the proposed development, grading will establish three lower building pads at approximately 500 feet AMSL, as well as a central access road of approximately 18% grade that ascends to upper building pads at approximately 526, 531, 535, and 536 feet AMSL. Due to the site's topography, retaining walls are required throughout the development.

The tallest retaining wall is located along the east side of the main drive aisle, which provides access to the upper buildings and additional guest parking on the north side of the site. A single segment of retaining walls will reach a maximum height of approximately 17 feet. However, due to their location on the site and the incorporation of substantial landscaping, these walls are not expected to be visible from the public street at landscape maturity. Most retaining walls along the project perimeter and within interior pad areas will be constructed of tan slump block, while a geogrid retaining wall is proposed between select pads. Landscaping is proposed in front of the retaining walls to reduce their visual prominence from exterior viewpoints and to soften their appearance for future residents.

A storm water detention system will be located underground beneath the open space amenity at the corner of S. Santa Fe Avenue and N. Las Flores Drive. Biofiltration systems will be located adjacent to buildings 3 and 5 upon the upper pad, and adjacent to buildings 1 and 7 upon the lower pad. Private storm drains will connect to the existing public drainage system in S. Santa Fe Avenue. Water and sewer service for the proposed project will be provided by the Vista Irrigation District and Buena Sanitation District, respectively. The project proposes to connect to the existing water and sewer mains in S. Santa Fe Avenue.

Open Space/Landscaping

Each unit will exceed the minimum 50 square-foot private open space required by the Multi-Family Residential Design Guidelines (SMMC Section 20.215.060). The development provides an approximately 61 or 64 square foot private second-story deck and an approximately 340 or 450 square-foot roof deck. In addition to private open space, the project includes common recreational amenities throughout the development. The project includes common recreational amenities of artificial turf open play areas, artificial turf game courts with concrete game boards, 400-square foot tot lots each for older and younger children, landscaped paseos, and barbeque islands adjacent to shaded seating areas. The project will also provide gated pet relief areas adjacent to each building. Landscaping throughout the project will consist of a mixture of trees, shrubs, and ground cover to enhance the proposed buildings. All landscaping will be required to comply with the City's Landscape Water Efficiency Ordinance (SMMC Chapter 20.330). Street trees, planting materials, and landscape irrigation proposed within the City's CFD maintained landscape area will meet Public Works design guidelines.

Table 2 - Residential 3 (R-3-6) Open Space Development Standards:		
Open Space Development Standard	**Zone**	**Proposed Project**
Private Open Space	250 square feet	61/64 square foot 2nd story dec 340/450 square foot roof deck
Common Open Space	Area equal to 30% of livable ground floor area of all units	38,759 square feet (34% of tota project site)

The project will not be gated; however, a combination of perimeter fencing is proposed. The project will include a six-foot tall split-face block wall, with evenly spaced pilasters and integrated landscaping, along the S. Santa Fe Avenue buffering the project from the street. Due to the project site's topography, Building One's frontage along the N. Las Flores Drive will have 42-inch black tubular steel fencing above retaining walls of varying heights, which will also be screened from public view by integrated landscaping. To create additional separation and provide privacy screening from the commercial structure that will remain at 2966 S. Santa Fe Avenue 42-inch tan vinyl fencing will be placed along the shared residential property line. Property line fencing will further separate the residential project from the existing industrial zoned uses to the north and west with a 6-foot-tall tan vinyl fence, with landscape screening further softening the fence's appearance.

The proposed residential condominium project will provide a stepped pad design to incorporate the seven buildings into the site's topography. Due to a 25-to-35-foot grade difference between the upper and lower pads, retaining walls of varying heights (up to 17-feet) will be needed in locations adjacent to the grade change along the drive aisle and at those areas abutting the base of slope. The development will incorporate 38,739 square feet of landscaped area, a portion of which will screen the required retaining walls along the project's drive aisle and between upper and lower pads.

Parking and Circulation

The Parking Ordinance (SMMC Ch. 20.340) requires a parking ratio of two spaces per unit and one additional guest parking space for every three units. Using these parking ratios, the proposed project requires a total of 107 parking spaces. The project will provide 92 parking spaces through two-car garages for each unit and includes 15 guest spaces distributed throughout the site, to meet this 107-parking space requirement. One of the guest parking spaces will be ADA accessible in accordance with the California Building Code, and 1 parking space is provided for the mail delivery vehicle near the mailbox. The project will exceed building code requirements for residential Electrical Vehicle (EV) parking spaces by providing 46 EV Capable parking spaces, one in every garage. Currently only 10% of parking spaces must be EV capable (11 space) and 25% EV ready (27 spaces). Ten bicycle parking spaces will be provided through incorporation of five bike racks located across the development. The residences would be accessed by the driveway off of S. Santa Fe Avenue, which will be shared with the adjacent commercial building to the west. This driveway access is right-in and right-out only, with an existing left turn lane to allow for U-turns at Community Drive. The ability to provide secondary access to the development from N. Las Flores Drive is not possible due to the difference in grade. The project design provides adequate circulation on site for emergency vehicles and delivery trucks.

The project will provide sidewalk connections for pedestrians to the existing sidewalks on S. Santa Fe Avenue and N. Las Flores Drive, facilitating onsite circulation for all residents to the development's common recreational amenities, mailboxes, and connections to the public streets.

Tentative Subdivision Map (TSM)

The tentative subdivision map will allow consolidation of the two vacant parcels. A separate lot line adjustment will be completed to add the 0.37-acre portion of the commercial property to the project site. The final map will then consolidate these two lots to allow for the creation of up to 46 residential condominium units. An 8-foot wide Irrevocable Offer of Dedication (IOD) for additional right-of-way is required to allow for the future construction of separated bicycle facility on S. Santa Fe Avenue. Existing street improvements provide two westbound travel lanes, with an existing left turn lane to allow for U-turns at Community Drive. Existing 5-foot standard sidewalks exist on both S. Santa Fe Avenue and N. Las Flores Drive and will not be modified by the project.

Environmental Review

In accordance with the California Environmental Quality Act (CEQA), an addendum to the Santa Fe Flores, LP Project adopted Mitigated Negative Declaration (MND) was prepared for the proposed project (ND22-008). The addendum evaluated impacts to the environment that would occur due to the addition of 0.37-acre to the project area previously analyzed for Multi-family Residential 3 (R-3-10) development of 50 residential apartment units.

Under CEQA, an addendum to an adopted MND may be prepared if minor technical changes or additions to the proposed project are required or if none of the CEQA conditions calling for the preparation of a subsequent MND have occurred. An addendum is appropriate if the project changes or modifications do not result in any new significant impacts or a substantial increase in the severity of previously identified significant impacts. The addendum need not be circulated for public review; however, an addendum is to be considered along with the approved MND by the decision-making body prior to making a decision on the project.

The Addendum demonstrates that the environmental analysis, impacts, and mitigation requirements identified in the MND for the approved project adopted on February 28, 2023 (ND22-008), remain substantively unchanged by the modified project and supports the finding that the modified project does not raise any new issues and does not exceed the level of impacts identified in the adopted MND.

Biological Resources

An onsite biological resource survey for the modified project was conducted by RECON Biologists on October 31, 2024. The survey concluded that no sensitive habitats were present onsite. Although the site exhibits limited habitat suitability, certain existing onsite vegetation could potentially support bird/raptor nesting. Therefore, mitigation measures stipulate that construction must either occur outside the nesting season or, if ground clearing/construction activities are to take place during the nesting season, a nesting bird and raptor survey must be conducted beforehand.

Cultural/Tribal Cultural Resources

In accordance with State law (SB-18 and AB-52), tribal consultation for the project took place with four tribes: Pala Band of Mission Indians, Pechanga Band of Indians, Rincon Band of Luiseño Indians, and San Luis Rey Band of Mission Indians. While no resources were identified on the project site during the archaeological resources' reconnaissance, it was determined that there could be potential for unidentified resources to be encountered subsurface during project grading. Consequently, mitigation measures mandate that, prior to any ground disturbance work, the applicant must enter into an agreement for tribal monitoring.

Public Resources

On June 7, 1988, voters in San Marcos approved "Proposition R", which guarantees that sufficient public facilities and services are in place to accommodate the demands of new developments. To fulfill the mandates of Proposition R, the City established Community Facility Districts (CFDs) to gather property taxes linked to financing various facilities and services impacted by new development. The upcoming project will have implications for citywide services. Therefore, annexation into CFDs 98-01IA1 (Police) and 2001-01 (Fire and Paramedic) is essential to mitigate those effects.

Transportation (Vehicles Miles Traveled Analysis)

Per the City's Transportation Impact Analysis (TIA) guidelines, the Vehicle Miles Traveled (VMT) analysis screening threshold was evaluated for the residential project. The residential project is located in a VMT-efficient area and does not require a VMT analysis. The project is therefore considered to have a less than-significant transportation impact.

Level of Service Analysis (Land Use and Planning)

Since Senate Bill 743 went into effect, analysis of traffic congestion based on the level of service (LOS) metric is not part of the CEQA impact assessment. However, the City requires a separate LOS-based traffic analysis to demonstrate that the project would maintain mobility performance goals outlined in the City's General Plan

(Mobility Policy M-1.4). As such, the LOS-based traffic study was submitted to the City under separate cover for review (Attachment 3 of Addendum to the MND (Attachment D.3 to this Staff Report)).

The traffic study analyzed the project's potential traffic impacts upon existing conditions. The proposed project is anticipated to generate 368 average daily trips (ADT), including 29 AM peak hour trips and 37 PM peak hour trips.

With the proposed project, each intersection and road segment analyzed in the study would continue to operate at its existing level of service. Seven road segments, eight intersections, and the project's single driveway entry were analyzed in the traffic study. This project does not require substantial improvements for the analyzed road segments or intersections

The S. Santa Fe Avenue/Smilax Road intersection is operating below City standards in the existing condition scenario; therefore, a traffic signal is planned for this location under Capital Improvement Project (CIP) 88179 resulting in acceptable LOS D or better operations. The CIP is anticipated to start construction in 2027.

The project will contribute toward citywide traffic, resulting in potential cumulative impacts. In order to address potential cumulative impacts, the proposed project shall financially participate in the Congestion Management Community Facilities District (CFD 2011-01), which will assist in City-wide efforts to reduce traffic congestion and impacts to State Route 78. In addition, the project site is located within the South Santa Fe/Mission/Rancho Santa Fe Road Fee Reimbursement District and the project will contribute toward Capital Improvement Projects within the area.

Fiscal Impact

Fiscal and Economic Impact Reports were prepared for the project and have been provided as Attachment G, which compares the land use change from Multi-family Residential 3 (R-3-10) and Commercial (C) to Multi-family Residential (R-3-6). For the purposes of the fiscal and economic reports, the analysis compared the proposed project (a proposal for the development of 46 residential townhome condominium units), to a project conforming to the existing residential and commercial designations of the project site (referred to as the "approved plan"). The approved plan was assumed to consist of a 50-unit multi-family residential apartment complex plus an additional 2,821 square foot building added to the currently vacant portion of the Commercial Retail Strip Center.

The Fiscal Impact Report identifies potential recurring municipal revenues and costs to the City General Fund that may result from the proposed land use change from Multi-family Residential 3 (R-3-10) and Commercial (C) to Multi-family Residential (R-3-6) for the project site. Revenue sources include property taxes, sales taxes, licenses, permits, and fines. Expenditures for the City include public safety, public works maintenance, and administrative services. The Fiscal Impact Report estimates that the proposed project would result in a recurring fiscal surplus of $38,003 to the City's General Fund as compared to a recurring surplus of $9,472 if the site was developed with the Multi-family Residential apartment complex and Commercial Retail Strip Center approved uses as described above.

The Economic Impact Report identifies general economic impacts that may result from the proposed project. Major indicators of economic impact are 1) Gross receipts (direct output plus output produced by suppliers and

employee spending), 2) Employment (direct on-site and indirect which supports direct employment), and 3) One-Time Construction Impacts. According to the study, implementing the proposed project would result in a recurring economic output for the City of approximately $1,252,557. If developed under the approved plan in alignment with the current C/R-3-10 designations, the recurring economic output would be approximately $975,652. An advantage of the proposed project over the approved project is that the site can provide a new for sale product to San Marcos in a time of extreme market demand and supply shortage of for-sale residential townhomes.

The project site has remained undeveloped under the current C/R-3-10 Zones. The site is unlikely to be developed with commercial buildings due to the site's topography and lack of adequate accessibility and multi-family residential apartment units due to currently trending economic conditions where there is a high-market demand for for-sale residential units.

Public Comment

A virtual Public Workshop was conducted on December 11, 2025, and was attended by one member of the public. No comments were received during the public workshop, or in response to any public notices circulated for the project.

At the April 20, 2026, Planning Commission hearing, one City resident spoke regarding the volume of residential development in the City on the whole, asking for determining bodies to cease approval of new residential development projects until at least seventy percent of existing approved projects have been constructed to maintain safety and quality of life of San Marcos residents. The applicant team responded by acknowledging their concerns, confirming the City's new Fire Station is expected to be constructed prior to the proposed project, and that their traffic study did review traffic beyond intersections immediately adjacent to the project site.

Attachment(s)

1. Resolution No. 2026-9589 (General Plan Amendment GPA25-0001) - A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS APPROVING A GENERAL PLAN AMENDMENT FOR A LAND USE CHANGE OF 2.23-NET ACRES FROM "MEDIUM DENSITY RESIDENTIAL 2" AND 0.37-NET ACRES FROM "COMMERCIAL" TO "MEDIUM HIGH DENSITY RESIDENTIAL";
2. Ordinance No. 2026-1579 (Rezone R25-0001) - AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS APPROVING A REZONE OF 2.23-NET ACRES FROM MULTIFAMILY RESIDENTIAL 3 (R-3-10) AND 0.37-NET ACRES FROM COMMERCIAL (C) TO MULTIFAMILY RESIDENTIAL (R-3-6);
3. Resolution No. 2026-9590 (Multi-Family Site Development Plan MFSDP25-0001) - A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS APPROVING A MULTI-FAMILY SITE DEVELOPMENT PLAN FOR A 46-UNIT RESIDENTIAL CONDOMINIUM DEVELOPMENT IN THE MULTI-FAMILY RESIDENTIAL (R-3-6) ZONE; AND
4. Resolution No. 2026-9591 (Tentative Subdivision Map TSM25-0001) - A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS APPROVING A TENTATIVE SUBDIVISION MAP FOR THE MERGER OF TWO EXISTING PARCELS INTO ONE AND THE CREATION OF UP TO 46

RESIDENTIAL CONDOMINIUM UNITS.

A. Vicinity Map
B. Requested Entitlements
C. Site & Project Characteristics
D. Addendum to Mitigated Negative Declaration (ND22-008)
E. Project Plans
F. Land Use Analysis
G. Fiscal and Economic Impact Analysis
H. Planning Commission Meeting Minutes

Prepared by: Sarah Cluff, Senior Planner (Project Planner)
Reviewed by: Sean del Solar, Sustainability Program Manager / Principal Planner
Submitted by: Joseph Farace, Planning Division Director
Submitted by: Isaac Etchamendy, Development Services Director
Approved by: Michelle Bender, City Manager

RESOLUTION NO. 2026-9589

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS APPROVING A GENERAL PLAN AMENDMENT FOR A LAND USE CHANGE OF 2.23 NET ACRES FROM "MEDIUM DENSITY RESIDENTIAL 2" AND 0.37 NET ACRES FROM "COMMERCIAL" TO "MEDIUM HIGH DENSITY RESIDENTIAL"

GPA25-0001
Santa Fe Flores, LP

WHEREAS, Government Code sections 65350 et seq. require each planning agency and legislative body of each city to adopt a comprehensive, long-term general plan for the physical development of the city; and

WHEREAS, Section 65358 of the Government Code specifies the requirements for the amendment of all or part of a General Plan; and

WHEREAS, on February 18, 2025, the City received an application from Paul Mayer on behalf of Santa Fe Flores, LP requesting a General Plan Amendment for a change of land use designation from Medium Density Residential 2 to Medium High Density Residential for 2.23 net acres and from Commercial to Medium High Density Residential (MHDR) for 0.37 net acres located at the rear of 2966, and the complete lots at 2972 and 2982, South Santa Fe Avenue, at the intersection of South Santa Fe Avenue and North Las Flores Drive in the College Area Neighborhood, more particularly described as:

> Brief Legal Description: Portion of Lot 4 in Block 95 of Rancho Los Vallecitos de San Marcos, in the City of San Marcos, County of San Diego, State of California, according to Map No. 806, filed in the Office of the County Recorder of San Diego County on December 21, 1895.
>
> Assessor's Parcel Number(s): A portion of 217-161-17-00, and the entirety of 217-161-18-00 and 217-161-19-00; and

WHEREAS, the General Plan Amendment is requested in conjunction with a Rezone (R25-0001) to change the zone from Commercial (C) to Multifamily Residential (R-3-6) on that portion of 2966 South Santa Fe Avenue, and from Multifamily Residential 3 (R-3-10) to Multifamily Residential (R-3-6) for those vacant residential lots; a Multifamily Site Development Plan (MFSDP25-0001), which will guide the orderly development of 46 residential condominium units on the project site; and a Tentative Subdivision Map (TSM25-0001) to consolidate two and a half parcels into one lot and create up to 46 condominium units; and

WHEREAS, the Development Services Department did study said request and recommends approval of said request; and

WHEREAS, on December 11, 2025, the City held a public workshop to provide an informational overview of the proposed project to the general public; and

WHEREAS, on April 20, 2026, the San Marcos Planning Commission held a duly noticed public hearing and recommended approval of said request and the appropriate environmental document for said request to the City Council by a 7-0 vote, in favor; and

WHEREAS, on May 26. 2026, the City Council held a duly noticed public hearing in the manner prescribed by law to consider said request; and

WHEREAS, the City Council did review and consider the Addendum to the previously adopted Final Mitigated Negative Declaration (ND22-008; SCH No. 2022090486) and it is determined that no new environmental information or documentation was presented revealing any new unidentified environmental impacts which had not been previously mitigated and the proposed project is within the scope of the impacts identified in ND22-008; and

NOW, THEREFORE, the City Council does hereby resolve as follows:

A. The foregoing recitals are true and correct, and are hereby incorporated by reference into this Resolution.

B. The City Council hereby approves this General Plan Amendment, as shown on the attached Exhibit A, incorporated by reference and made a part of this Resolution as though fully set forth herein.

C. This General Plan Amendment is approved in conjunction with the submitted R25-0001, MFSDP25-0001, TSM25-0001 and all conditions of approval specified in PC 26-5189, PC 26-5190, PC 26-5191, respectively, which documents are incorporated herein by this reference; and the mitigation measures in the Addendum to the previously adopted Final Mitigated Negative Declaration (ND22-008; SCH No. 2022090486) are hereby incorporated by reference and made a part of this Resolution with the same force and effect as though fully set forth herein.

D. The City Council's decision is based on the following findings and determinations:

1. The proposed General Plan Amendment is consistent with the Goals and Objectives in the General Plan, in that changing the designations of the subject parcels to MHDR would expand an adjacent land use, facilitate the reuse of underutilized infill lands, and would implement the following General Plan Goals and Policies:

    a. Achieves a balanced distribution and compatible mix of land uses by providing a logical transition between existing and new land uses, meeting the present and future needs of all residents and the business community through the addition of a 0.37-acre portion of property that would otherwise be difficult to develop commercially due to site access and topographical challenges. (Goal LU-1) In addition, the project will designate land for a variety of residential densities sufficient to meet the housing needs for a variety of household sizes and income levels, with higher densities being focused in the vicinity of transit stops in proximity to significant concentrations of employment opportunities. (Housing Element Policy 1.1)

b. Complements adjacent land uses by considering compatibility of activities, development patterns and architectural character elements through provision of a multi-family project that transitions to existing land uses with a contemporary architectural design and multiple recreational amenities for residents, and access to various mobility choices as it provides pedestrian connectivity to the adjacent public transit stop and rail trail. (Policy LU-1.1)

c. Promotes a compact development pattern that reduces air pollution and automobile dependence and facilitates walking, bicycling, and transit use by providing EV Ready parking for each unit and an irrevocable offer of dedication of right-of-way on S. Santa Fe Avenue for future Class IV one-way separated bicycle and pedestrian facilities. (Policy LU-2.1)

d. Provides community connections through development of land uses compatible with and support a variety of mobility opportunities and choices through development of a walkable, bike friendly and transit-oriented community as the project promotes pedestrian connections to transit and trails, along with bicycle connections to the rail trail as well as future Class IV separated bicycle and pedestrian facilities. (Goal LU-3)

e. Supports walkable development along main transit and transportation corridors through walkable connections to amenities within the project and to public transit connections offsite, both along S. Santa Fe Avenue and to the Sprinter station a mile to the east. (Policy LU-7.1)

2. The proposed General Plan Amendment is deemed to be in the public interest, in that the project will construct a valuable and attractive development on a property in the College area which has remained vacant and undeveloped under the current land use designations. Development of the property with quality architectural and landscape design will increase property tax revenue; the property will annex into the Community Facility District: CFD 2001-01 (Fire and Paramedic) and CFD 98-01, Improvement Area No.1 (Police) to compensate for the incremental City-wide increase in demand for fire and police protection services, respectively, and the proposed land use change to MHDR of the property is compatible with the adjacent Multifamily Residential property to the east across Las Flores Drive and Residential Mobile Home Park property to the south across South Santa Fe Avenue.

3. The proposed General Plan Amendment will not be detrimental to the public health, safety, and welfare, in that the zoning designation of the property is also being changed (R25-0001) to Multifamily Residential (R-3-6) to implement the land use change of the subject site to MHDR. The R-3-6 zone will also establish development standards for the property and Multifamily Site Development Plan (MFSDP25-0001) will ensure the orderly development of the site in conformance with the new General Plan and Zoning designations, and ensure adequate public facilities and infrastructure, including fire, police, water, and sewer are available to the property for the project. The project will also be developed in accordance with

the California Building Code and all landscaping will be installed in conformance with the City's Water Efficient Landscape Ordinance.

4. All requirements of CEQA have been met, in that the project, as conditioned, will not have significant impact on the environment as reviewed and analyzed in the Addendum to the previously adopted Final Mitigated Negative Declaration (ND22-008; SCH No. 2022090486) and the implementation of the mitigation monitoring report program (MMRP) will ensure the mitigation measures related to biological resources, tribal/cultural resources, and public services have been incorporated into the conditions of approval of MFSDP25-0001 (Resolution No. 2026-9590) and TSM25-0001 (Resolution No. 2026-9591).

E. This General Plan Amendment is within the scope of the Addendum to the previously adopted Final Mitigated Negative Declaration (ND22-008; SCH No. 2022090486) and the mitigation monitoring and reporting program pursuant to CEQA.

F. The applicant/developer shall comply with all provisions and requirements set forth in the San Marcos Municipal Code, and all City ordinances, resolutions, policies and procedures, and with all applicable state and federal regulations, as may be amended from time to time, whether or not such provisions or requirements have been specifically set forth in these conditions, all of which are now incorporated by reference and made a part of this Resolution with the same force and effect as though fully set forth herein.

G. To the extent feasible and as permitted by law, developers and contractors are requested to first consider the use of San Marcos businesses for any supplies, materials, services, equipment needed, and the hiring of local residents to stimulate the San Marcos economy to the greatest extent possible.

H. To the extent permitted by law, the applicant/developer shall defend and hold the City of San Marcos, its agents and employees harmless from liability from: (i) any and all actions, claims, damages, injuries, challenges and/or costs of liabilities arising from the City's approval of any and all entitlements or permits arising from the project as defined in the conditions of approval, or issuance of grading or building permits; (ii) any damages, liability and/or claim of any kind for any injury to or death of any person, or damage or injury of any kind to property which may arise from or be related to the direct or indirect operations of the applicant/developer or its contractors, subcontractors, agents, employees or other persons acting on applicant/developer's behalf which relate to the project; and (iii) any and all damages, liability and/or claims of any kind arising from operation of the project. The applicant/developer further agrees that such indemnification and hold harmless shall include all defense related fees and costs associated with the defense of City by counsel selected by the City. This indemnification shall not terminate upon expiration of the conditions of approval or completion of the project but shall survive in perpetuity.

PASSED, APPROVED, AND ADOPTED by the City Council of the City of San Marcos, California, at a regular meeting thereof, held on this 26th day of May, 2026, by the following roll call vote:

AYES: COUNCIL MEMBERS:

NOES: COUNCIL MEMBERS:

ABSENT: COUNCIL MEMBERS:

APPROVED:

Rebecca D. Jones, Mayor

ATTEST:

Phillip Scollick, City Clerk

Attachment(s):

Exhibit A – Existing General Plan Land Use Exhibit
Exhibit B – Proposed General Plan Land Use Exhibit

EXHIBIT A

Existing General Plan Land Use Exhibit

EXHIBIT B

Proposed General Plan Land Use Exhibit

RESOLUTION NO. 2026-9590

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS APPROVING A MULTI-FAMILY SITE DEVELOPMENT PLAN FOR A 46-UNIT CONDOMINIUM DEVELOPMENT IN THE MULTIFAMILY RESIDENTIAL (R-3-6) ZONE

MFSDP25-0001
Santa Fe Flores, LP

WHEREAS, on February 18, 2025, the City received an application from Paul Mayer on behalf of Santa Fe Flores, LP requesting a Multi-Family Site Development Plan to allow the construction of a 46-unit condominium development on a 2.6 net acre site located at the rear of 2966, and the complete lots at 2972 and 2982, South Santa Fe Avenue, at the intersection of South Santa Fe Avenue and North Las Flores Drive in the Multifamily Residential (R-3-6) Zone in the College Area Neighborhood more particularly described as:

Brief Legal Description: Portion of Lot 4 in Block 95 of Rancho Los Vallecitos de San Marcos, in the City of San Marcos, County of San Diego, State of California, according to Map No. 806, filed in the Office of the County Recorder of San Diego County on December 21, 1895.

Assessor's Parcel Number(s): A portion of 217-161-17-00, and the entirety of 217-161-18-00 and 217-161-19-00; and

WHEREAS, the Multi-Family Site Development Plan is being requested in conjunction with a General Plan Amendment (GPA25-0001) to change the land uses from "Commercial" to "Medium High Density Residential" on that portion of 2966 South Santa Fe Avenue and from "Medium Density Residential 2" to "Medium High Density Residential" for those vacant residential lots; a Rezone (R25-0001) to change the zone from Commercial (C) to Multifamily Residential (R-3-6) on a portion of 2966 South Santa Fe Avenue, and from Multifamily Residential 3 (R-3-10) to Multifamily Residential (R-3-6) for those vacant residential lots; and a Tentative Subdivision Map (TSM25-0001) to consolidate two and a half parcels into one lot and create up to 46 condominium units; and

WHEREAS, the Development Services Department did study said request, and recommends approval of said request; and

WHEREAS, on December 11, 2025, the City held a public workshop to provide an informational overview of the proposed project to the general public; and

WHEREAS, on April 20, 2026, the San Marcos Planning Commission held a duly noticed public hearing and recommended approval of said request and the appropriate environmental document for said request to the City Council by a 7-0 vote, in favor; and

WHEREAS, on May 26, 2026, the City Council held a duly noticed public hearing in the manner prescribed by law to consider said request; and

WHEREAS, the City Council did review and consider Addendum to the previously adopted Final Mitigated Negative Declaration (ND22-008; SCH No. 2022090486) and it is determined

that no new environmental information or documentation was presented revealing any new unidentified environmental impacts which had not been previously mitigated and the proposed project is within the scope of the impacts identified in ND22-008; and

NOW, THEREFORE, the City Council does hereby resolve as follows:

A. The foregoing recitals are true and correct, and are hereby incorporated by reference into this Resolution.

B. The City Council hereby approves this Multi-Family Site Development Plan per the submitted plans date stamped November 19, 2025 (46-unit condominium development, with seven buildings, five amenity areas, enclosed two-car garages attached to each unit, and 15 guest parking spaces on a vacant 2.6 net acres) except as modified herein, and subject to compliance with the conditions of approval in Exhibit A attached hereto and incorporated by reference and made a part of this Resolution as though fully set forth herein.

C. This Multi-Family Site Development Plan is approved in conjunction with the submitted GPA25-0001, R25-0001, TSM25-0001 and all conditions of approval specified in Resolution No. 2026-9589, Ordinance No. 2026-1579, and Resolution No. 2026-9591, respectively, which documents are incorporated herein by this reference; and the mitigation measures in the Addendum to the previously adopted Final Mitigated Negative Declaration (ND22-008; SCH No. 2022090486) are hereby incorporated by reference and made a part of this Resolution with the same force and effect as though fully set forth herein.

D. The City Council's decision is based on the following findings and determinations:

1. The Multi-Family Site Development Plan conforms with the General Plan and all provisions of the San Marcos Municipal Code, in that the project:

    a. Achieves a balanced distribution and compatible mix of land uses by providing a logical transition between existing and new land uses, meeting the present and future needs of all residents and the business community through the addition of a 0.37-acre portion of property that would otherwise be difficult to develop commercially due to site access and topographical challenges. (Goal LU-1)

    b. Complements adjacent land uses by considering compatibility of activities, development patterns and architectural character elements through provision of a multi-family project that transitions to existing land uses with a contemporary architectural design and multiple recreational amenities for residents, and access to various mobility choices as it provides pedestrian connectivity to the adjacent public transit stop and rail trail. (Policy LU-1.1)

    c. Promotes a compact development pattern that reduces air pollution and automobile dependence and facilitates walking, bicycling, and transit use by providing EV Ready parking for each unit and an irrevocable offer of dedication of right-of-way on S. Santa Fe Avenue for future Class IV one-

way separated bicycle and pedestrian facilities. (Policy LU-2.1)

d. Provides community connections through development of land uses compatible with and support a variety of mobility opportunities and choices through development of a walkable, bike friendly and transit-oriented community as the project promotes pedestrian connections to transit and trails, along with bicycle connections to the rail trail as well as future Class IV separated bicycle and pedestrian facilities. (Goal LU-3)

e. Supports walkable development along main transit and transportation corridors through walkable connections to amenities within the project and to public transit connections offsite, both along S. Santa Fe Avenue and to the Sprinter station a mile to the east. (Policy LU-7.1)

2. The site does not contain any substantial trees, but has previously been rough graded and, as a result, the proposed Multi-Family Site Development Plan will not unnecessarily remove trees and natural vegetation but will plant 108 new trees throughout the proposed development, including additional trees along North Las Flores Drive.

3. The project site is generally void of any topographical features in that the project site has been previously rough graded and, as a result, the proposed Multi-Family Site Development Plan will not have any impact on natural landforms and ridgelines, nor will it include excessive or unsightly grading of hillsides or otherwise adversely affect the natural setting.

4. The Multi-Family Site Development Plan provides adequate buffering between residential and non-residential uses and otherwise is in the best interests of the public health, safety, and general welfare, in that landscaping and solid walls will separate residential and non-residential uses.

5. The project site is not adjacent to or within the vicinity of any natural landforms or vegetation, but is surrounded by existing development; therefore the proposed Multi-Family Site Development Plan is in scale and harmonious with the higher elevated residential subdivision to the north, the 3-story apartment complex to the east, and the commercial and large industrial buildings to the west and northwest. The project will also install 108 new trees of various species and sizes around the project site, with additional shrubs and groundcovers compatible with other developments in the vicinity.

6. The structure(s), Multi-Family Site Development Plan, and landscaping create an internal sense of order, provide a visually pleasing setting for occupants, visitors and the general community, are appropriate to the function of the site, and provide safe and convenient access to the property for pedestrians, bicyclists, and vehicles, in that the project will consist of seven buildings containing single family attached townhomes of various sizes with architectural enhancements, articulation, and outdoor amenities. The Multi-Family Site Development Plan will share a reciprocal private driveway access from South Santa Fe Avenue with the existing commercial building to the west. The project will include internal pathways

providing street access to all units. The project will install 108 new trees of various species and size and provide shrubs and groundcover throughout the project site to complement the appearance of the development and comply with the City's requirements for water efficient landscaping.

7. To the maximum extent feasible, the Multi-Family Site Development Plan includes the maintenance, rehabilitation, and improvement of existing sites, structures, and landscaping; provides adequate and effectively concealed trash, storage, and utility/mechanical equipment; and will correct any violations of the Building Code, Zoning Ordinance or other sections of the San Marcos Municipal Code that exist on the site, in that the project will develop two and a half currently vacant parcels that do not currently have landscaping or trees, and the project will install 108 new trees along with additional landscaping. Trash service will be provided through enclosures that will be architecturally incorporated into the site's design.

8. The Multi-Family Site Development Plan provides all required on-site and off-site public improvements, in compliance with City adopted Design Manuals and guidelines, as deemed necessary by the review authority, in that the project provides improvements along South Santa Fe Avenue including a driveway entry, an underground stormwater detention system, retaining walls, adequate internal driveways consistent with San Marcos Fire Department circulation requirements, and will provide water and sewer connections to the site in compliance with Vista Irrigation District and Buena Sanitation District requirements, respectively.

9. The Multi-Family Site Development Plan provides open space, parking areas, and landscaping consistent with the Zoning Ordinance and in a manner that visually enhances the physical use of the property, in that 14,795-square feet of common open space is being provided by the project, consisting of play equipment for older and younger children, shaded patio tables, BBQ islands, and game courts. The project provides adequate parking for residents and visitors. The project will install 108 new trees of various species and size and provide shrubs and groundcover throughout the project site to complement the appearance of the development and comply with the City's requirements for water efficient landscaping.

10. All requirements of CEQA have been met, in that the Addendum to the previously adopted Final Mitigated Negative Declaration (ND22-008; SCH No. 2022090486) was prepared for the project and determined that no significant environmental impacts would occur with implementation of mitigation measures incorporated into the resolution.

E. This Multi-Family Site Development Plan is within the scope of the Addendum to the previously adopted Final Mitigated Negative Declaration (ND22-008; SCH No. 2022090486) and the mitigation monitoring and reporting program, and both are hereby recommended to the City Council for adoption pursuant to CEQA.

F. Within thirty (30) days of the approval of the Multi-Family Site Development Plan (MFSDP25-0001) the approved site plan, architectural elevations, floor plans, and conceptual landscape plan shall be submitted as a digital file on a CD including this Resolution number on the title page. The title page shall include the statement "I (we),

_____, the applicant/owner(s) or the applicant/owner's representative, have read, understand and agree to the conditions of Resolution No. 2026-9590." Immediately following this statement shall appear a signature block for the owner or the owner's representative which shall be signed. Signature blocks for the Project Planner and the Project Civil Engineer shall also appear on this title page. The digital copy shall be approved by the City prior to submittal of any grading plan, improvement plan, or building permit.

G. This Multi-Family Site Development Plan approval shall lapse and be null and void one (1) year following the date upon which the plans and drawings were approved by the review authority unless prior to the expiration of one (1) year, a grading and/or building permit is issued and construction is commenced and diligently pursued toward completion.

H. The applicant/developer shall comply with all provisions and requirements set forth in the San Marcos Municipal Code, and all City ordinances, resolutions, policies and procedures, and with all applicable state and federal regulations, as may be amended from time to time, whether or not such provisions or requirements have been specifically set forth in these conditions, all of which are now incorporated by reference and made a part of this Resolution with the same force and effect as though fully set forth herein.

I. To the extent feasible and as permitted by law, developers and contractors are requested to first consider the use of San Marcos businesses for any supplies, materials, services, equipment needed, and the hiring of local residents to stimulate the San Marcos economy to the greatest extent possible.

J. To the extent permitted by law, the applicant/developer shall defend and hold the City of San Marcos, its agents and employees harmless from liability from: (i) any and all actions, claims, damages, injuries, challenges and/or costs of liabilities arising from the City's approval of any and all entitlements or permits arising from the project as defined in the conditions of approval, or issuance of grading or building permits; (ii) any damages, liability and/or claim of any kind for any injury to or death of any person, or damage or injury of any kind to property which may arise from or be related to the direct or indirect operations of the applicant/developer or its contractors, subcontractors, agents, employees or other persons acting on applicant/developer's behalf which relate to the project; and (iii) any and all damages, liability and/or claims of any kind arising from operation of the project. The applicant/developer further agrees that such indemnification and hold harmless shall include all defense related fees and costs associated with the defense of City by counsel selected by the City. This indemnification shall not terminate upon expiration of the conditions of approval or completion of the project, but shall survive in perpetuity.

PASSED, APPROVED, AND ADOPTED by the City Council of the City of San Marcos, California, at a regular meeting thereof, held on this 26th day of May, 2026, by the following roll call vote:

AYES: COUNCIL MEMBERS:

NOES: COUNCIL MEMBERS:

ABSENT: COUNCIL MEMBERS:

APPROVED:

Rebecca D. Jones, Mayor

ATTEST:

Phillip Scollick, City Clerk

ATTACHMENT(S):

EXHIBIT A – Conditions of Approval

EXHIBIT A
RESOLUTION NO. 2026-9590
MFSDP25-0001
Conditions of Approval

A. General Provisions

1. All of the terms, covenants and conditions contained herein shall run with the land and be binding on and inure to the benefit of the heirs, successors, assigns, and representatives of the applicant/developer as to any and all of the property.

2. If any of the terms, covenants or conditions contained herein shall fail to occur or if they are, by their terms, to be implemented and maintained over time, if any of such conditions fail to be so implemented and maintained according to their terms, the City of San Marcos (City) shall have the right to revoke or modify all approvals herein granted including issuance of building permits, deny, or further condition the subsequent approvals that are derived from the approvals herein granted, institute and prosecute litigation to compel their compliance with said conditions or see damages for their violation. The applicant/developer shall be notified ten (10) days in advance prior to any of the above actions being taken by the City and shall be given the opportunity to remedy any deficiencies identified by the City.

3. The applicant/developer shall be responsible for bearing the costs of all grading activities, on-site and off-site improvements, labor, design, mitigation, and other costs associated with, but not limited to, the project's planning, engineering, construction and/or architecture for the project.

4. The proposed new development may be subject to the payment of development fees and in-lieu fees as required by the City's Fee Ordinance at the time an application is submitted or prior to the issuance of permits, subject to the transitional fee period ending March 3, 2027 pursuant to Council Resolution 2024-9388, as determined by the City.

5. The development must comply with the storm water regulations applicable at the time of approval of the corresponding grading permit application.

6. All design requirements and mitigation measures of the Addendum to the Final Initial Study/Environmental Checklist and Mitigated Negative Declaration for the Santa Fe Flores, LP Project (Mitigated Negative Declaration ND22-008; SCH No. 2022090486) shall be implemented.

7. Pursuant to Tentative Parcel Map (TSM25-0001) Resolution PC 25-5191, formation of a Homeowners Association (HOA) is required to fulfill maintenance obligations. If condominium units are not formed, maintenance responsibilities will fall to the property owner.

B. City of Vista, Buena Sanitation District Sewer Conditions of Approval

1. This project is within the Vista (BSD)-San Marcos Detached Area Flow Transfer Agmt.

2. Upon completion of the final CEQA, and as a condition of sewer commitment, developer shall prepare, file, execute, and record a LAFCO/Vista 'Out of Areas Sewer Service' Agmt in order to obtain sewer service. Sewer availability and commitment is subject to the recording of the 'Out of Areas Sewer Service' Agmt.

3. The multi-family (townhomes-condominium units) residential development proposed density and sewer capacity is in compliance with the current Vista General Plan, Zoning requirements, and the current Sewerage Master Plan. Therefore, sewer capacity and sewer service are available for these parcels.

4. Developer shall obtain a 'Sewer Discharge' permit from the City of Vista-BSD, and pay all related fees and charges, prior to obtaining a City of San Marcos Building permit. Commitment to provide sewer services is made by the District's Board and/or City Council, and is subject to compliance with Sewer District's conditions of approval, terms, rules, and regulations, posting required securities/bonds, and payment of all pertinent fees and charges.

5. The proposed multi-family residential development project is within the City of Vista-BSD Sewer Service Basin B03(166) as determined by the current 'Sewerage Master Plan' and the 'Sewer Facility Maps'. An existing 8-in VCP (Dwg-3804, 2004-Yr) public sewer main along S Santa Fe Ave. is available for connection.

6. Developer shall hire a qualified Ca. Registered Land Surveyor or Engineer to field survey and certify the elevations of the existing sewer manholes #B03(166G) and #B03(166H). A signed, stamped and dated 'Survey Manhole Elevations Certification' shall be submitted to the Sanitation Engineer, prior to approval of the Grading/Improvement Plans. The certificate shall include Vista-BSD Manhole IDs, top of rim and invert elevations, city Benchmark, X,Y,Z coordinates, and survey date, plus digital (CAD and PDF) copy of the field survey data file.

7. PUBLIC/PRIVATE SEWER FACILITIES DESIGN CRITERIA:

    a. Sewer Main: 8" PVC SDR-35 (Green) at 1.00% (Min) slope with 5' (Min) cover over the pipe. Sewer pipe shall be designed to maintain a self-cleaning velocity of two feet per second (2 fps Min) to avoid deposition of solids and odor. All sewer main data to be within a 'Sewer Main Data' table (to include SMH ID, Bearing, Radius, Length, Slope, Remarks, etc., …).

    b. Manholes: 'Private' 48" diameter manhole per COV SM-01 and SWR-03. 'Public' 60" diameter manhole per COV SM-02 and SWR-04.

    c. Sewer Laterals (private): 4" PVC SDR-35 (Green) at 2% slope (min) within the ROW, and 5' (Min) cover over the pipe at the property line. 'Two-Way' cleanout at property line with a utility box. All laterals to maintain a 5-ft separation, 6-ft separation between manholes. All sewer lateral data to be within a 'Private Sewer Lateral Data' table per COV SWR-24.

d. Pre-CCTV inspection is to be perform for ALL existing impacted public sewer mains – include all CCTV data in a 'Pre-CCTV Inspection Data' table. In addition, Post-CCTV inspection is to be performed for ALL newly installed public sewer mains and manholes – include all Post-CCTV data in a 'Post-CCTV Inspection Data' table. Refer to the Sewer Improvement Plans 'Sewer Notes' for additional Requirements.

e. The Sewer Maintenance Access Road shall be capable of handling H-20 & HS20 Load, and as recommended by the soils engineer and/or as directed by the City/Sanitation Engineer or his representative.

f. Developer shall prepare a 'Truck Turning Motion Analysis Plan' for Sewer Vactor/ Trash Pick-up/ Fire Trucks/ Delivery Trucks. 'Truck Turning Motion Analysis Plan' shall be designed and prepared by a Ca. Professional Engineer as part of the Improvement & Grading Plans.

g. Developer shall contact EDCO for approval of the enclosure design & location. The Trash Enclosure surface area may drain/ discharge into a public sewer system. A 'Will Serve' letter from EDCO for trash SERVICE is required.

h Developer/Owner shall prepare, file, execute, and record a 'Private Sewer Facility Maintenance' Agreement (PSFMA).

i. Corporate Delegation of Authorization to sign (Notarized), Corporate's Operating Agmt, Secretary of State Certificate of God Standing, are to be submitted for the preparation of all required legal agreements.

8. Unless otherwise noted, ALL proposed sewer facilities within this project are 'PRIVATE' and shall be labeled as such on the plans. Add a note to the Sewer Improvement Plans to reflect this requirement. In addition, except for the new public manhole to be installed along the S Santa Fe Ave. public sewer main, ALL sewer manhole covers shall have "PRIVATE SEWER" cast into the lid, unless otherwise noted. Add a note to the Sewer Improvement Plans to reflect this requirement.

9. Developer to extend/ install approximately 1,250-lf of private sewer main pipe to serve the project. Each proposed condominium unit shall have a separate, individual, dedicated gravity flow, private sewer lateral and standard two-way cleanout fronting and connecting to the private sewer main. The existing private sewer main entering the site along Las Flores Drive (SMH #B03.161.A0 to #B03.191) is to be removed completely (from SMH #B03.161.A0 to #B03.191). The SMH channel is to be reconstructed.

10. The Construction Sewer Improvement and Grading Plans As-Built Signature block shall include a sanitation signature block for review/approval of the as-builts as noted below.

11.

"AS·BUILTS"¶
¶ PROJECT·ENGINEER_____…_____¶ RCE··_____·EXP··_____·····DATE¶
REVIEWED·BY:¶ ¶ INSPECTION:··_____··DATE:·· _____¶ ¶ SANITATION:··_____··DATE:·· _____¶ ¶ NOTE:··AS-BUILTS·WILL·BE·SIGNED·UPON:¶ • → VACATION·OF·ALL·SURPLUS·EASEMENTS¶ • → COMPLETION·OF·LANDSCAPE·WORK¶ • → POST-CCTV·INSPECTION·OF·ALL·SEWER· FACILITIES¤

12. Construction Sewer Improvement Plans ('PRIVATE AND PUBLIC') are to be designed and prepared by a Ca. Professional Engineer, per Public Standards and/or as directed by the City Engineer.

13. Construction and inspection of the 'PUBLIC/PRIVATE' sewer facilities is to be done per Public Standards and/or as directed by the City Sanitation Engineer, including Pre- & Post-CCTV inspection. Add note to plans to reflect this requirement.

14. The FINAL MAP GENERAL NOTES shall include the following notes:

    a. ALL PARCELS CREATED BY THIS FINAL MAP SHALL BE SUBJECT TO THE

        i. RECORDED 'OUT OF AREA SEWER SERVICE AGREEMENT' PER DOC#: 2026-_____, RECORDED _____, 2025.

        ii. RECORDED 'PRIVATE SEWER FACILITY MAINTENANCE AGREEMENT' DOC#2026-_____, RECORDED _____, 2025.

        iii. 'VISTA-SAN MARCOS DETACHED SEWERAGE FLOW TRANSFER' AGMT. PER DOC #_____ REC'D: _____

15. All Public/Private sewer facility improvements are to be separately bonded with the City of Vista-Buena Sanitation District. All other normal and customary fees and charges shall apply and are required to be paid during the plan review process. City/District to release bonds and securities once the As-Built Plans have been reviewed and approved, and the sewer improvements accepted by City/District.

16. Developer to comply with the SWRCB requirements to prevent Sanitary Sewer

Overflows (SSOs) and Spills. Compliance can be met by complying with the conditions and requirements noted above, and by performing the required Pre- and Post-CCTV inspection, and installing approved sewer manholes.

C. Prior to issuance of any grading permit, the applicant/developer shall comply with the following conditions.

Land Development Division

1. The applicant/developer shall apply for a public improvement permit compliant with SMMC Chapter 14.16. All plans submitted for public improvements shall conform to applicable codes and engineering handouts, unless explicitly superseded by the conditions contained herein. All appropriate fees shall be paid for the processing of the permit. Plans shall include off-site improvements including but not limited to CFD landscape improvements.

2. The applicant/developer shall dedicate to the City:

   a. An irrevocable offer of dedication for 8-ft wide right-of-way for S Santa Fe Ave public street, utilities, drainage facilities;

   b. An easement for Landscape Maintenance and Access purposes for Open Space Slope; and,

   c. All other interests in real property required by these conditions and as shown on the tentative map.

   All property or property interests shall be granted to the City free and clear of all liens and encumbrances and without cost to the City and free of environmental hazards, hazardous materials or hazardous wastes.

3. The applicant/developer shall process an application to quitclaim the portion of the City's existing landscape maintenance easement dedicated per recorded document 2005-887134 for City Council consideration as shown on the site plan. The quitclaim can be processed on the Final Map or per separate document.

4. The applicant/developer shall execute and record an Encroachment, Maintenance, and Removal Agreement (EMRA) for the proposed privately maintained storm drain pipes within public right-of-way in South Santa Fe Avenue and North Las Flores Drive.

5. The developer shall provide a 30-ft wide driveway access within the right-of-way, to be shared with the neighboring property at 2966 S. Santa Fe Avenue. The driveway width shall be reduced to 25-ft minimum once onsite. For commercial or multifamily areas that share access and/or parking, an unsubordinated reciprocal access, maintenance and parking agreement, in a form satisfactory to the City Attorney, shall be recorded with the Office of the San Diego County Recorder. A copy of the recorded agreement shall be submitted to the City's Planning Division.

6. Line of sight easements, if necessary, shall be delineated on all grading plans as approved by the City Engineer. Adequate sight distance for all intersections, driveways and access points shall be provided per latest edition of the California Department of Transportation (Caltrans) Highway Design manual and the American Association of State Highways and Transportation Officials (AASHTO) Geometric Design of Highways and Streets.

7. Prior to any submittal of a final map, a certificate of compliance for lot line adjustment shall be recorded for the properties (APNs: 217-161-17-00, 217-161-18-00, and 217-161-19-00) within the project boundary. The adjusted parcels shall be reflected on the final map submittal. An effectuating deed shall be provided within 30 days of recordation of the certificate of compliance.

8. The applicant/developer shall enter into a Subdivision Improvement Agreement with the City to complete all required public improvements prior to permit issuance. Securities and applicable fees for the construction of the public improvements shall be submitted to and approved by the City in accordance with the SMMC Sections 19.16.070 and 19.16.080.

9. The applicant/developer shall submit plans and appropriate construction notes for improvement of all streets, right of way and drainage facilities to the City Engineer for approval. Plans shall include all off-site improvements as specified by the City Engineer. In addition, a signage and striping plan shall be included with the improvement plans utilizing Caltrans standards and shall be acceptable to the City Engineer.

10. The design of all private streets and/or drainage systems for this project shall be approved by the City Engineer. The structural section of all private streets shall conform to City standards based on R-value tests. All private streets and/or drainage systems shall be inspected by the City, and the standard plan check fees and inspection fees shall be paid and appropriate bonds shall be posted with the City prior to approval of the Final Map or Grading Permit issuance, whichever occurs first.

11. The exact depth of any new or improved street structural section and subgrade requirement shall be determined based on subgrade "R" value tests and the appropriate Traffic Index for the type of street as described in the City's "Urban Street Design Criteria" and “Street Excavation Ordinance”. Tests shall be taken by a qualified engineer at locations approved by the City Engineer.

12. Prior to recordation of the Final Map or grading permit issuance, whichever comes first, the applicant/developer shall gain Buena Sanitation District approval for an Out of Area Service (OAS) agreement request to allow Buena Sanitation District to serve and complete annexation of the project site. within the County, or portion thereof, into the City and all applicable [utility, fire service, water/sewer, etc.] boundary adjustments. If required by Buena Sanitation District, the OAS must be processed through the Local Agency Formation Commission (LAFCO), requiring recordation by the County Recorder and State Board of Equalization approval.

13. The applicant/developer shall be responsible for acquiring all associated easements required by the utility companies for such work. The permanent placement of large meter services, detector checks, fire hydrants, etc., along circulation element streets shall be placed outside of the ultimate right-of-way and if applicable, trail easement, to avoid reconstruction or modification of same.

14. The applicant/developer shall comply with all rules, regulations and design requirements of the respective sewer, water, utility, regional, federal or other approving agency regarding the installation, modification, development, improvement or protection of facilities within the project boundaries. It shall be the applicant/developer's responsibility to determine all agencies with rights of approval for the proposed development.

15. The applicant/developer shall mitigate for impacts on City services related to emergency response, traffic congestion, landscaping, and infrastructure maintenance. The mitigation shall be met through the execution of applications to annex the real property of the project into the following Community Facilities Districts (CFD):

    a. CFD 98-01: Improvement Area No. 1 (Police Only). (PS-2)
    b. CFD 98-02: Lighting, Landscaping, Open Space and Preserve Maintenance.
    c. CFD 2001-01: Fire and Paramedic. (PS-1)
    d. CFD 2011-01: Congestion Management.

    Additionally, if the City determines it to be necessary, a Special Improvement Area shall be formed with respect to CFD 98-02 for the ongoing maintenance services provided by the City for improvements being installed above and beyond the City standards, installed by the applicant/developer as depicted on a Special Improvement Area exhibit, to be submitted by the applicant/developer after project approval. Such improvements include, but are not limited to, storm water treatment devices and enhanced landscaping features. No building permit will be issued without receipt of a petition for annexation and consent and waiver executed by the property owners for each of the above-referenced CFDs for the establishment of the special taxes. In lieu of annexation, the applicant/developer may pay a fee for each CFD consentient with the pre-payment option laid out in each CFD's formation documents. The applicant/developer shall be responsible for compliance with all rules, regulations, policies and practices established by State Law and/or the City with respect to the CFD including, without limitation, requirements for notice and disclosure to future owners and/or residents.

16. The applicant/developer shall post securities to the City, in amounts approved by the City Attorney and the City Engineer or their designees, for the construction of all public and private improvements including but not limited to the following: grading and erosion control, street improvements, traffic signals, storm drain facilities, water quality BMP's, landscaping, and off-site street repair. Said security shall be in a form acceptable to the City and shall remain in force until completion of the project and final approval by the City. Said security shall insure the construction of the "approved" public improvements within a period to be specified

in the Subdivision Improvement Agreement. For grading securities, the City may require 10% of said securities to be in the form of cash.

17. The applicant/developer shall submit an application for a grading permit in accordance with SMMC Chapter 17.32 and all related Engineering Division handouts. All applicable fees and securities shall be paid prior to grading permit issuance.

18. Grading plans and activities shall be based on a comprehensive investigation of surface and subsurface conditions. Results of this investigation and recommendations arising therefrom shall be submitted in the form of a report written by a registered geotechnical engineer or registered engineering geologist.

19. The applicant/developer shall secure letters of permission from adjacent property owners for all graded slopes crossing property lines. In lieu of such permission, grading plans shall conform to the required grading setbacks as provided in the City's Grading Ordinance.

20. Erosion control and/or sediment control details shall be submitted with/on the grading plans to the Land Development Division for review and approval. The details shall conform to City standards, codes and ordinances, and San Diego Regional Water Quality Control Board (SDRWQCB) Municipal Storm Water Permit requirements. The details shall include landscaping and temporary irrigation systems on exposed slopes to be approved by the City Engineer and Planning Division Director.

21. A hydrology and hydraulic report, including calculations, shall be prepared for the project to determine the existing and post-development runoff for the 100-year storm conditions. Storm drains and drainage structures shall be sized for build-out according to the approved hydrology report. All surface runoff originating within the project and all surface waters that may flow onto the project from adjacent properties shall be accommodated by the drainage system. The report shall also determine the project's build-out runoff into existing off-site natural drainage swales and storm drain systems, and shall address any need for off-site improvements, including upsizing of existing facilities. Blocking, concentrating, lowering or diverting of natural drainage from or onto adjacent property shall not be allowed without written approval of the affected property owner(s).

22. The applicant/developer shall be responsible for mitigating impacts created by changes in drainage runoff course, concentration, or quantity to the satisfaction of the City Engineer for both on-site and off-site drainage. This may require the applicant/developer to provide all necessary easements and improvements to accommodate drainage and flood control structures extending beyond the boundaries of the project.

23. The applicant/developer shall execute a "Hold Harmless" Agreement with the City regarding drainage across the adjacent property.

24. A Storm Water Quality Management Plan (SWQMP) shall be submitted in

accordance with the most current version of the City adopted BMP design manual and meet the most current requirements of SDRWQCB.

25. The applicant/developer shall enter into a Storm Water Management and Discharge Control Maintenance Agreement and Easement for the maintenance of all structural post-construction storm water management improvements. The agreement and easement shall be in a form acceptable to the City Attorney.

26. Proof of coverage under the State of California's General Construction Permit shall be provided to the Engineering Division. A copy of the Storm Water Pollution Prevention Plan (SWPPP) submitted with the State's permit shall be submitted.

27. All construction and grading related Best Management Plans (BMPs) shall be shown in detail on the construction plans submitted to the City for review and approval.

28. The applicant/developer shall submit "will-serve" letters from all affected public service and utilities agencies prior to issuance of the precise grading permit.

Planning Division

29. Under separate permit application, the applicant/developer shall submit construction landscape plans to the Planning Division for review and approval per the following requirements:

    a. Final landscape and irrigation plans shall be prepared by a licensed landscape architect.

    b. Separate landscape plans shall be submitted for the on-site (private) landscape areas and the off-site (CFD) landscape areas. CFD landscape plans shall be submitted to the Land Development Division as part of the street improvement plan set. Private landscape plans shall be submitted separately to the Planning Division.

    c. This project is subject to the payment of a landscape permit and inspection fee. The landscape permit and inspection fee shall be four and one-half percent (4.5%) of the landscape architect's estimate for the completion of all landscaping shown on approved mylars. All submitted estimates shall be stamped and signed by the landscape architect, and estimate the cost of plant and irrigation materials only.

    d. Landscape plans shall contain a mixture of trees, shrubs, and ground cover, and be provided with an irrigation system. The irrigation system shall include an automatic rain sensor switch, master valve, stainless steel enclosure for the backflow device, and stainless steel controller cabinet if in public view. The irrigation system shall be designed to prevent water run-off onto the sidewalk or street. The landscape plan shall list the quantities of each plant type, including a legend indicating what each symbol represents; height and spread of trees (in accordance with City

Minimum Tree Standards handout, City Council Resolution 2001-5747); and method of installation and irrigation.

e. The landscape plans, including plant material and irrigation design, shall comply with the City's landscape water efficiency ordinance, SMMC Chapter 20.330, in addition to State of California water efficiency requirements.

f. All permanent Best Management Practices (BMPs) per the approved grading plan shall be shown on the landscape plans. The landscaping within the BMPs will be signed by the engineer-of-work confirming that the proposed landscape design complies with the requirements of the Storm Water Quality Management Plans (SWQMP) and shall be reviewed and signed by the Licensed Landscape Architect. Landscape plans shall reflect the approved design and a note shall state, "subject to approval of Grading Permit No. XX-XXXXX".

g. The applicant/developer shall submit a fencing plan, in conjunction with the landscape plan, which proposes a consistent type and style of fences and/or walls. The fencing plan shall include decorative fencing with a detail of each proposed fence/wall type, and shall not include chain link fencing except that black vinyl coated pet relief area fencing not visible from the exterior the property. Pilasters shall be located at the corners of all wall segments at the property frontage, and additional pilasters shall be spaced evenly on wall segments between corners.

h. Landscaping for the proposed project shall avoid the use of invasive plant species. Invasive plants shall be those identified on Lists A and B of the California Exotic Plant Council's List of Exotic Plants of Greatest Ecological Concern in California, as of October 1999, and updated if applicable.

i. Plant material shall be fire and drought tolerant and acceptable for defensible space in fire prone areas.

j. The landscape permit shall require that prior to installation, the proposed plants shall be inspected and approved by the Planning Division for plant quality and compliance with minimum size requirements. The placement of plants shall be installed in accordance with the approved landscape plans. Upon completion of installation, all landscaping/irrigation shall be inspected and approved by the Planning Division. The applicant/developer shall be responsible to contact the Planning Division for landscaping inspections.

k. All CFD landscaping/irrigation shall be inspected and approved by the Public Works Landscape Inspector for installation in accordance with the approved CFD landscape plans. The applicant/developer shall be responsible to contact the Public Works Department for CFD landscaping inspections.

l. The landscape plans shall include a minimum of three recreational amenities consisting of a playground ("tot lot"), picnic area with a built-in commercial grade barbeque grill, and outdoor game courts. To the extent possible, trees shall be placed to provide shade to both the playground and picnic areas. A minimum of one tree shall provide shading for the guest parking area. The dog relief areas must provide a Dogipot (or similar) system, with pet waste disposal bags and trash receptacle, located near the entrance to the area.

30. All exposed retaining walls shall be constructed of earth tone colored keystone, split-face, or similar textured block. The applicant/developer shall submit a material sample to the Planning Division for review and approval prior to issuance of grading permit.

31. If proposed for grading operations, the use of a rock crusher(s) on site shall require approval of a Conditional Use Permit (CUP) prior to issuance of grading permit.

32. The applicant/developer shall comply with the following conditions regarding cultural resources:

a. Pre-Excavation Agreement: Prior to the issuance of a Grading Permit, or ground disturbing activities, the Applicant/Owner shall enter into a Tribal Cultural Resources Treatment and Repatriation Agreement (Pre-Excavation Agreement) with a Traditionally and Culturally Affiliated Native American Tribe (TCA Tribe), identified in consultation with the City. The purpose of the Pre-Excavation Agreement shall be to formalize protocols and procedures between the Applicant/Owner and the TCA Tribe for the protection, treatment, and repatriation of Native American human remains, funerary objects, cultural and/or religious landscapes, ceremonial items, traditional gathering areas, and other tribal cultural resources. Such resources may be located within and/or discovered during ground disturbing and/or construction activities for the proposed project, including any additional culturally appropriate archaeological studies, excavations, geotechnical investigations, grading, preparation for wet and dry infrastructure, and other ground disturbing activities. Any project-specific Monitoring Plans and/or excavation plans prepared by the project archaeologist shall include the TCA Tribe requirements for protocols and protection of tribal cultural resources that were agreed to during the tribal consultation.

The landowner shall relinquish ownership of all non-burial related tribal cultural resources collected during construction monitoring and from any previous archaeological studies or excavations on the project site to the TCA Tribe for proper treatment and disposition per the Pre-Excavation Agreement, unless ordered to do otherwise by responsible agency or court of competent jurisdiction. The requirement and timing of such release of ownership, and the recipient thereof, shall be reflected in the Pre-Excavation Agreement. If the TCA Tribe does not accept the return of the cultural resources, then the cultural resources will be subject to curation. (MM-CR-1)

b. Construction Monitoring: Prior to the issuance of a Grading Permit or ground disturbing activities, the Applicant/Owner or Grading Contractor shall provide written documentation (either as signed letters, contracts, or emails) to the City's Planning Division stating that a Qualified Archaeologist and Traditionally and Culturally Affiliated Native American monitor (TCA Native American monitor) have been retained at the Applicant/Owner or Grading Contractor's expense to implement the construction monitoring program, as described in the Pre-Excavation Agreement.

The Qualified Archaeologist and TCA Native American monitor shall be invited to attend all applicable pre-construction meetings with the General Contractor and/or associated subcontractors to present the construction monitoring program. The Qualified Archaeologist and TCA Native American monitor shall be present on site during grubbing, grading, trenching, and/or other ground disturbing activities that occur in areas of native soil or other permeable natural surfaces that have the potential to unearth any evidence of potential archaeological resources or tribal cultural resources. In areas of artificial paving, the Qualified Archaeologist and TCA Native American monitor shall be present on site during grubbing, grading, trenching, and/or other ground disturbing activities that have the potential to disturb more than six inches below the original pre-project ground surface to identify any evidence of potential archaeological or tribal cultural resources. No monitoring of fill material, existing or imported, will be required if the General Contractor or developer can provide documentation to the satisfaction of the City that all fill materials being utilized at the site are either: 1) from existing commercial (previously permitted) sources of materials; or 2) are from private or other non-commercial sources that have been determined to be absent of tribal cultural resources by the Qualified Archaeologist and TCA Native American monitor.

The Qualified Archaeologist and TCA Native American monitor shall maintain ongoing collaborative coordination with one another during all ground disturbing activities. The requirement for the construction monitoring program shall be noted on all applicable construction documents, including demolition plans, grading plans, etc. The Applicant/Owner or Grading Contractor shall provide written notice to the Planning Division and the TCA Tribe, preferably through e-mail, of the start and end of all ground disturbing activities.

Prior to the release of any grading bonds, or prior to the issuance of any project Certificate of Occupancy, an archaeological monitoring report, which describes the results, analysis, and conclusions of the construction monitoring shall be submitted by the Qualified Archaeologist, along with any TCA Native American monitor's notes and comments received by the Qualified Archaeologist, to the Planning Division Director for approval. Once approved, a final copy of the archaeological monitoring report shall be retained in a confidential City project file and may be released, as a formal condition of Assembly Bill (AB) 52 consultation, to the Pechanga

Band of Luiseño Indians, San Luis Rey Band of Mission Indians, and the Rincon Band of Luiseño Indians or any parties involved in the project specific monitoring or consultation process. A final copy of the report, with all confidential site records and appendices, will also be submitted to the South Coastal Information Center after approval by the City. (MM-CR-2)

c. Unanticipated Discovery Procedures: Both the Qualified Archaeologist and the TCA Native American monitor may temporarily halt or divert ground disturbing activities if potential archaeological resources or tribal cultural resources are discovered during construction activities. Ground disturbing activities shall be temporarily directed away from the area of discovery for a reasonable amount of time to allow a determination of the resource's potential significance. Isolates and clearly non-significant archaeological resources (as determined by the Qualified Archaeologist, in consultation with the TCA Native American monitor) will be minimally documented in the field. All unearthed archaeological resources or tribal cultural resources will be collected, temporarily stored in a secure location (or as otherwise agreed upon by the Qualified Archaeologist and the TCA Tribe), and repatriated according to the terms of the Pre-Excavation Agreement, unless ordered to do otherwise by responsible agency or court of competent jurisdiction.

If a determination is made that the archaeological resources or tribal cultural resources are considered potentially significant by the Qualified Archaeologist, the TCA Tribe, and the TCA Native American monitor, then the City and the TCA Tribe shall determine, in consultation with the Applicant/Owner and the Qualified Archaeologist, the culturally appropriate treatment of those resources.

If the Qualified Archaeologist, the TCA Tribe, and the TCA Native American monitor cannot agree on the significance or mitigation for such resources, these issues will be presented to the Planning Division Director for decision. The Planning Division Director shall make a determination based upon the provisions of CEQA and California Public Resources Code Section 21083.2(b) with respect to archaeological resources and California Public Resources Section 21704 and 21084.3 with respect to tribal cultural resources, and shall take into account the religious beliefs, cultural beliefs, customs, and practices of the TCA Tribe.

All sacred sites, significant tribal cultural resources, and/or unique archaeological resources encountered within the project area shall be avoided and preserved as the preferred mitigation. If avoidance of the resource is determined to be infeasible by the City as the Lead Agency, then the City shall require additional culturally appropriate mitigation to address the negative impact to the resource, such as, but not limited to, the funding of an ethnographic study and/or a data recovery plan, as determined by the City in consultation with the Qualified Archaeologist and the TCA Tribe. The TCA Tribe shall be notified and consulted regarding the determination and implementation of culturally appropriate mitigation and

the drafting and finalization of any ethnographic study and/or data recovery plan, and/or other culturally appropriate mitigation. Any archaeological isolates or other cultural materials that cannot be avoided or preserved in place as the preferred mitigation shall be temporarily stored in a secure location on site (or as otherwise agreed upon by the Qualified Archaeologist and TCA Tribe), and repatriated according to the terms of the Pre-Excavation Agreement, unless ordered to do otherwise by responsible agency or court of competent jurisdiction. The removal of any artifacts from the project site will be inventoried with oversight by the TCA Native American monitor.

If a data recovery plan is authorized as indicated above and the TCA Tribe does not object, then an adequate artifact sample to address research avenues previously identified for sites in the area will be collected using professional archaeological collection methods. If the Qualified Archaeologist collects such resources, the TCA Native American monitor must be present during any testing or cataloging of those resources. Moreover, if the Qualified Archaeologist does not collect the cultural resources that are unearthed during the ground disturbing activities, the TCA Native American monitor may, at their discretion, collect said resources for later reburial or storage at a local curation facility, as described in the Pre-Excavation Agreement.

In the event that curation of archaeological resources or tribal cultural resources is required by a superseding regulatory agency, curation shall be conducted by an approved local facility within San Diego County and the curation shall be guided by California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections. The City shall provide the Applicant/Owner final curation language and guidance on the project grading plans prior to issuance of the grading permit, if applicable, during project construction. The Applicant/Owner shall be responsible for all repatriation and curation costs and provide to the City written documentation from the TCA Tribe or the curation facility, whichever is most applicable, that the repatriation and/or curation have been completed. (MM-CR-3)

d. Human Remains: As specified by California Health and Safety Code Section 7050.5, if human remains, or remains that are potentially human, are found on the project site during ground disturbing activities or during archaeological work, the person responsible for the excavation, or his or her authorized representative, shall immediately notify the San Diego County Medical Examiner's Office by telephone. No further excavation or disturbance of the discovery or any nearby area reasonably suspected to overlie adjacent remains (as determined by the Qualified Archaeologist and/or the TCA Native American monitor) shall occur until the Medical Examiner has made the necessary findings as to origin and disposition pursuant to Public Resources Code 5097.98.

If such a discovery occurs, a temporary construction exclusion zone shall

be established surrounding the area of the discovery so that the area would be protected (as determined by the Qualified Archaeologist and/or the TCA Native American monitor), and consultation and treatment could occur as prescribed by law. As further defined by State law, the Medical Examiner will determine within two working days of being notified if the remains are subject to his or her authority. If the Medical Examiner recognizes the remains to be Native American, and not under his or her jurisdiction, then he or she shall contact the Native American Heritage Commission by telephone within 24 hours. The Native American Heritage Commission will make a determination as to the Most Likely Descendent, who shall be afforded 48 hours from the time access is granted to the discovery site to make recommendations regarding culturally appropriate treatment.

If suspected Native American remains are discovered, the remains shall be kept in situ (in place) until after the Medical Examiner makes its determination and notifications, and until after the Most Likely Descendent is identified, at which time the archaeological examination of the remains shall only occur on site in the presence of the Most Likely Descendent. The specific locations of Native American burials and reburials will be proprietary and not disclosed to the general public. According to California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). In the event that the Applicant/Owner and the Most Likely Descendant are in disagreement regarding the disposition of the remains, State law will apply, and the mediation process will occur with the NAHC. In the event that mediation is not successful, the landowner shall rebury the remains at a location free from future disturbance (see Public Resources Code Section 5097.98(e) and 5097.94(k)). (MM-CR-4)

33. Prior to grading the site or causing any impact to the site, grading and/or construction activities on site must be avoided during the nesting season which extends from February 1st to September 15th to prevent potential impacts to nesting of any migratory, songbirds, or raptors. If construction initiation occurs between February 1 and September 15, a pre-construction nesting bird and raptor survey within 300 feet of the project impact area shall be completed by a qualified biologist prior to vegetation removal. The pre-construction survey shall be conducted within 10 calendar days prior to the start of construction activities (including removal of vegetation). If any active nests are detected, the area will be flagged and mapped along with a buffer as recommended by the qualified biologist. The buffer area(s) established by the qualified biologist will be avoided until the nesting cycle is complete or it is determined that the nest is no longer active. The qualified biologist shall be a person familiar with bird breeding behavior and capable of identifying the bird species of San Diego County by sight and sound and determining alterations of behavior as a result of human interaction. Buffers will be based on species-appropriate buffers and/or local topography and line of sight, species behavior and tolerance to disturbance, and existing disturbance levels, as determined appropriate by the qualified biologist. (MM-BIO-1)

Building Division

34. The project is subject to the approval of the applicable water/sewer district(s) for water and sewer services and all applicable fees and charges shall be paid to the satisfaction of the water/sewer district(s) prior to issuance of grading or building permit.

35. The applicant/developer shall obtain a demolition permit from the Building Division prior to demolition of the existing structures on site.

Fire Department

36. Fire apparatus access roads shall have an unobstructed improved width of not less than 24 feet (curb line to curb line), and an unobstructed vertical clearance of not less than 13 feet 6 inches. Access roads shall be all weather surface and designed to support imposed loads of not less than 75,000 pounds in accordance with California Fire Code (CFC) Section 503.2.1, SMMC Section 17.64.120. Any roads 24 feet in width are required to be posted with "No Parking – Tow Away Zone" signs approved by the fire department. Fire lanes shall be posted and/or curbs painted in accordance with CA. Vehicle Code, section 22500.l, 22658(a) and San Marcos Fire Department Standards. The number, wording and placement of all fire lane signs shall be approved by the Fire Dept. prior to installation.

37. The gradient for a fire apparatus roadway shall not exceed 20 percent. Grades exceeding 12 percent (incline or decline) shall not be permitted without mitigation: Minimal surface of Portland cement concrete (PCC) with a deep broom finish perpendicular to the entire direction/length of travel and grade. The angle of departure and approach of fire access roads shall not exceed 7 degrees (12 percent) as required by CFC Section 503.2.7, as amended.

38. All roads in the project shall have adequate turn radius to accommodate all Fire Department apparatus including frontline and reserve fire engines and frontline and reserve trucks (engine and tiller ladder trucks). The required inside turn radius shall be 28 feet for engine and tiller ladder truck. No curb deflection or other features shall interfere with fire apparatus ability to navigate any street. The Land Development Division shall maintain the proper templates for turn radius of all Fire Department apparatus.

39. All dead end fire apparatus access roadways in excess of 150 feet in length shall be provided with an approved area for turning around of all San Marcos Fire apparatus. A hammerhead turn-around or cul-de-sac will be required by the Fire Department.

40. Improvement plans shall show location and spacing/distance of fire hydrants. Hydrants shall be bronze industrial fire hydrants. Minimum GPM shall be per CFC Appendix B. Industrial fire hydrants shall have Two 4-inch ports and One 2.5-inch port. Installation shall be as per local Water District specifications. Hydrant Type shall be Clow. All fire hydrants shall be color coded per NFPA 291. Maximum spacing between fire hydrants shall be 300 feet from one another. Maximum

spacing from a fire hydrant to any fire department connection shall be 50 feet. Location of fire hydrants shall be approved by the fire department. All new fire hydrants inside the new development shall be private hydrants.

41. Deferred submittal/separate permit is required for fire line underground work. (On-site fire hydrants, fire sprinkler service to buildings, etc.)

D. Prior to issuance of any building permit, the applicant/developer shall comply with the following conditions:

Land Development Division

1. The Final Map shall be recorded prior the building permit issuance.

2. The approved precise grading plans shall be attached to the building plans.

3. Prior to submittal of any building plans, the rough grading and public improvement plan sets shall be submitted for the second plan check and deemed substantially complete by the Land Development Engineer. Prior to issuance of any building permits, the public improvement plans shall be approved by the City Engineer and appropriate securities accepted. The applicant/developer may submit the building plans concurrently with the rough grading plan at-risk at the discretion of the Land Development Engineer.

4. All grading shall be observed by a licensed geotechnical engineer, who shall prepare a written report to the satisfaction of the City Engineer certifying that the work has been performed in compliance with the recommendations contained within the geotechnical report and on the approved project plans. If not so done, the report shall describe the actual work performed and any deficiencies observed. The final report shall specifically detail conditions and remedial work performed that was not specifically identified in the initial report of subsurface conditions.

5. A certification of line and grade for the building pad, signed and stamped by the engineer of work, shall be provided to the Engineering Inspector. The certification shall be in a form acceptable to the City Engineer.

6. The base lift of asphalt on all roads serving the area under construction shall be completed. All proposed fire hydrants shall be operational prior to the delivery of combustible materials to the project site.

Planning Division

7. All exterior lighting shall comply with City standards for high energy-efficient fixtures, except for low-wattage architectural lighting. All exterior fixtures shall be approved by the City.

8. Applicant/developer shall agree to coordinate with the adjacent property owner to the southwest (2966 S Santa Fe Avenue / APN: 217-161-17-00) to add reasonable security measures between the two properties.

9. All exterior lighting shall use cut-off fixtures and shielded in order to direct the illumination downward and reduce the visibility of any glare.

10. Architectural lighting plan shall be included with the building plans that show the type, style, and location of all exterior building and parking lot lights. Plans shall include photo of fixture and manufacturer specifications indicating dimensions, materials, colors, bulb type, etc.

11. Residential structures shall comply with the California Building Code regarding interior noise levels for residential dwelling units.

12. To reduce noise reduction up to 25 dB(A) to achieve interior noise levels of 45 CNEL or less, window components with an STC rating of 25 or higher are required for units located on the south and east side of Building 1. To reduce noise levels at the amenity area on the south side of Building 1 and the south and east sides of Building 1 facing the roadways, the project must also include a 6-foot barrier adjacent to the amenity area south of Building 1, and a solid 3.5-foot barrier on the balconies located on the south and east sides of Building 1 and on the south and east sides of the Building 1 roof deck.

13. All tot lot recreational amenities and playground equipment shall comply with all C.P.S.C. and A.D.A. accessibility standards. Plans shall include a detail of each of the play areas with the proposed play equipment and specifications of said equipment. Final design shall be approved by the Parks and Recreation Director and Planning Division Director.

14. The applicant/developer shall submit a separate sign permit for the proposed site identification signage.

15. All rooftop mechanical units, vents, ducts, etc. shall be screened by parapet walls or other architectural features from street grade view and adjacent properties as approved by the Planning Division Director. A roof plan and cross sections showing lines of sight shall be submitted with construction drawings illustrating that roof equipment will be screened. Screening plan shall be approved by the Planning Division prior to issuance of a building permit.

16. Any ground mounted transformer boxes shall be covered in a decorative skin to reduce their visibility.

17. Rain gutter downspouts shall be architecturally integrated or compatible/complimentary with the building and screened from view where feasible as determined by the Planning Division.

18. Utility meters shall be architecturally screened from public view by low screening walls. Wall materials shall be architecturally compatible with the building(s). Views of the utility meters interior to the project will be screened with low screening walls and/or landscape screening where feasible, or painted to match the building behind to soften where screening is infeasible. Screening plan shall be approved

by the Planning Division prior to issuance of building permit.

19. The trash enclosure (minimum dimensions of twenty-one (21) feet wide by ten (10) feet deep by six (6) feet high) for 3 cubic-yard trash, recycling, and organics containers shall be constructed to match the main buildings in color and texture. In addition, the enclosure shall have solid view-obscuring, double swinging gates; must have a flat impervious, concrete slab designed not to allow run-on from adjoining areas; contain attached lids on all trash and recycling containers; and a roof to minimize direct precipitation. Trash enclosures shall be architecturally compatible with the proposed buildings.

20. All garages shall include a minimum of one glass pane, providing an unobstructed view into the interior of the garage to ensure ongoing enforcement of parking requirements to utilize garages for a minimum of two vehicles.

21. A minimum of one (1) Electric Vehicle (EV) Ready parking space shall be included within the private garage of each residential unit. Each residential garage Electric Vehicle prewiring shall comply with the latest adopted California Green Building Code Standards, and shall include installation of a 60-amp circuit and appropriate receptacle for the charging outlet. References to EV Ready parking spaces and the required equipment in this resolution for MFSDP25-0001 shall be consistent with the applicable definition of EV Ready provided in the current edition of the California Building Code (CBC).

22. The applicant/developer shall submit a parking management plan to the Planning Division for review and approval.

23. The applicant/developer shall submit an outdoor furniture manual with photographs and specifications of benches, picnic tables, barbeques, trash receptacles, concrete game boards, etc. Manual shall include a site plan showing locations of the outdoor furniture. The applicant/developer shall be responsible for the installation of outdoor furniture.

Building Division

24. New buildings and remodeled structures shall be designed to conform to the latest design standards adopted by the State of California in the California Building Code (CBC), Part 2, Title 24, California Code of Regulations.

25. Building plans and instruments of service submitted with a building permit application shall be signed and sealed by a California licensed design professional as required by the State Business and Professions Code.

26. The City is located in Seismic Design Category “D”. Buildings and structures shall be designed to adequately transmit the dynamic lateral forces in accordance with the requirements of the latest adopted California Building Code.

27. The proposed development shall comply with the latest adopted California Green Building Code Standards. The City has adopted the mandatory standards and

does not enforce the voluntary standards. A solar and EVCS system is required for this project.

28. Residential structures shall be designed to comply with the crime prevention measures approved by the City, including such items as: reinforced door jambs; one-piece door stops; 16-gauge strike plate for deadbolts; locking hardware for garage doors; two locking devices for wide garage doors; 1-3/4 inch solid exterior doors; laminated safety glass; wide angle peep hole for exterior doors; no louvered windows; and address numbers easily visible from the street.

29. The handling, storage, use and disposal of hazardous, toxic or flammable materials shall be clearly indicated on all floor plans submitted for a building permit and shall be in compliance with any and all Federal, State, County and City rules, regulations, and requirements for hazardous waste control, including but not limited to the Hazardous Waste Control Act of 1973 (HWCA) (Health & S C §25100 *et seq*.), as may be amended from time to time, whether or not such provisions or requirements have been specifically set forth in these conditions, all of which are now incorporated by reference and made a part hereof with the same force and effect as though fully set forth herein.

30. The project shall comply with the latest Federal Law, Americans with Disabilities Act, and State Law, California Code of Regulations, Title 24, for accessibility standards.

31. Health and Safety Code Section 17959.6 requires developers of new residential housing developments to provide buyers with a list of specified universal accessibility features that would make specific areas of the home accessible to persons with disabilities. The applicant/developer shall indicate which features are standard, limited, optional, or not available, and the point of construction by which they must be requested.

32. The applicant/developer shall comply with the City's Inclusionary Housing Ordinance that is in effect at the time of building permit issuance. If affordable housing units are provided to satisfy the requirements of the City's Inclusionary Housing Ordinance or other applicable State housing laws, the applicant/developer shall enter into one or more regulatory agreements, subject to the approval of the City Manager. Such agreement(s) shall include, but not be limited to, provisions addressing the following: the term of affordability, monitoring and reporting requirements, occupancy and income restrictions, property management standards, and any Conditions, Covenants, and Restrictions (CC&Rs) deemed necessary by the City to ensure compliance with the City's Housing Element of the General Plan.

33. The applicant/developer shall pay Public Facilities Fees as established by the latest adopted Public Facilities Fee, based on the proposed land use, and shall be paid prior to the issuance of the first permit for the development.

34. The project is subject to the payment of school fees as required by law. The applicant/developer shall submit a Certificate of Compliance from the school

district prior to the issuance of the first building permit from the City.

35. The proposed new development is subject to approval by the Water District and all applicable fees and charges shall be paid to the District prior to permit issuance.

36. Roof drain systems shall be designed for 3-inches of rainwater per hour. Rain gutters, down drains and other devices shall be installed to prevent erosion at the point of discharge and shall discharge to landscaped areas when feasible. Interceptor drains, yard drains and drainage devices shall be installed to mitigate erosion and create positive drainage away from foundations. Roof drainage shall comply with the City's storm water management measures.

37. The applicant/developer shall contact the Delivery Retail Analyst for the branch of the U.S. Postal Service to determine the type and location of centralized delivery equipment required. The developer shall notify the mailbox owners of their responsibility to maintain the delivery equipment. The developer shall inform the new owners that they own the mailboxes and are responsible for replacement.

38. Sewer and water utilities shall be located wholly on the lot that serves the building in accordance with the latest adopted edition of the California Plumbing Code.

39. The outer boundary of schools (grades K through 12) as listed in the current California Private School Directory shall comply with Education Code Section 33190 relating to the location of a school facility within 1,000 feet of businesses that are regulated for the storage, use and handling of hazardous materials as defined by the California Health and Safety Code.

Fire Department

40. Any new development, which necessitates updating of emergency response maps by virtue of new structures, hydrants, roadways or similar features, shall be required to provide map updates. Produce a fire preplan in (ESRI) GIS format using the pre-configured GIS Starter Package provided by City of San Marcos. A completed fire preplan shall include the GIS data and output PDF for use by San Marcos Fire Department. Data deliverables (CAD and GIS) shall specifically include a site plan, building plan, all Utility shut-offs, fire sprinkler risers and shut-off valves, the fire department connection for sprinkler and class-I standpipe, all standpipe hose outlets, all stairwells, retail spaces, living units -numbers /locations, fire alarm panels, elevators, fire hydrants and all Knox boxes and key switch locations.

41. At approval of Final Building Plans, Developer shall contact San Marcos GIS (gishelp@san-marcos.net) to begin the process of creating a Fire Preplan. At 50% of the construction completion process and/or the Fire Sprinkler Hydro Test, the developer shall submit a preliminary GIS preplan to show progress. Note: Minor changes to plans made during construction can be corrected at the time of Fire inspection.

42. Separate Permit / Deferred Submittal: Automatic fire sprinkler systems for all buildings shall be designed and installed in accordance with NFPA 13 as mitigation for ladder access and hosepull deficiencies. Fire suppression systems shall comply with the latest adopted California Building and Fire codes, and shall conform to the standards adopted by the National Fire Protection Association (NFPA) and the San Marcos Fire Code Ordinance.

43. Separate Permit / Deferred Submittal: Fire alarm system(s) shall be installed in compliance with the most current edition of the California Fire Code and the most current edition of NFPA 72. All automatic fire sprinkler systems shall be supervised by an approved central station. All valves controlling the water supply shall be supervised by the fire control unit. Fire alarm / notification system shall be provided in multi-family residential units in accordance with 202 CA Fire Code and the most current edition of NFPA 72.

44. Access roads shall extend to within 150 feet of all portions of the exterior walls of the first story of the buildings. Buildings shall install fire sprinkler systems meeting the requirements of NFPA 13 in order to mitigate hosepull/access deficiencies.

45. The applicant/developer shall provide a Construction Staging/Site Phasing Plan for approval prior to permit issuance.

46. A lighted directory map, meeting current Fire Department standards, shall be installed at each driveway entrance to new multiple unit residential projects.

47. New and existing buildings shall have approved address numbers placed in position that is contrasting in color and plainly visible from street or road fronting the property. Each individual residential unit numbers shall be 4 inches in height with .5-inch stroke.

E. During the grading and construction phase, the applicant/developer shall comply with the following conditions:

<u>Engineering Construction Inspection Division</u>

1. Prior to any construction activities, a pre-construction meeting shall be held with the Engineering Construction Inspection Division. The applicant/developer shall provide the inspector with a detailed construction schedule which depicts when building occupancy or occupancies will occur and when key public and private infrastructure improvements will be completed. Schedule updates shall be provided to the Building and Engineering Inspectors at a minimum monthly basis throughout the life of the project.

<u>Land Development Division</u>

2. Grading, excavation or other related earth moving operations, including warm-up and maintenance activities, shall be limited to the hours of 7:00 a.m. to 4:30 p.m., Monday through Friday. No work shall be allowed on Saturdays, Sundays and holidays.

3. During construction activities, the applicant/developer shall maintain public and private driveway and/or road access to neighboring properties at all times unless previous arrangements have been made with the private parties affected. Copies of said agreements shall be provided to the City Engineer.

4. The applicant/developer shall submit a traffic control plan to the Engineering Inspector for all phases of construction for approval by the City Engineer. Said plan shall include all traffic control devices including traffic signals as required.

5. Construction haul routes must be designed to avoid noise sensitive uses (e.g., residences, convalescent homes, etc.), to the extent feasible.

6. At the discretion of the Engineering Inspector, the applicant/developer shall document the pre-construction condition of existing roads or offsite properties which may be impacted by construction activities. The applicant/developer shall be responsible in repairing any construction related damages prior to occupancy.

7. A Right-of-Way permit shall be required prior to commencement of any work within the City right- of-way.

8. The applicant/developer shall implement and maintain storm water pollution prevention measures as required on the approved plans. Violations of the City's Storm Water Management Ordinance (Ch. 14.15 S.M.M.C.) will result in Stop Work Orders, Notices of Violations and/or citations with fines. Work on the project may be delayed until the City determines that compliance with storm water requirements has been achieved.

Planning Division

9. At least one copy of the approved plans, approval letters and conditions of approval shall be available for review at the job site at all times.

10. In the event that paleontological resources are discovered during grading, excavation, or other ground-disturbing activities, all work in the immediate vicinity of the discovery shall cease. The project applicant shall retain a qualified paleontologist, meeting the Society of Vertebrate Paleontology (SVP) professional standards, to evaluate the findings in accordance with the County of San Diego Guidelines for Determining Significance – Paleontological Resources and applicable State of California guidelines.

    The qualified paleontologist shall determine the significance of the discovery and recommend appropriate treatment, which may include avoidance, monitoring, or recovery. Construction activities in the affected area may resume only after the paleontologist determines that the resource has been appropriately addressed and authorizes continuation of work.

11. Landscaping of slopes, in accordance with the approved landscape plans, shall commence at time of completion of grading activities.

12. The project shall comply with Regional Air Quality Standards.

13. A test sample of the proposed exterior colors shall be applied to a mock-up with an area large enough to be representative of the finished color scheme and exposed to direct sunlight. This sample shall be inspected and approved by the Planning Division prior to painting of the buildings. If determined necessary upon inspection, the color scheme may be required to be modified at the discretion of the Planning Division Director. The applicant/developer shall be responsible to contact the Planning Division for inspection.

Building Division

14. The applicant/developer shall obtain the required OSHA permits for construction, demolition, excavation, grading operations, rock drilling and the construction of buildings over 3 stories in height in accordance with the California Code of Regulations, Title 8, Section 1503.

15. Water wells shall be reconstructed or abated in strict compliance with SMMC Sections 8.44.130 through 8.44.170 and the latest adopted State Water Code and Health and Safety Code Section 24400. Water well permits are issued by County of San Diego Environment Health Department.

16. Dust and dust producing materials shall be controlled within the maximum acceptable concentrations for silica and silicates in accordance with the California Code of Regulations, Title 8, Section 5155. Water and dust palliative shall be used to prevent excessive dust during construction and grading operations. Projects are required to comply with the Air Pollution Control District's standards for mitigating fugitive dust during all phases of construction.

17. The demolition of buildings shall not commence until the proper testing of asbestos, lead paint and hazardous materials has been performed and the abatement of the hazardous materials has been completed. The recycling of materials shall comply with state law and all utilities shall be disconnected and safely abandoned.

18. All construction operations authorized by building permits, including the delivery, setup and use of equipment must be conducted on premises during the hours of 7:00 AM and 6:00 PM on Monday through Friday, and on Saturday between 8:00 AM and 5:00 PM. No work shall be conducted on Sundays or Holidays observed by the City. Failure to comply will result in the issuance of STOP WORK NOTICES, REVOCATION OF PERMITS and the issuance of citations and fines as appropriate. Citation for hours of work violations requires a mandatory court appearance in North County Superior Court.

19. During construction the applicant/developer shall implement and maintain the storm water pollution prevention measures as required on the approved plans. Violations of the City's Storm Water Management Ordinance will result in Stop Work Orders, Notices of Violation and citations with fines. Work on the project may

be delayed until the City determines that the project is in compliance with the storm water requirements.

Fire Department

20. Prior to the delivery of combustible building construction materials to the project site, the following conditions shall be completed to satisfaction of the Fire Department: 1) fire hydrants(s) shall be installed, approved, and usable, and 2) fire lane or access roads shall be in place and provide a permanent all weather surface for emergency vehicles that support weight of fire apparatus (75,000 lbs.).

21. A legible site address shall be posted and visible from either direction of approach to the project.

22. A written site safety plan shall be created and implemented in accordance with California Fire Code Chapter 33. Plan shall establish a fire prevention program at the project site, applicable throughout all phases of construction.

F. Prior to the occupancy of any structure, the applicant/developer shall comply with the following conditions:
Land Development Division

1. All public and private improvements shall be completed in accordance with the approved project plans prior to issuance of the first market rate Certificate of Occupancy.

2. All applicable easements and agreements shall be recorded prior to occupancy if not required sooner by these conditions.

3. Prior to the issuance of any certificates of use and occupancy, the applicant/developer shall provide evidence to the Building Official, that the Department of Real Estate has been notified that the project area is within the boundaries of a Community Facilities District (CFD), and will be subject to special taxes for public facilities and/or services.

4. Redline As-Built drawings shall be submitted to the Engineering Division for review and approval. All improvements identified on the plans and all undergrounding of utilities shall be completed in accordance with the project plans and these conditions of approval. Record drawing mylar plans shall be submitted and approved prior to the release of any project securities.

5. Any existing broken pavement, concrete curb, gutter or sidewalk or any other facilities damaged during construction of the project, shall be repaired or replaced as directed by the Engineering Inspector.

6. Water and sewer improvements in accordance with the project water/sewer study shall be constructed for the project as determined necessary by the applicable water/sewer district(s).

7. Prior to the issuance of any certificates of use and occupancy, the applicant/developer shall not grant any easements over any property subject to a requirement of dedication or irrevocable offer to the City, unless such easements are expressly made subordinate to the easements to be offered for dedication to the City. Prior to granting any of said easements, the applicant/developer shall furnish a copy of the proposed easement to the Land Development Engineer for review and approval. Further, a copy of the approved easement shall be furnished to the Land Development Engineer prior to issuance of any certificate of use and occupancy.

Planning Division

8. All rooftop mechanical units, vents, ducts, etc. shall be screened from view from street grade & adjacent properties. Said screening mechanism shall be inspected by the Planning Division, and if determined necessary, additional screening may be required, as determined acceptable by the Planning Division Director.

9. All landscaping shall be installed, inspected, and approved by the Planning Division. Landscaping shall be established and flourishing in a healthy manner.

10. Common landscape areas shall not be transferred over to the responsibility of the HOA until inspected and approved by the City.

11. All CFD landscaping shall be installed, inspected, and approved by the Public Works Department. Landscaping shall be established and flourishing in a healthy manner.

12. The applicant/developer shall submit a Certificate of Completion by the landscape architect and engineer-of-work to the Planning Division certifying that the plant materials and irrigation system have been installed in accordance with the approved landscape plans and the Water Quality Technical Report, respectively.

13. The applicant/developer shall have completed the installation of the playground equipment and outdoor furniture in accordance with the manufacturer's standards. The applicant/developer shall submit for each phase a letter by the installation contractor indicating that the playground equipment has been installed per the manufacturer's specifications.

14. The applicant/developer shall disclose to future owners/tenants of the project that the property is located within the Airport Influence Area of McClellen-Palomar Airport, and may be subject to some of the annoyances or inconveniences, if any, associated with proximity to airport operations (i.e.: noise, vibration, or odors). Disclosure shall be recorded with the County Recorder's Office prior to building occupancy.

Building Division

15. The applicant/developer shall obtain approval from all City departments and other agencies before requesting a Certificate of Occupancy from the Building Official.

For phased developments, the conditions of approval shall be satisfied prior to requesting the first occupancy in the phase.

16. The proposed development shall satisfy the conditions of approval prior to the first occupancy. The owner/developer/contractor shall obtain approval from all City departments and other agencies before requesting a Certificate of Occupancy ("C of O") from the Development Services Department. For phased developments, the conditions of approval shall be satisfied prior to requesting the first occupancy in the phase.

17. The project development is subject to the payment of fees required by the South Santa Fe / Mission / Rancho Santa Fe Road Fee Reimbursement District (Resolution 2009-7177).

Fire Department

18. Building addresses shall be clearly labeled for day and night-time emergency responses. In addition, adequate lighting shall be provided to deter potential criminal activities (i.e.: vehicle burglaries, prowlers, loitering, etc.)

19. Rooms containing controls for sprinkler risers and valves, or other fire detection, suppression or control elements shall be identified for fire department use. Signs shall be constructed of durable materials, permanently installed and readily visible. Reference San Marcos Fire Dept. Standard No. 1403 via website for additional specifications.

20. The applicant/developer shall comply with the Fire Department for hydrants and on-site access for emergency vehicles.

21. The project shall include “NO PARKING FIRE LANE” signs. The number of, placement and wording for all fire lane signs and/or red curbs shall be as required by California Vehicle Code, Sections 22500.l and 22658(a) and San Marcos Fire Department Standards.

22. Knox Key Boxes shall be provided. A master key for entry to all enclosures and equipment rooms or areas is required. Knox box shall be mounted in area approved by fire dept. at height of 60 to 66 inches above grade. Knox Box shall be type with side hinged door. Knox boxes shall be installed for every building.

23. For multi-family buildings - fire extinguishers size, type and rating shall comply with California Fire Code, Section 906, extinguishers shall be rated at 2A:10B: C minimum.

G. Ongoing Advisory Conditions

1. Use of the site must be conducted so as not to become obnoxious by reason of noise, odor, refuse, parking impacts, or maintenance of grounds and in such a manner as will not detrimentally affect adjoining properties and uses.

2. All trees and landscaping shall be maintained in a healthy, thriving manner. If any trees/landscaping shall die or become diseased, the trees/landscaping shall be replaced in numbers and quantity to provide the same landscaping and screening value.

RESOLUTION NO. 2026-9591

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS APPROVING A TENTATIVE SUBDIVISION MAP FOR UP TO 46 CONDOMINIUM UNITS IN THE MULTIFAMILY RESIDENTIAL (R-3-6) ZONE

TSM25-0001
Santa Fe Flores, LP

WHEREAS, on February 18, 2025, the City received an application from Paul Mayer on behalf of Santa Fe Flores, LP requesting a Tentative Subdivision Map to consolidate two parcels into one lot and create up to 46 condominium units on a 2.6-net-acre site located at the rear of 2966, and the complete lots at 2972 and 2982, South Santa Fe Avenue, at the intersection of South Santa Fe Avenue and North Las Flores Drive in the Multifamily Residential (R-3-6) Zone in the College Area Neighborhood more particularly described as:

Brief Legal Description: PORTION OF LOT 4 IN BLOCK 95 OF RANCHO LOS VALLECITOS DE SAN MARCOS, IN THE CITY OF SAN MARCOS, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP NO. 806, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY ON DECEMBER 21, 1895.

Assessor's Parcel Number(s): A portion of 217-161-17-00, and the entirety of 217-161-18-00 and 217-161-19-00; and

WHEREAS, the Tentative Subdivision Map is being requested in conjunction with a General Plan Amendment (GPA25-0001) to change the land uses from "Commercial" to "Medium High Density Residential" on that portion of 2966 South Santa Fe Avenue and from "Medium Density Residential 2" to "Medium High Density Residential" for those vacant residential lots; a Rezone (R25-0001) to change the zone from Commercial (C) to Multifamily Residential (R-3-6) on a portion of 2966 South Santa Fe Avenue, and from Multifamily Residential 3 (R-3-10) to Multifamily Residential (R-3-6) for those vacant residential lots; and a Multifamily Site Development Plan (MFSDP25-0001), which will guide the orderly development of 46 residential condominium units on the project site; and

WHEREAS, the Development Services Department did study said request, and recommends approval of said request; and

WHEREAS, on December 11, 2025, the City held a public workshop to provide an informational overview of the proposed project to the general public; and

WHEREAS, on April 20, 2026, the Planning Commission held a duly noticed public hearing and recommended approval of said request and the appropriate environmental document for said request to the City Council by a 7-0 vote, in favor; and

WHEREAS, on May 26, 2026, the City Council held a duly noticed public hearing in the manner prescribed by law to consider said request; and

WHEREAS, the City Council did review and consider the Addendum to the previously adopted Final Mitigated Negative Declaration (ND22-008; SCH No. 2022090486) and it is determined that no new environmental information or documentation was presented revealing any new unidentified environmental impacts which had not been previously mitigated and the proposed project is within the scope of the impacts identified in ND22-008; and

WHEREAS, the City Council did consider said Tentative Subdivision Map and the recommendation by City staff, including but not limited to the City Engineer, the Director of Public Health, the Director of the Department of Sanitation and Flood Control, and the Chief of the San Marcos Fire Department and Fire Protection District with respect thereto; and

WHEREAS, the applicant/developer proposes to file a Final Map of said subdivision.

NOW, THEREFORE, the City Council does hereby resolve as follows:

A. The foregoing recitals are true and correct, and are hereby incorporated by reference into this Resolution.

B. The City Council hereby approves this Tentative Subdivision Map pursuant to the City Subdivision Ordinance (SMMC Title 19), and no waiver of any requirement of said Ordinance is intended or implied except as specifically set forth in this resolution, and subject to compliance with the conditions of approval in Exhibit A attached hereto and incorporated by reference and made a part of this Resolution as though fully set forth herein.

C. This Tentative Subdivision Map is approved in conjunction with the submitted GPA25-0001, R25-0001, MFSDP25-0001 and all conditions of approval specified in Resolution No. 2026-9589, Ordinance No. 2026-1579, and Resolution No. 2026-9590, respectively, which documents are incorporated herein by this reference; and the mitigation measures in the Addendum to the previously adopted Final Mitigated Negative Declaration (ND22-008; SCH No. 2022090486) are hereby incorporated by reference and made a part of this Resolution with the same force and effect as though fully set forth herein.

D. The City Council's decision is based on the following findings and determinations:

1. The conditions of approval in the attached Exhibit A, and the findings below are necessary to insure that the subdivision and the improvements thereof will conform with all ordinances, plans, rules, standards, and improvements and design requirements of the City.

2. The Tentative Subdivision Map is consistent with the City's adopted General Plan, in that it provides a Multifamily Residential development in an area of the City designated for Medium High Density Residential with a density not to exceed 30 du/ac, and is compatible with the objectives, policies, general land uses, and programs specified in the General Plan, in that the project:

    a. Achieves a balanced distribution and compatible mix of land uses by providing a logical transition between existing and new land uses, meeting the present and future needs of all residents and the business community

through the addition of a 0.37-acre portion of property that would otherwise be difficult to develop commercially due to site access and topographical challenges. (Goal LU-1)

b. Complements adjacent land uses by considering compatibility of activities, development patterns and architectural character elements through provision of a multi-family project that transitions to existing land uses with a contemporary architectural design and multiple recreational amenities for residents, and access to various mobility choices as it provides pedestrian connectivity to the adjacent public transit stop and rail trail. (Policy LU-1.1)

c. Promotes a compact development patterns that reduces air pollution and automobile dependence and facilitates walking, bicycling, and transit use by providing EV Ready parking for each unit and an irrevocable offer of dedication of right-of-way on S. Santa Fe Avenue for future Class IV one-way separated bicycle and pedestrian facilities. (Policy LU-2.1)

d. Provides community connections through development of land uses compatible with and support a variety of mobility opportunities and choices through development of a walkable, bike friendly and transit-oriented community as the project promotes pedestrian connections to transit and trails, along with bicycle connections to the rail trail as well as future Class IV separated bicycle and pedestrian facilities. (Goal LU-3)

e. Supports walkable development along main transit and transportation corridors through walkable connections to amenities within the project and to public transit connections offsite, both along S. Santa Fe Avenue and to the Sprinter station a mile to the east. (Policy LU-7.1)

3. The design or improvement of the proposed subdivision is consistent with the City's adopted General Plan, in that in that the General Plan Amendment (GPA25-0001) expands the Medium High Residential Density designation and the project provides for residential development that closely aligns with that designation with consideration of the site's constrained topography, required multi-family amenities, and provision of a two car garage for each condominium unit.

4. The site is physically suitable for this type of development, in that the site is previously disturbed and adjacent to existing utilities and public streets already improved to ultimate conditions.

5. The site is physically suitable for the proposed density of development, in that the project conforms to all relevant development standards of the Multifamily Residential Zone (R-3-6), pursuant to the conditions of approval of the Multifamily Site Development Plan (MFSDP25-0001; Resolution PC 26-5190).

6. The design of this subdivision and improvements is not likely to cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat, in that the Addendum to the previously adopted Final Mitigated Negative Declaration (ND22-008; SCH No. 2022090486) was prepared for the project and

determined that no significant environmental impacts would occur with implementation of mitigation measures incorporated into the resolution.

7. The design of this subdivision and type of improvements is not likely to cause serious public health problems, in that the water and sanitary sewer services are provided to the site and the project is required to comply with all federal, state, and local laws regarding the development of the project.

8. The design of this subdivision or the type of improvements will not conflict with any easements, acquired by the public at large, for access through or use of, property within the proposed subdivision.

9. The Tentative Subdivision Map, as conditioned, will not be detrimental to the public health, morals, safety, and welfare in that adequate public facilities and infrastructure including fire, water, sewer, and drainage will be provided.

10. The property is not subject to a Williamson Act contract, an open space easement, a conservation easement, or an agricultural conservation easement.

11. The design of the subdivision provides, to the extent feasible, for future passive or natural heating or cooling in the subdivision.

12. The City Council considered the effect of the development on the housing needs of the region and the balancing of those needs against the public service needs of residents and available fiscal and environmental resources.

13. As a common interest development, prospective buyers will be provided the required notices and reports pursuant to applicable law.

14. All requirements of CEQA and the environmental protection provision of the City's Subdivision Ordinance (SMMC Title 19) have been met in that this Tentative Subdivision Map, as conditioned, will not have a significant effect on the environment, as reviewed and analyzed in the Addendum to the previously adopted Final Mitigated Negative Declaration (ND22-008; SCH No. 2022090486) and the mitigation monitoring and reporting program, in that mitigation measures related to biological resources, tribal/cultural resources, noise, hazards and hazardous materials, and public services have been incorporated into the conditions of approval of TSM 25-0001 and MFSDP25-0001 (Resolution 2026-9590).

E. This Tentative Subdivision Map is within the scope of the Addendum to the previously adopted Final Mitigated Negative Declaration (ND22-008; SCH No. 2022090486) and the mitigation monitoring and reporting program pursuant to CEQA.

F. The Tentative Subdivision Map complies with the requirements of the City's Subdivision Ordinance and the State's Subdivision Map Act.

G. The approval of this Tentative Subdivision Map shall expire within twenty-four (24) months from date of City Council approval. The Final Map, conforming to this conditionally approved Tentative Subdivision Map, shall be filed with the City Council in time so that the

Council may approve said map before its expiration, unless prior to that date, the Planning Commission or City Council subsequently grants a time extension for the filing of the Final Map, as provided for in the City's Subdivision Ordinance and the State's Subdivision Map Act. It is the applicant/developer's responsibility to track the expiration date. Failure to request an extension will result in a re-filing of the Tentative Subdivision Map and new processing of the map.

H. Within thirty (30) days of the approval of the Tentative Subdivision Map (TSM25-0001) the approved plans (i.e.: tentative subdivision map, landscape plans, etc.) shall be submitted as a digital file on a CD including this Resolution as the title page. This title page shall include the statement "I (we), _____, the applicant/owner(s) or the applicant/owner's representative, have read, understand and agree to the conditions of Resolution No. 2026-9591." Immediately following this statement shall appear a signature block for the owner or the owner's representative which shall be signed. Signature blocks for the Project Planner and the Project Civil Engineer shall also appear on this title page. The digital copy shall be approved by the City prior to any Final Map, grading plan, improvement plan, or building permit.

I. The applicant/developer shall comply with all provisions and requirements set forth in the San Marcos Municipal Code, and all City ordinances, resolutions, policies and procedures, and with all applicable state and federal regulations, as may be amended from time to time, whether or not such provisions or requirements have been specifically set forth in these conditions, all of which are now incorporated by reference and made a part of this Resolution with the same force and effect as though fully set forth herein.

J. The applicant/developer shall comply with all rules, regulations and design requirements of the respective sewer, water, utility, regional, federal or other approving agency regarding the installation, modification, development, improvement or protection of facilities within the boundaries. It shall be the applicant/developer's responsibility to determine all agencies with rights of approval for the proposed development.

K. To the extent feasible and as permitted by law, developers and contractors are requested to first consider the use of San Marcos businesses for any supplies, materials, services, equipment needed, and the hiring of local residents to stimulate the San Marcos economy to the greatest extent possible.

L. To the extent permitted by law, the applicant/developer shall defend and hold the City of San Marcos, its agents and employees harmless from liability from: (i) any and all actions, claims, damages, injuries, challenges and/or costs of liabilities arising from the City's approval of any and all entitlements or permits arising from the project as defined in the conditions of approval, or issuance of grading or building permits; (ii) any damages, liability and/or claim of any kind for any injury to or death of any person, or damage or injury of any kind to property which may arise from or be related to the direct or indirect operations of the applicant/developer or its contractors, subcontractors, agents, employees or other persons acting on applicant/developer's behalf which relate to the project; and (iii) any and all damages, liability and/or claims of any kind arising from operation of the project. The applicant/developer further agrees that such indemnification and hold harmless shall include all defense related fees and costs associated with the defense of City by counsel

selected by the City. This indemnification shall not terminate upon expiration of the conditions of approval or completion of the project, but shall survive in perpetuity.

PASSED, APPROVED, AND ADOPTED by the City Council of the City of San Marcos, California, at a regular meeting thereof, held on this 26th day of May, 2026, by the following roll call vote:

AYES: COUNCIL MEMBERS:

NOES: COUNCIL MEMBERS:

ABSENT: COUNCIL MEMBERS:

APPROVED:

Rebecca D. Jones, Mayor

ATTEST:

Phillip Scollick, City Clerk

ATTACHMENT(S):

EXHIBIT A – Conditions of Approval

EXHIBIT A
RESOLUTION NO. 2026-9591
TSM25-0001
Conditions of Approval

A. General Provisions

1. All of the terms, covenants and conditions contained herein shall run with the land and be binding on and inure to the benefit of the heirs, successors, assigns, and representatives of the applicant/developer as to any and all of the property.

2. If any of the terms, covenants or conditions contained herein shall fail to occur or if they are, by their terms, to be implemented and maintained over time, if any of such conditions fail to be so implemented and maintained according to their terms, the City of San Marcos (City) shall have the right to revoke or modify all approvals herein granted including issuance of building permits; deny or further condition the subsequent approvals that are derived from the approvals herein granted; institute and prosecute litigation to compel compliance with said conditions or see damages for their violation. The applicant/developer shall be notified ten (10) days in advance prior to any of the above actions being taken by the City and shall be given the opportunity to remedy any deficiencies identified by the City.

3. The applicant/developer shall be responsible for bearing the costs of all grading activities, on-site and off-site improvements, labor, design, mitigation, and other costs associated with, but not limited to, the project's planning, engineering, construction and/or architecture for the project.

4. The proposed new development may be subject to the payment of development fees and in-lieu fees as required by the City's Fee Ordinance at the time an application is submitted or prior to the issuance of permits, subject to the transitional fee period ending March 3, 2027 pursuant to Council Resolution 2024-9388, as determined by the City.

5. The development must comply with the storm water regulations applicable at the time of approval of the corresponding grading permit application.

6. All design requirements and mitigation measures of the Addendum to the Final Initial Study/Environmental Checklist and Mitigated Negative Declaration for the Santa Fe Flores, LP Project (Mitigated Negative Declaration ND22-008; SCH No. 2022090486) shall be implemented.

7. The development of the site shall be consistent with the approved Multifamily Site Development Plan (MFSDP25-0001).

B. City of Vista, Buena Sanitation District Sewer Conditions of Approval

1. This project is within the Vista (BSD)-San Marcos Detached Area Flow Transfer Agmt.

2. Upon completion of the final CEQA, and as a condition of sewer commitment, developer shall prepare, file, execute, and record a LAFCO/Vista 'Out of Areas Sewer Service' Agmt in order to obtain sewer service. Sewer availability and commitment is subject to the recording of the 'Out of Areas Sewer Service' Agmt.

3. The multi-family (townhomes-condominium units) residential development proposed density and sewer capacity is in compliance with the current Vista General Plan, Zoning requirements, and the current Sewerage Master Plan. Therefore, sewer capacity and sewer service are available for these parcels.

4. Developer shall obtain a 'Sewer Discharge' permit from the City of Vista-BSD, and pay all related fees and charges, prior to obtaining a City of San Marcos Building permit. Commitment to provide sewer services is made by the District's Board and/or City Council, and is subject to compliance with Sewer District's conditions of approval, terms, rules, and regulations, posting required securities/bonds, and payment of all pertinent fees and charges.

5. The proposed multi-family residential development project is within the City of Vista-BSD Sewer Service Basin B03(166) as determined by the current 'Sewerage Master Plan' and the 'Sewer Facility Maps'. An existing 8-in VCP (Dwg-3804, 2004-Yr) public sewer main along S Santa Fe Ave. is available for connection.

6. Developer shall hire a qualified Ca. Registered Land Surveyor or Engineer to field survey and certify the elevations of the existing sewer manholes #B03(166G) and #B03(166H). A signed, stamped and dated 'Survey Manhole Elevations Certification' shall be submitted to the Sanitation Engineer, prior to approval of the Grading/Improvement Plans. The certificate shall include Vista-BSD Manhole IDs, top of rim and invert elevations, city Benchmark, X,Y,Z coordinates, and survey date, plus digital (CAD and PDF) copy of the field survey data file.

7. PUBLIC/PRIVATE SEWER FACILITIES DESIGN CRITERIA:

    a. Sewer Main: 8" PVC SDR-35 (Green) at 1.00% (Min) slope with 5' (Min) cover over the pipe. Sewer pipe shall be designed to maintain a self-cleaning velocity of two feet per second (2 fps Min) to avoid deposition of solids and odor. All sewer main data to be within a 'Sewer Main Data' table (to include SMH ID, Bearing, Radius, Length, Slope, Remarks, etc., …).

    b. Manholes: 'Private' 48" diameter manhole per COV SM-01 and SWR-03. 'Public' 60" diameter manhole per COV SM-02 and SWR-04.

    c. Sewer Laterals (private): 4" PVC SDR-35 (Green) at 2% slope (min) within the ROW, and 5' (Min) cover over the pipe at the property line. 'Two-Way' cleanout at property line with a utility box. All laterals to maintain a 5-ft separation, 6-ft separation between manholes. All sewer lateral data to be within a 'Private Sewer Lateral Data' table per COV SWR-24.

    d. Pre-CCTV inspection is to be perform for ALL existing impacted public sewer mains – include all CCTV data in a 'Pre-CCTV Inspection Data'

table. In addition, Post-CCTV inspection is to be performed for ALL newly installed public sewer mains and manholes – include all Post-CCTV data in a 'Post-CCTV Inspection Data' table. Refer to the Sewer Improvement Plans 'Sewer Notes' for additional Requirements.

e. The Sewer Maintenance Access Road shall be capable of handling H-20 & HS20 Load, and as recommended by the soils engineer and/or as directed by the City/Sanitation Engineer or his representative.

f. Developer shall prepare a 'Truck Turning Motion Analysis Plan' for Sewer Vactor/ Trash Pick-up/ Fire Trucks/ Delivery Trucks. 'Truck Turning Motion Analysis Plan' shall be designed and prepared by a Ca. Professional Engineer as part of the Improvement & Grading Plans.

g. Developer shall contact EDCO for approval of the enclosure design & location. The Trash Enclosure surface area may drain/ discharge into a public sewer system. A 'Will Serve' letter from EDCO for trash SERVICE is required.

h Developer/Owner shall prepare, file, execute, and record a 'Private Sewer Facility Maintenance' Agreement (PSFMA).

i. Corporate Delegation of Authorization to sign (Notarized), Corporate's Operating Agmt, Secretary of State Certificate of God Standing, are to be submitted for the preparation of all required legal agreements.

8. Unless otherwise noted, ALL proposed sewer facilities within this project are 'PRIVATE' and shall be labeled as such on the plans. Add a note to the Sewer Improvement Plans to reflect this requirement. In addition, except for the new public manhole to be installed along the S Santa Fe Ave. public sewer main, ALL sewer manhole covers shall have "PRIVATE SEWER" cast into the lid, unless otherwise noted. Add a note to the Sewer Improvement Plans to reflect this requirement.

9. Developer to extend/ install approximately 1,250-lf of private sewer main pipe to serve the project. Each proposed condominium unit shall have a separate, individual, dedicated gravity flow, private sewer lateral and standard two-way cleanout fronting and connecting to the private sewer main. The existing private sewer main entering the site along Las Flores Drive (SMH #B03.161.A0 to #B03.191) is to be removed completely (from SMH #B03.161.A0 to #B03.191). The SMH channel is to be reconstructed.

10. The Construction Sewer Improvement and Grading Plans As-Built Signature block shall include a sanitation signature block for review/approval of the as-builts as noted below.

11.

"AS·BUILTS"¶
¶ PROJECT·ENGINEER_____···_____¶ RCE··_____·EXP··_____·····DATE¶
REVIEWED·BY:¶ ¶ INSPECTION:··_____··DATE:·· _____¶ ¶ SANITATION:··_____··DATE:·· _____¶ ¶ NOTE:··AS-BUILTS·WILL·BE·SIGNED·UPON:¶ • → VACATION·OF·ALL·SURPLUS·EASEMENTS¶ • → COMPLETION·OF·LANDSCAPE·WORK¶ • → POST-CCTV·INSPECTION·OF·ALL·SEWER· FACILITIES¤

12. Construction Sewer Improvement Plans ('PRIVATE AND PUBLIC') are to be designed and prepared by a Ca. Professional Engineer, per Public Standards and/or as directed by the City Engineer.

13. Construction and inspection of the 'PUBLIC/PRIVATE' sewer facilities is to be done per Public Standards and/or as directed by the City Sanitation Engineer, including Pre- & Post-CCTV inspection. Add note to plans to reflect this requirement.

14. The FINAL MAP GENERAL NOTES shall include the following notes:

    a. ALL PARCELS CREATED BY THIS FINAL MAP SHALL BE SUBJECT TO THE

        i. RECORDED 'OUT OF AREA SEWER SERVICE AGREEMENT' PER DOC#: 2026-_____, RECORDED _____, 2025.

        ii. RECORDED 'PRIVATE SEWER FACILITY MAINTENANCE AGREEMENT' DOC#2026-_____, RECORDED _____, 2025.

        iii. 'VISTA-SAN MARCOS DETACHED SEWERAGE FLOW TRANSFER' AGMT. PER DOC #_____ REC'D: _____

15. All Public/Private sewer facility improvements are to be separately bonded with the City of Vista-Buena Sanitation District. All other normal and customary fees and charges shall apply and are required to be paid during the plan review process. City/District to release bonds and securities once the As-Built Plans have been reviewed and approved, and the sewer improvements accepted by City/District.

16. Developer to comply with the SWRCB requirements to prevent Sanitary Sewer

Overflows (SSOs) and Spills. Compliance can be met by complying with the conditions and requirements noted above, and by performing the required Pre- and Post-CCTV inspection, and installing approved sewer manholes.

C. Prior to submittal of any Final Map, the applicant/developer shall comply with the following conditions:

Land Development Division

1. The Final Map shall show the gross and net acreage of all lots created.

2. The Final Map shall use the California Coordinate System for its "Basis of Bearing" and express all measured and calculated bearing values in terms of said system. The angle of grid divergence from a true median (theta or mapping angle) and the north point of said map shall appear on each sheet thereof. Establishment of said Basis of Bearings may be by use of existing Horizontal Control stations or astronomic observations. "Basis of Bearings" means the source of uniform orientation of all measured bearings shown on the map. Unless otherwise approved, this source will be the California Coordinate System, Zone 6, North American Datum of 1983 (NAD 83).

3. A certificate of compliance for property merger/boundary lot line adjustment shall be recorded for the properties (APNs: 217-161-17-00, 217-161-18-00, and 217-161-19-00) within the project boundary. The adjusted parcels shall be reflected on the final map submittal. An effectuating deed shall be provided within 30 days of recordation of the certificate of compliance...or shown on recorded final map.

4. Lot lines shall be as near radial as possible to street right-of-way at cul-de-sacs and knuckles, and shall not exceed more than ten (10) degrees from radial except as approved by the City Engineer.

Planning Division

5. The minimum lot size (net) for the residential lots shall be 6,000 square feet per the provisions of the Multifamily Residential (R-3-6) Zone.

6. Side yards shall have a minimum of three (3) feet of level open space between the building footprint and any slope or retaining wall in conjunction with the required building setback of the applicable Zone.

D. Prior to or concurrent with the recordation of a Final Map, the applicant/developer shall comply with the following conditions:

Land Development Division

1. The applicant/developer shall process an application to quitclaim deed for the portion of the City's existing landscape maintenance easement dedicated per recorded document 2005-887134 for City Council consideration as shown on the site plan. The quitclaim can be processed on the Final Map or per separate

document.

2. The applicant/developer shall dedicate to the City:

   a. An irrevocable offer of dedication for 8-ft wide rights-of-way for S Santa Fe Ave public street, utilities, drainage facilities;

   b. An easement for Landscape Maintenance and Access purposes for Open Space Slope; and,

   c. All other interests in real property required by these conditions and as shown on the tentative map.

   All property or property interests shall be granted to the City free and clear of all liens and encumbrances and without cost to the City and free of environmental hazards, hazardous materials or hazardous wastes.

3. Prior to the recordation of a Final Map (except maps for financing and conveyance purposes only), the applicant/developer shall not grant any easements over any property subject to a requirement of dedication or irrevocable offer to the City, unless such easements are expressly made subordinate to the easements to be offered for dedication to the City. Prior to granting any of said easements, the applicant/developer shall furnish a copy of the proposed easement to the Land Development Engineer for review and approval.

4. The applicant/developer shall submit a “Primary” street name and two (2) alternate names for each street shown on the Tentative Map in accordance to the City’s Street Naming and Renaming Policy. The names provided shall be subject to review and approval by the City’s Street Naming Committee.

5. The applicant/developer shall submit plans and appropriate construction notes for off-site improvements including but not limited to CFD landscape improvements.

6. Where proposed off-site improvements, including but not limited to CFD landscape improvements, are to be constructed, the applicant/developer shall obtain all necessary easements or other interests in real property and shall dedicate the same to the City as required by the City. The applicant/developer shall provide recorded documents satisfactory to the City that such easements or other interest in real property have been obtained prior to the approval of the Final Map.

   If said dedication and easements are not acquired after negotiations between the private parties, the applicant/developer shall submit a written request and provide sufficient information not later than sixty (60) days prior to the filing of any Final Map for approval, in accordance with SMMC Section 19.16.110, in order for the City to initiate condemnation proceedings as necessary for offsite acquisition of property. In all cases, the applicant/developer shall be responsible for all costs incurred in acquiring offsite property.

7. Direct vehicular access rights to all parcels abutting N Las Flores shall be

relinquished to the City on the Final Map.

8. All internal drive aisles are to be maintained through a "Private Road Maintenance Agreement". The individual property owners served by the private drive aisles shall enter into a recorded joint maintenance agreement to ensure adequate maintenance of all improvements within the boundaries of the private street. A note to this effect shall be added on the Final Map.

9. The applicant/developer shall be responsible for acquiring all associated easements required by the utility companies for such work. The permanent placement of large meter services, detector checks, fire hydrants, etc., along circulation element streets shall be placed outside of the ultimate right-of-way and if applicable, trail easement, to avoid reconstruction or modification of same.

10. The Final Map shall include a statement to indicate that all streets, drainage, street lights, street signage and striping improvements within the interior of this subdivision designated as private shall remain private and be maintained by a homeowners association (HOA).

11. The applicant/developer shall develop Covenants, Conditions and Restrictions (CC&Rs) for the proposed project to assure the continued maintenance and operation of all open space and common areas, recreational facilities, and private improvements.

    a. At a minimum, the CC&Rs shall describe the property manager and/or HOA maintenance responsibilities, parking restrictions, fuel modification maintenance, water quality Best Management Practices (BMPs), City reporting responsibilities, and any regulatory agency permit responsibilities. The CC&Rs shall include an exhibit and/or written description depicting the HOA maintenance responsibilities.

    b. The applicant/developer shall submit a draft copy of the CC&Rs for review and comment by the City. Final form of the CC&Rs shall be to the satisfaction of the City Attorney. A fully executed copy of the CC&Rs shall be provided to the City for recordation with the Final Map.

    c. The CC&Rs shall include the provision that garages shall be utilized for the parking of vehicles, to be enforced by the HOA.

    d. Maintenance of private open space areas and slopes shall be the responsibility of the HOA. All remaining open space lots, improvements and slopes that the City agrees to maintain must comply with City's criteria for maintenance for the Community Facility District No. 98-02 (Lighting, Landscaping, Open Space and Preserve Maintenance).

12. If the project is to be phased, a phasing plan shall be submitted and approved by the City Engineer and Planning Division Director prior to approval of the Final Map. The phasing plan may be subject to further conditions. Should the applicant/developer decide to develop phases out of numerical sequence with the

approved phasing as shown on the plan, all conditions required of the proceeding phases shall be completed unless otherwise approved by the City Engineer and the Planning Division Director. Other conditions may be imposed by the City Engineer and Planning Division Director to allow out-of-phase construction.

13. The developer shall provide a 30-ft widedriveway access within the right-of-way, to be shared with the neighboring property at 2966 S. Santa Fe Avenue. The driveway width shall be reduced to 25-ft minimum once onsite. For commercial or multifamily areas that share access and/or parking, an unsubordinated reciprocal access, maintenance and parking agreement, in a form satisfactory to the City Attorney, shall be recorded with the Office of the San Diego County Recorder. A copy of the recorded agreement shall be submitted to the City's Planning Division.

14. Line of sight easements, if necessary, shall be dedicated on the Final Map and delineated on all improvement and grading plans as approved by the City Engineer. Adequate sight distance for all intersections, driveways and access points shall be provided per latest edition of the California Department of Transportation (Caltrans) Highway Design manual and the American Association of State Highways and Transportation Officials (AASHTO) Geometric Design of Highways and Streets.

15. The design of all private streets and/or drainage systems for this project shall be approved by the City Engineer. The structural section of all private streets shall conform to City standards based on R-value tests. All private streets and/or drainage systems shall be inspected by the City, and the standard plan check fees and inspection fees shall be paid and appropriate bonds shall be posted with the City prior to approval of the Final Map for each Map Unit.

16. The exact depth of any new or improved street structural section and subgrade requirement shall be determined based on subgrade “R” value tests and the appropriate Traffic Index for the type of street as described in the City's “Urban Street Design Criteria” and “Street Excavation Ordinance”. Tests shall be taken by a qualified engineer at locations approved by the Director of Public Works.

17. Prior to recordation of the Final Map or grading permit issuance, whichever comes first, the applicant/developer shall gain Buena Sanitation District approval for an Out of Area Service (OAS) agreement to serve the project site. The OAS must be processed through the Local Agency Formation Commission (LAFCO), requiring recordation by the County Recorder and State Board of Equalization approval.

18. The applicant/developer shall comply with all rules, regulations and design requirements of the respective sewer, water, utility, regional, federal or other approving agency regarding the installation, modification, development, improvement or protection of facilities within the project boundaries. It shall be the applicant/developer’s responsibility to determine all agencies with rights of approval for the proposed development.

19. The applicant/developer shall mitigate for impacts on City services related to emergency response, traffic congestion, landscaping, and infrastructure

maintenance. The mitigation shall be met through the execution of applications to annex the real property of the project into the following Community Facilities Districts (CFD):

a. CFD 98-01: Improvement Area No. 1 (Police Only) (PS-2)
b. CFD 98-02: Lighting, Landscaping, Open Space and Preserve Maintenance
c. CFD 2001-01: Fire and Paramedic (PS-1)
d. CFD 2011-01: Congestion Management

Additionally, if the City determines it to be necessary, a Special Improvement Area shall be formed with respect to CFD 98-02 for the ongoing maintenance services provided by the City for improvements being installed above and beyond the City standards, installed by the applicant/developer as depicted on a Special Improvement Area exhibit, to be submitted by the applicant/developer after project approval. Such improvements include, but are not limited to, storm water treatment devices and enhanced landscaping features. No building permit will be issued without receipt of a petition for annexation and consent and waiver executed by the property owners for each of the above-referenced CFDs for the establishment of the special taxes. In lieu of annexation, the applicant/developer may pay a fee for each CFD consentient with the pre-payment option laid out in each CFD formation document. The applicant/developer shall be responsible for compliance with all rules, regulations, policies and practices established by State Law and/or the City with respect to the CFD including, without limitation, requirements for notice and disclosure to future owners and/or residents.

20. The applicant/developer shall post securities to the City, in amounts approved by the City Attorney and the City Engineer or their designees, for the construction of all public and private improvements including but not limited to the following: grading and erosion control, street improvements, traffic signals, storm drain facilities, water quality BMPs, landscaping, and off-site street repair. Said security shall be in a form acceptable to the City and shall remain in force until completion of the project and final approval by the City. Said security shall insure the construction of the “approved” public improvements within a period to be specified in the Subdivision Improvement Agreement. For grading securities, the City may require 10% of said securities to be in the form of cash.

Planning Division

21. The Covenants, Conditions and Restrictions (CC&R’s) for the proposed project shall assure the continued maintenance and operation of all open space and common areas, recreational facilities, and private improvements are maintained in perpetuity and in conformance with the approved plans and applicable provisions of the Multifamily Residential (R-3-6) Zone.

E. Prior to issuance of any grading permit, the applicant/developer shall comply with the following conditions.

Land Development Division

1. The applicant/developer shall submit an application for a grading permit in accordance with SMMC Chapter 17.32 and all related Engineering Division handouts. All applicable fees and securities shall be paid prior to grading permit issuance.

2. Grading plans and activities shall be based on a comprehensive investigation of surface and subsurface conditions. Results of this investigation and recommendations arising therefrom shall be submitted in the form of a report written by a registered geotechnical engineer or registered engineering geologist.

3. The applicant/developer shall secure letters of permission from adjacent property owners for all graded slopes crossing property lines. In lieu of such permission, grading plans shall conform to the required grading setbacks as provided in the City's Grading Ordinance.

4. The applicant/developer shall execute and record an Encroachment, Maintenance, and Removal Agreement (EMRA) for the proposed privately maintained storm drain pipes within public right-of-way in South Santa Fe Ave and North Las Flores Dr.

5. Erosion control and/or sediment control details shall be submitted with/on the grading plans to the Land Development Division for review and approval. The details shall conform to City standards, codes and ordinances, and San Diego Regional Water Quality Control Board (SDRWQCB) Municipal Storm Water Permit requirements. The details shall include landscaping and temporary irrigation systems on exposed slopes to be approved by the City Engineer and Planning Division Director.

6. A hydrology and hydraulic report, including calculations, shall be prepared for the project to determine the existing and post-development runoff for the 100-year storm conditions. Storm drains and drainage structures shall be sized for build-out according to the approved hydrology report. All surface runoff originating within the project and all surface waters that may flow onto the project from adjacent properties shall be accommodated by the drainage system. The report shall also determine the project's build-out runoff into existing off-site natural drainage swales and storm drain systems, and shall address any need for off-site improvements, including upsizing of existing facilities. Blocking, concentrating, lowering or diverting of natural drainage from or onto adjacent property shall not be allowed without written approval of the affected property owner(s).

7. The applicant/developer shall be responsible for mitigating impacts created by changes in drainage runoff course, concentration, or quantity to the satisfaction of the City Engineer for both on-site and off-site drainage. This may require the applicant/developer to provide all necessary easements and improvements to accommodate drainage and flood control structures extending beyond the boundaries of the project.

8. The applicant/developer shall execute a "Hold Harmless" Agreement with the City

regarding drainage across adjacent property.

9. A Storm Water Quality Management Plan (SWQMP) shall be submitted in accordance with the most current version of the City adopted BMP design manual and meet the most current requirements of SDRWQCB.

10. The applicant/developer shall enter into a Storm Water Management and Discharge Control Maintenance Agreement and Easement for the maintenance of all structural post-construction storm water management improvements. The agreement and easement shall be in a form acceptable to the City Attorney.

11. Proof of coverage under the State of California's General Construction Permit shall be provided to the Land Development Division. A copy of the Storm Water Pollution Prevention Plan (SWPPP) submitted with the State's permit shall be submitted.

12. All construction and grading related Best Management Practices (BMPs) shall be shown in detail on the construction plans submitted to the City for review and approval.

13. The applicant/developer shall be responsible for acquiring all associated easements required by the utility companies for such work. The permanent placement of large meter services, detector checks, fire hydrants, etc., along circulation element streets shall be placed outside of the ultimate right-of-way and if applicable, trail easement, to avoid reconstruction or modification of same.

14. The applicant/developer shall submit "will-serve" letters from all affected public service and utilities agencies prior to issuance of the precise grading permit.

Planning Division

15. Under separate landscape permit application, the applicant/developer shall submit construction landscape plans to the Planning Division for review and approval per the following requirements:

    a. Final landscape and irrigation plans shall be prepared by a licensed landscape architect.

    b. Separate landscape plans shall be submitted for the on-site (private) landscape areas and the off-site (CFD) landscape areas. CFD landscape plans shall be submitted to the Land Development Division as part of the street improvement plan set. Private landscape plans shall be submitted separately to the Planning Division.

    c. This project is subject to the payment of a landscape permit and inspection fee. The landscape permit and inspection fee shall be four and one-half percent (4.5%) of the landscape architect's estimate for the completion of all landscaping shown on approved mylars. All submitted estimates shall be stamped and signed by the landscape architect, and estimate the cost

of plant and irrigation materials only.

d. Landscape plans shall contain a mixture of trees, shrubs, and ground cover, and be provided with an irrigation system. The irrigation system shall include an automatic rain sensor switch, master valve, stainless steel enclosure for the backflow device, and stainless steel controller cabinet if in public view. The irrigation system shall be designed to prevent water run-off onto the sidewalk or street. The landscape plan shall list the quantities of each plant type, including a legend indicating what each symbol represents; height and spread of trees (in accordance with City Minimum Tree Standards handout, City Council Resolution 2001-5747); and method of installation and irrigation.

e. The landscape plans, including plant material and irrigation design, shall comply with the City's landscape water efficiency ordinance, SMMC Chapter 20.330, in addition to State of California water efficiency requirements.

f. All permanent Best Management Practices (BMPs) per the approved grading plan shall be shown on the landscape plans. Landscape plans shall be reviewed and signed by the engineer-of-work that the proposed landscape design complies with the requirements of the Storm Water Quality Management Plans (SWQMP).

g. The applicant/developer shall submit a fencing plan, in conjunction with the landscape plan, which proposes a consistent type and style of fences and/or walls. The fencing plan shall include decorative fencing with a detail of each proposed fence/wall type, and shall not include chain link fencing except that black vinyl coated pet relief area fencing not visible from the exterior the property. Pilasters shall be located at the corners of all wall segments at the property frontage, and additional pilasters shall be spaced evenly on wall segments between corners.

h. Landscaping for the proposed project shall avoid the use of invasive plant species. Invasive plants shall be those identified on Lists A and B of the California Exotic Plant Council's List of Exotic Plants of Greatest Ecological Concern in California, as of October 1999, and updated if applicable.

i. Plant material shall be fire and drought tolerant and acceptable for defensible space in fire prone areas.

j. The landscape permit shall require that prior to installation, the proposed plants shall be inspected and approved by the Planning Division for plant quality and compliance with minimum size requirements. The placement of plants shall be installed in accordance with the approved landscape plans. Upon completion of installation, all landscaping/irrigation shall be inspected and approved by the Planning Division. The applicant/developer shall be responsible to contact the Planning Division for landscaping inspections.

k. All CFD landscaping/irrigation shall be inspected and approved by the Public Works Landscape Inspector for installation in accordance with the approved CFD landscape plans. The applicant/developer shall be responsible to contact the Public Works Department for CFD landscaping inspections.

l. The landscape plans shall include a minimum of three recreational amenities consisting of a playground ("tot lot"), picnic area with a built-in commercial grade barbeque grill, and outdoor game courts. To the extent possible, trees shall be placed to provide shade to both the playground and picnic areas. A minimum of one tree shall provide shading for the guest parking area. The dog relief areas must provide a Dogipot (or similar) system, with pet waste disposal bags and trash receptacle, located near the entrance to the area.

16. All exposed retaining walls shall be constructed of earth tone colored keystone, split-face, or similar textured block. The applicant/developer shall submit a material sample to the Planning Division for review and approval prior to issuance of grading permit.

17. If proposed for grading operations, the use of a rock crusher(s) on site shall require approval of a Conditional Use Permit (CUP) prior to issuance of grading permit.

18. The applicant/developer shall comply with the following conditions regarding cultural resources:

a. Pre-Excavation Agreement: Prior to the issuance of a Grading Permit, or ground disturbing activities, the Applicant/Owner shall enter into a Tribal Cultural Resources Treatment and Repatriation Agreement (Pre-Excavation Agreement) with a Traditionally and Culturally Affiliated Native American Tribe (TCA Tribe), identified in consultation with the City. The purpose of the Pre-Excavation Agreement shall be to formalize protocols and procedures between the Applicant/Owner and the TCA Tribe for the protection, treatment, and repatriation of Native American human remains, funerary objects, cultural and/or religious landscapes, ceremonial items, traditional gathering areas, and other tribal cultural resources. Such resources may be located within and/or discovered during ground disturbing and/or construction activities for the proposed project, including any additional culturally appropriate archaeological studies, excavations, geotechnical investigations, grading, preparation for wet and dry infrastructure, and other ground disturbing activities. Any project-specific Monitoring Plans and/or excavation plans prepared by the project archaeologist shall include the TCA Tribe requirements for protocols and protection of tribal cultural resources that were agreed to during the tribal consultation.

The landowner shall relinquish ownership of all non-burial related tribal cultural resources collected during construction monitoring and from any

previous archaeological studies or excavations on the project site to the TCA Tribe for proper treatment and disposition per the Pre-Excavation Agreement, unless ordered to do otherwise by responsible agency or court of competent jurisdiction. The requirement and timing of such release of ownership, and the recipient thereof, shall be reflected in the Pre-Excavation Agreement. If the TCA Tribe does not accept the return of the cultural resources, then the cultural resources will be subject to curation. (MM-CR-1)

b. Construction Monitoring: Prior to the issuance of a Grading Permit or ground disturbing activities, the Applicant/Owner or Grading Contractor shall provide written documentation (either as signed letters, contracts, or emails) to the City's Planning Division stating that a Qualified Archaeologist and Traditionally and Culturally Affiliated Native American monitor (TCA Native American monitor) have been retained at the Applicant/Owner or Grading Contractor's expense to implement the construction monitoring program, as described in the Pre-Excavation Agreement.

The Qualified Archaeologist and TCA Native American monitor shall be invited to attend all applicable pre-construction meetings with the General Contractor and/or associated subcontractors to present the construction monitoring program. The Qualified Archaeologist and TCA Native American monitor shall be present on site during grubbing, grading, trenching, and/or other ground disturbing activities that occur in areas of native soil or other permeable natural surfaces that have the potential to unearth any evidence of potential archaeological resources or tribal cultural resources. In areas of artificial paving, the Qualified Archaeologist and TCA Native American monitor shall be present on site during grubbing, grading, trenching, and/or other ground disturbing activities that have the potential to disturb more than six inches below the original pre-project ground surface to identify any evidence of potential archaeological or tribal cultural resources. No monitoring of fill material, existing or imported, will be required if the General Contractor or developer can provide documentation to the satisfaction of the City that all fill materials being utilized at the site are either: 1) from existing commercial (previously permitted) sources of materials; or 2) are from private or other non-commercial sources that have been determined to be absent of tribal cultural resources by the Qualified Archaeologist and TCA Native American monitor.

The Qualified Archaeologist and TCA Native American monitor shall maintain ongoing collaborative coordination with one another during all ground disturbing activities. The requirement for the construction monitoring program shall be noted on all applicable construction documents, including demolition plans, grading plans, etc. The Applicant/Owner or Grading Contractor shall provide written notice to the Planning Division and the TCA Tribe, preferably through e-mail, of the start and end of all ground disturbing activities.

Prior to the release of any grading bonds, or prior to the issuance of any

project Certificate of Occupancy, an archaeological monitoring report, which describes the results, analysis, and conclusions of the construction monitoring shall be submitted by the Qualified Archaeologist, along with any TCA Native American monitor's notes and comments received by the Qualified Archaeologist, to the Planning Division Director for approval. Once approved, a final copy of the archaeological monitoring report shall be retained in a confidential City project file and may be released, as a formal condition of Assembly Bill (AB) 52 consultation, to Pechanga Band of Luiseño Indians, San Luis Rey Band of Mission Indians, and the Rincon Band of Luiseño Indians or any parties involved in the project specific monitoring or consultation process. A final copy of the report, with all confidential site records and appendices, will also be submitted to the South Coastal Information Center after approval by the City. (MM-CR-2)

c. Unanticipated Discovery Procedures: Both the Qualified Archaeologist and the TCA Native American monitor may temporarily halt or divert ground disturbing activities if potential archaeological resources or tribal cultural resources are discovered during construction activities. Ground disturbing activities shall be temporarily directed away from the area of discovery for a reasonable amount of time to allow a determination of the resource's potential significance. Isolates and clearly non-significant archaeological resources (as determined by the Qualified Archaeologist, in consultation with the TCA Native American monitor) will be minimally documented in the field. All unearthed archaeological resources or tribal cultural resources will be collected, temporarily stored in a secure location (or as otherwise agreed upon by the Qualified Archaeologist and the TCA Tribe), and repatriated according to the terms of the Pre-Excavation Agreement, unless ordered to do otherwise by responsible agency or court of competent jurisdiction.

If a determination is made that the archaeological resources or tribal cultural resources are considered potentially significant by the Qualified Archaeologist, the TCA Tribe, and the TCA Native American monitor, then the City and the TCA Tribe shall determine, in consultation with the Applicant/Owner and the Qualified Archaeologist, the culturally appropriate treatment of those resources.

If the Qualified Archaeologist, the TCA Tribe, and the TCA Native American monitor cannot agree on the significance or mitigation for such resources, these issues will be presented to the Planning Division Director for decision. The Planning Division Director shall make a determination based upon the provisions of CEQA and California Public Resources Code Section 21083.2(b) with respect to archaeological resources and California Public Resources Section 21704 and 21084.3 with respect to tribal cultural resources, and shall take into account the religious beliefs, cultural beliefs, customs, and practices of the TCA Tribe.

All sacred sites, significant tribal cultural resources, and/or unique archaeological resources encountered within the project area shall be

avoided and preserved as the preferred mitigation. If avoidance of the resource is determined to be infeasible by the City as the Lead Agency, then the City shall require additional culturally appropriate mitigation to address the negative impact to the resource, such as, but not limited to, the funding of an ethnographic study and/or a data recovery plan, as determined by the City in consultation with the Qualified Archaeologist and the TCA Tribe. The TCA Tribe shall be notified and consulted regarding the determination and implementation of culturally appropriate mitigation and the drafting and finalization of any ethnographic study and/or data recovery plan, and/or other culturally appropriate mitigation. Any archaeological isolates or other cultural materials that cannot be avoided or preserved in place as the preferred mitigation shall be temporarily stored in a secure location on site (or as otherwise agreed upon by the Qualified Archaeologist and TCA Tribe), and repatriated according to the terms of the Pre-Excavation Agreement, unless ordered to do otherwise by responsible agency or court of competent jurisdiction. The removal of any artifacts from the project site will be inventoried with oversight by the TCA Native American monitor.

If a data recovery plan is authorized as indicated above and the TCA Tribe does not object, then an adequate artifact sample to address research avenues previously identified for sites in the area will be collected using professional archaeological collection methods. If the Qualified Archaeologist collects such resources, the TCA Native American monitor must be present during any testing or cataloging of those resources. Moreover, if the Qualified Archaeologist does not collect the cultural resources that are unearthed during the ground disturbing activities, the TCA Native American monitor may, at their discretion, collect said resources for later reburial or storage at a local curation facility, as described in the Pre-Excavation Agreement.

In the event that curation of archaeological resources or tribal cultural resources is required by a superseding regulatory agency, curation shall be conducted by an approved local facility within San Diego County and the curation shall be guided by California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections. The City shall provide the Applicant/Owner final curation language and guidance on the project grading plans prior to issuance of the grading permit, if applicable, during project construction. The Applicant/Owner shall be responsible for all repatriation and curation costs and provide to the City written documentation from the TCA Tribe or the curation facility, whichever is most applicable, that the repatriation and/or curation have been completed. (MM-CR-3)

d. Human Remains: As specified by California Health and Safety Code Section 7050.5, if human remains, or remains that are potentially human, are found on the project site during ground disturbing activities or during archaeological work, the person responsible for the excavation, or his or her authorized representative, shall immediately notify the San Diego

County Medical Examiner's Office by telephone. No further excavation or disturbance of the discovery or any nearby area reasonably suspected to overlie adjacent remains (as determined by the Qualified Archaeologist and/or the TCA Native American monitor) shall occur until the Medical Examiner has made the necessary findings as to origin and disposition pursuant to Public Resources Code 5097.98.

If such a discovery occurs, a temporary construction exclusion zone shall be established surrounding the area of the discovery so that the area would be protected (as determined by the Qualified Archaeologist and/or the TCA Native American monitor), and consultation and treatment could occur as prescribed by law. As further defined by State law, the Medical Examiner will determine within two working days of being notified if the remains are subject to his or her authority. If the Medical Examiner recognizes the remains to be Native American, and not under his or her jurisdiction, then he or she shall contact the Native American Heritage Commission by telephone within 24 hours. The Native American Heritage Commission will make a determination as to the Most Likely Descendent, who shall be afforded 48 hours from the time access is granted to the discovery site to make recommendations regarding culturally appropriate treatment.

If suspected Native American remains are discovered, the remains shall be kept in situ (in place) until after the Medical Examiner makes its determination and notifications, and until after the Most Likely Descendent is identified, at which time the archaeological examination of the remains shall only occur on site in the presence of the Most Likely Descendent. The specific locations of Native American burials and reburials will be proprietary and not disclosed to the general public. According to California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). In the event that the Applicant/Owner and the Most Likely Descendant are in disagreement regarding the disposition of the remains, State law will apply, and the mediation process will occur with the NAHC. In the event that mediation is not successful, the landowner shall rebury the remains at a location free from future disturbance (see Public Resources Code Section 5097.98(e) and 5097.94(k)). (MM-CR-4)

19. Prior to grading the site or causing any impact to the site, grading and/or construction activities on site must be avoided during the nesting season which extends from February 1st to September 15th to prevent potential impacts to nesting of any migratory, songbirds, or raptors. If construction initiation occurs between February 1 and September 15, a pre-construction nesting bird and raptor survey within 300 feet of the project impact area shall be completed by a qualified biologist prior to vegetation removal. The pre-construction survey shall be conducted within 10 calendar days prior to the start of construction activities (including removal of vegetation). If any active nests are detected, the area will be flagged and mapped along with a buffer as recommended by the qualified biologist. The buffer area(s) established by the qualified biologist will be avoided until the nesting cycle is

complete or it is determined that the nest is no longer active. The qualified biologist shall be a person familiar with bird breeding behavior and capable of identifying the bird species of San Diego County by sight and sound and determining alterations of behavior as a result of human interaction. Buffers will be based on species-appropriate buffers and/or local topography and line of sight, species behavior and tolerance to disturbance, and existing disturbance levels, as determined appropriate by the qualified biologist. (MM-BIO-1)

Building Division

20. If the project is to be phased, the applicant/developer shall submit a phasing plan to the Building Division for review and approval. Said phasing plan shall graphically depict the order in which the buildings (including models) will be occupied and depict which public and private infrastructure and amenities will be completed prior to each building occupancy. Once approved, any deviations from the phasing plan must be reviewed and approved by the Building Division, Planning Division, Land Development Division, Fire Department and the Public Works Construction Inspection Division.

21. The project is subject to the approval of the applicable water/sewer district(s) for water and sewer services and all applicable fees and charges shall be paid to the satisfaction of the water/sewer district(s) prior to issuance of grading or building permit.

22. The applicant/developer shall obtain a demolition permit from the Building Division prior to demolition of the existing structures on site.

Fire Department

23. Fire apparatus access roads shall have an unobstructed improved width of not less than 24 feet (curb line to curb line), and an unobstructed vertical clearance of not less than 13 feet 6 inches. Access roads shall be all weather surface and designed to support imposed loads of not less than 75,000 pounds in accordance with California Fire Code (CFC) Section 503.2.1, SMMC Section 17.64.120. Any roads 24 feet in width are required to be posted with "No Parking – Tow Away Zone" signs approved by the fire department. Fire lanes shall be posted and/or curbs painted in accordance with CA. Vehicle Code, section 22500.l, 22658(a) and San Marcos Fire Department Standards. The number, wording and placement of all fire lane signs shall be approved by the Fire Dept. prior to installation.

24. The gradient for a fire apparatus roadway shall not exceed 20 percent. Grades exceeding 12 percent (incline or decline) shall not be permitted without mitigation: Minimal surface of Portland cement concrete (PCC) with a deep broom finish perpendicular to the entire direction/length of travel and grade. The angle of departure and approach of fire access roads shall not exceed 7 degrees (12 percent) as required by CFC Section 503.2.7, as amended.

25. All roads in the project shall have adequate turn radius to accommodate all Fire Department apparatus including frontline and reserve fire engines and frontline

and reserve trucks (engine and tiller ladder trucks). The required inside turn radius shall be 28 feet for engine and tiller ladder truck. No curb deflection or other features shall interfere with fire apparatus ability to navigate any street. The Land Development Division shall maintain the proper templates for turn radius of all Fire Department apparatus.

26. All dead end fire apparatus access roadways in excess of 150 feet in length shall be provided with an approved area for turning around of all San Marcos Fire apparatus. A hammerhead turn-around or cul-de-sac will be required by the Fire Department.

27. Improvement plans shall show location and spacing/distance of fire hydrants. Hydrants shall be bronze industrial fire hydrants. Minimum GPM shall be per CFC Appendix B. Industrial fire hydrants shall have Two 4-inch ports and One 2.5-inch port. Installation shall be as per local Water District specifications. Hydrant Type shall be Clow. All fire hydrants shall be color coded per NFPA 291. Maximum spacing between fire hydrants shall be 300 feet from one another. Maximum spacing from a fire hydrant to any fire department connection shall be 50 feet. Location of fire hydrants shall be approved by the fire department. All new fire hydrants inside the new development shall be private hydrants.

28. Deferred submittal/separate permit is required for fire line underground work. (On-site fire hydrants, fire sprinkler service to buildings, etc.)

F. Prior to issuance of any building permit, the applicant/developer shall comply with the following conditions:

Land Development Division

1. The Final Map shall be recorded prior to building permit issuance.

2. The approved precise grading plans shall be attached to the building plans.

3. Prior to submittal of any building plans, the rough grading and public improvement plan sets shall be submitted for the second plan check and deemed substantially complete by the Land Development Engineer. Prior to issuance of any building permits, the public improvement plans shall be approved by the City Engineer and appropriate securities accepted. The applicant/developer may submit the building plans concurrently with the rough grading plan at-risk at the discretion of the Land Development Engineer.

4. All public improvements required at the time of subdivision and/or development shall be under construction to the satisfaction of the City Engineer prior to the issuance of the first production building permit, excluding retaining wall permits and model units.

5. All grading shall be observed by a licensed geotechnical engineer, who shall prepare a written report to the satisfaction of the City Engineer certifying that the work has been performed in compliance with the recommendations contained

within the geotechnical report and on the approved project plans. If not so done, the report shall describe the actual work performed and any deficiencies observed. The final report shall specifically detail conditions and remedial work performed that was not specifically identified in the initial report of subsurface conditions.

6. A certification of line and grade for the building pad, signed and stamped by the engineer of work, shall be provided to the Engineering Inspector. The certification shall be in a form acceptable to the City Engineer.

7. The base lift of asphalt on all roads serving the area under construction shall be completed. All proposed fire hydrants shall be operational prior to the delivery of combustible materials to the project site.

Planning Division

8. All exterior lighting shall comply with City standards for high energy-efficient fixtures, except for low-wattage architectural lighting. All exterior fixtures shall be approved by the City.

9. All exterior lighting shall use cut-off fixtures and shielded in order to direct the illumination downward and reduce the visibility of any glare.

10. Residential structures shall comply with the California Building Code regarding interior noise levels for residential dwelling units.

11. To reduce noise reduction up to 25 dB(A) to achieve interior noise levels of 45 CNEL or less, window components with an STC rating of 25 or higher are required for units located on the south and east side of Building 1. To reduce noise levels at the amenity area on the south side of Building 1 and the south and east sides of Building 1 facing the roadways, the project must also include a 6-foot barrier adjacent to the amenity area south of Building 1, and a solid 3.5-foot barrier on the balconies located on the south and east sides of Building 1 and on the south and east sides of the Building 1 roof deck.

12. All tot lot recreational amenities and playground equipment shall comply with all C.P.S.C. and A.D.A. accessibility standards. Plans shall include a detail of each of the play areas with the proposed play equipment and specifications of said equipment. Final design shall be approved by the Parks and Recreation Director and Planning Division Director.

Building Division

13. New buildings and remodeled structures shall be designed to conform to the latest design standards adopted by the State of California in the California Building Code (CBC), Part 2, Title 24, California Code of Regulations.

14. Building plans and instruments of service submitted with a building permit application shall be signed and sealed by a California licensed design professional as required by the State Business and Professions Code.

15. The City is located in Seismic Design Category “D”. Buildings and structures shall be designed to adequately transmit the dynamic lateral forces in accordance with the requirements of the latest adopted California Building Code.

16. The proposed development shall comply with the latest adopted California Green Building Code Standards. The City has adopted the mandatory standards and does not enforce the voluntary standards. A solar, battery, and EVCS system is required for this project.

17. Residential structures shall be designed to comply with the crime prevention measures approved by the City, including such items as: reinforced door jambs; one-piece door stops; 16-gauge strike plate for deadbolts; locking hardware for garage doors; two locking devices for wide garage doors; 1-3/4 inch solid exterior doors; laminated safety glass; wide-angle peep hole for exterior doors; no louvered windows; and address numbers easily visible from the street.

18. The handling, storage, use and disposal of hazardous, toxic or flammable materials shall be clearly indicated on all floor plans submitted for a building permit and shall be in compliance with any and all Federal, State, County and City rules, regulations, and requirements for hazardous waste control, including but not limited to the Hazardous Waste Control Act of 1973 (HWCA) (Health & S C §25100 *et seq*.), as may be amended from time to time, whether or not such provisions or requirements have been specifically set forth in these conditions, all of which are now incorporated by reference and made a part hereof with the same force and effect as though fully set forth herein.

19. The project shall comply with the latest Federal Law, Americans with Disabilities Act, and State Law, California Code of Regulations, Title 24, for accessibility standards.

20. Health and Safety Code Section 17959.6 requires developers of new residential housing developments to provide buyers with a list of specified universal accessibility features that would make specific areas of the home accessible to persons with disabilities. The applicant/developer shall indicate which features are standard, limited, optional, or not available, and the point of construction by which they must be requested.

21. The applicant/developer shall comply with the City’s Inclusionary Housing Ordinance that is in effect at the time of building permit issuance. If affordable housing units are provided to satisfy the requirements of the City’s Inclusionary Housing Ordinance or other applicable State housing laws, the applicant/developer shall enter into one or more regulatory agreements, subject to the approval of the City Manager. Such agreement(s) shall include, but not be limited to, provisions addressing the following: the term of affordability, monitoring and reporting requirements, occupancy and income restrictions, property management standards, and any Conditions, Covenants, and Restrictions (CC&Rs) deemed necessary by the City to ensure compliance with the City’s Housing Element of the General Plan.

22. The applicant/developer shall pay Public Facilities Fees as established by the latest adopted Public Facilities Fee, based on the proposed land use, and shall be paid prior to the issuance of the first permit for the development.

23. The project is subject to the payment of school fees as required by law. The applicant/developer shall submit a Certificate of Compliance from the school district prior to the issuance of the first building permit from the City.

24. The proposed new development is subject to approval by the Water District and all applicable fees and charges shall be paid to the District prior to permit issuance.

25. Roof drain systems shall be designed for 3-inches of rainwater per hour. Rain gutters, down drains and other devices shall be installed to prevent erosion at the point of discharge and shall discharge to landscaped areas when feasible. Interceptor drains, yard drains and drainage devices shall be installed to mitigate erosion and create positive drainage away from foundations. Roof drainage shall comply with the City's storm water management measures.

26. The applicant/developer shall contact the Delivery Retail Analyst for the branch of the U.S. Postal Service to determine the type and location of centralized delivery equipment required. The developer shall notify the mailbox owners of their responsibility to maintain the delivery equipment. The developer shall inform the new owners that they own the mailboxes and are responsible for replacement.

27. A phasing plan shall be submitted to Development Services Department for review and approval prior to the issuance of any building permits for projects with phased construction. The phasing plan shall identify the extent of on-site and off-site improvements and the location of all buildings in each phase. Occupancies shall not be approved until the City and other agencies have accepted the improvements in compliance with these conditions of approval.

28. Sewer and water utilities shall be located wholly on the lot that serves the building in accordance with the latest adopted edition of the California Plumbing Code.

29. The outer boundary of schools (grades K through 12) as listed in the current California Private School Directory shall comply with Education Code Section 33190 relating to the location of a school facility within 1,000 feet of businesses that are regulated for the storage, use and handling of hazardous materials as defined by the California Health and Safety Code.

Fire Department

30. Any new development, which necessitates updating of emergency response maps by virtue of new structures, hydrants, roadways or similar features, shall be required to provide map updates. Produce a fire preplan in (ESRI) GIS format using the pre-configured GIS Starter Package provided by City of San Marcos. A completed fire preplan shall include the GIS data and output PDF for use by San Marcos Fire Department. Data deliverables (CAD and GIS) shall specifically

include a site plan, building plan, all Utility shut-offs, fire sprinkler risers and shut-off valves, the fire department connection for sprinkler and class-I standpipe, all standpipe hose outlets, all stairwells, retail spaces, living units -numbers /locations, fire alarm panels, elevators, fire hydrants and all Knox boxes and key switch locations.

31. At approval of Final Building Plans, Developer shall contact San Marcos GIS (gishelp@san-marcos.net) to begin the process of creating a Fire Preplan. At 50% of the construction completion process and/or the Fire Sprinkler Hydro Test, the developer shall submit a preliminary GIS preplan to show progress. Note: Minor changes to plans made during construction can be corrected at the time of Fire inspection.

32. Separate Permit / Deferred Submittal: Automatic fire sprinkler systems for all buildings shall be designed and installed in accordance with NFPA 13 as mitigation for ladder access and hosepull deficiencies. Fire suppression systems shall comply with the latest adopted California Building and Fire codes, and shall conform to the standards adopted by the National Fire Protection Association (NFPA) and the San Marcos Fire Code Ordinance.

33. Separate Permit / Deferred Submittal: Fire alarm system(s) shall be installed in compliance with the most current edition of the California Fire Code and the most current edition of NFPA 72. All automatic fire sprinkler systems shall be supervised by an approved central station. All valves controlling the water supply shall be supervised by the fire control unit. Fire alarm / notification system shall be provided in multi-family residential units in accordance with CA Fire Code and the most current edition of NFPA 72.

34. Access roads shall extend to within 150 feet of all portions of the exterior walls of the first story of the buildings. Buildings shall install fire sprinkler systems meeting the requirements of NFPA 13 in order to mitigate hosepull/access deficiencies.

35. The applicant/developer shall provide a Construction Staging/Site Phasing Plan for approval prior to permit issuance.

36. A lighted directory map, meeting current Fire Department standards, shall be installed at each driveway entrance to new multiple unit residential projects.

37. New and existing buildings shall have approved address numbers placed in position that is contrasting in color and plainly visible from street or road fronting the property. Each individual residential unit number shall be 4 inches in height with .5-inch stroke.

G. During the grading and construction phase, the applicant/developer shall comply with the following conditions:

<u>Engineering Construction Inspection Division</u>

1. Prior to any construction activities, a pre-construction meeting shall be held with

the Engineering Construction Inspection Division. The applicant/developer shall provide the inspector with a detailed construction schedule which depicts when building occupancy or occupancies will occur and when key public and private infrastructure improvements will be completed. Schedule updates shall be provided to the Building and Engineering Inspectors at a minimum monthly basis throughout the life of the project.

Land Development Division

2. Grading, excavation or other related earth moving operations, including warm-up and maintenance activities, shall be limited to the hours of 7:00 a.m. to 4:30 p.m., Monday through Friday. No work shall be allowed on Saturdays, Sundays and holidays.

3. During construction activities, the applicant/developer shall maintain public and private driveway and/or road access to neighboring properties at all times unless previous arrangements have been made with the private parties affected. Copies of said agreements shall be provided to the City Engineer.

4. The applicant/developer shall submit a traffic control plan to the Engineering Inspector for all phases of construction for approval by the City Engineer. Said plan shall include all traffic control devices including traffic signals as required.

5. Construction haul routes must be designed to avoid noise sensitive uses (e.g., residences, convalescent homes, etc.), to the extent feasible.

6. At the discretion of the Engineering Inspector, the applicant/developer shall document the pre-construction condition of existing roads or offsite properties which may be impacted by construction activities. The applicant/developer shall be responsible in repairing any construction related damages prior to occupancy.

7. A Right-of-Way permit shall be required prior to commencement of any work within the City right-of-way.

8. The applicant/developer shall implement and maintain storm water pollution prevention measures as required on the approved plans. Violations of the City's Storm Water Management Ordinance (SMMC Chapter 14.15) will result in Stop Work Orders, Notices of Violations and/or citations with fines. Work on the project may be delayed until the City determines that compliance with storm water requirements has been achieved.

Planning Division

9. At least one copy of the approved plans, approval letters and conditions of approval shall be available for review at the job site at all times.

10. In the event that paleontological resources are discovered during grading, excavation, or other ground-disturbing activities, all work in the immediate vicinity of the discovery shall cease. The project applicant shall retain a qualified paleontologist, meeting the Society of Vertebrate Paleontology (SVP) professional

standards, to evaluate the findings in accordance with the County of San Diego Guidelines for Determining Significance – Paleontological Resources and applicable State of California guidelines.

The qualified paleontologist shall determine the significance of the discovery and recommend appropriate treatment, which may include avoidance, monitoring, or recovery. Construction activities in the affected area may resume only after the paleontologist determines that the resource has been appropriately addressed and authorizes continuation of work.

11. Landscaping of slopes, in accordance with the approved landscape plans, shall commence at time of completion of grading activities.

12. The project shall comply with Regional Air Quality Standards.

Building Division

13. The applicant/developer shall obtain the required OSHA permits for blasting, construction, demolition, excavation, grading operations, rock drilling and the construction of buildings over 3 stories in height in accordance with the California Code of Regulations, Title 8, Section 1503.

14. Water wells shall be reconstructed or abated in strict compliance with SMMC Sections 8.44.130 through 8.44.170 and the latest adopted State Water Code and Health and Safety Code Section 24400. Water well permits are issued by County of San Diego Environment Health Department.

15. Dust and dust producing materials shall be controlled within the maximum acceptable concentrations for silica and silicates in accordance with the California Code of Regulations, Title 8, Section 5155. Water and dust palliative shall be used to prevent excessive dust during blasting, construction and grading operations. The project is required to comply with the Air Pollution Control District's standards for mitigating fugitive dust during all phases of construction.

16. The demolition of buildings shall not commence until the proper testing of asbestos, lead paint and hazardous materials has been performed and the abatement of the hazardous materials has been completed. The recycling of materials shall comply with state law and all utilities shall be disconnected and safely abandoned.

17. All construction operations authorized by building permits, including the delivery, setup and use of equipment must be conducted on premises during the hours of 7:00 AM and 6:00 PM on Monday through Friday, and on Saturday between 8:00 AM and 5:00 PM. No work shall be conducted on Sundays or Holidays observed by the City. Failure to comply will result in the issuance of STOP WORK NOTICES, REVOCATION OF PERMITS and the issuance of citations and fines as appropriate. Citation for hours of work violations requires a mandatory court appearance in North County Superior Court.

18. During construction the applicant/developer shall implement and maintain the storm water pollution prevention measures as required on the approved plans. Violations of the City's Storm Water Management Ordinance will result in Stop Work Orders, Notices of Violation and citations with fines. Work on the project may be delayed until the City determines that the project is in compliance with the storm water requirements.

Fire Department

19. Prior to the delivery of combustible building construction materials to the project site, the following conditions shall be completed to satisfaction of the Fire Department: 1) fire hydrants(s) shall be installed, approved, and usable, and 2) fire lane or access roads shall be in place and provide a permanent all weather surface for emergency vehicles that support weight of fire apparatus (75,000 lbs.).

20. A legible site address shall be posted and visible from either direction of approach to the project.

21. A written site safety plan shall be created and implemented in accordance with California Fire Code Chapter 33. Plan shall establish a fire prevention program at the project site, applicable throughout all phases of construction.

H. Prior to the occupancy of any structure, the applicant/developer shall comply with the following conditions:

Land Development Division

1. All applicable easements and agreements shall be recorded prior to occupancy.

2. Prior to the issuance of any certificates of use and occupancy, the applicant/developer shall provide evidence to the Building Official, that the Department of Real Estate has been notified that the project area is within the boundaries of a Community Facilities District (CFD), and will be subject to special taxes for public facilities and/or services.

3. Redline As-Built drawings shall be submitted to the Engineering Division for review and approval. Record drawing mylar plans shall be submitted and approved prior to the release of any project securities.

4. Any existing broken pavement, concrete curb, gutter or sidewalk or any other facilities damaged during construction of the project, shall be repaired or replaced as directed by the Engineering Inspector.

5. Water and sewer improvements in accordance with the project water/sewer study shall be constructed for the project as determined necessary by the applicable water/sewer district(s).

6. Prior to the issuance of any certificates of use and occupancy, the applicant/developer shall not grant any easements over any property subject to a

requirement of dedication or irrevocable offer to the City, unless such easements are expressly made subordinate to the easements to be offered for dedication to the City. Prior to granting any of said easements, the applicant/developer shall furnish a copy of the proposed easement to the Land Development Engineer for review and approval. Further, a copy of the approved easement shall be furnished to the Land Development Engineer prior to issuance of any certificate of use and occupancy.

Planning Division

7. All landscaping shall be installed, inspected, and approved by the Planning Division. Landscaping shall be established and flourishing in a healthy manner.

8. Common landscape areas shall not be transferred over to the responsibility of the HOA until inspected and approved by the City.

9. All CFD landscaping shall be installed, inspected, and approved by the Public Works Department. Landscaping shall be established and flourishing in a healthy manner.

10. The applicant/developer shall submit a Certificate of Completion by the landscape architect and engineer-of-work to the Planning Division certifying that the plant materials and irrigation system have been installed in accordance with the approved landscape plans and the Water Quality Technical Report, respectively.

11. The applicant/developer shall have completed the installation of the playground equipment and outdoor furniture in accordance with the manufacturer's standards. The applicant/developer shall submit for each phase a letter by the installation contractor indicating that the playground equipment has been installed per the manufacturer's specifications.

12. The applicant/developer shall disclose to future owners/tenants of the project that the property is located within the Airport Influence Area of McClellen-Palomar Airport, and may be subject to some of the annoyances or inconveniences, if any, associated with proximity to airport operations (i.e.: noise, vibration, or odors). Disclosure shall be recorded with the County Recorder's Office prior to building occupancy.

Building Division

13. The applicant/developer shall obtain approval from all City departments and other agencies before requesting a Certificate of Occupancy from the Building Official. For phased developments, the conditions of approval shall be satisfied prior to requesting the first occupancy in the phase.

14. The proposed development shall satisfy the conditions of approval prior to the first occupancy. The owner/developer/contractor shall obtain approval from all City departments and other agencies before requesting a Certificate of Occupancy ("C of O") from the Development Services Department. For phased developments, the

conditions of approval shall be satisfied prior to requesting the first occupancy in the phase.

15. The project development is subject to the payment of fees required by the South Santa Fe / Mission / Rancho Santa Fe Road Fee Reimbursement District (Resolution 2009-7177).

Fire Department

16. Building addresses shall be clearly labeled for day and night-time emergency responses. In addition, adequate lighting shall be provided to deter potential criminal activities (i.e.: vehicle burglaries, prowlers, loitering, etc.).

17. Rooms containing controls for sprinkler risers and valves, or other fire detection, suppression or control elements shall be identified for fire department use. Signs shall be constructed of durable materials, permanently installed and readily visible. Reference San Marcos Fire Dept. Standard No. 1403 via website for additional specifications.

18. The applicant/developer shall comply with the Fire Department for hydrants and on-site access for emergency vehicles.

19. The project shall include “NO PARKING FIRE LANE” signs. The number of, placement and wording for all fire lane signs and/or red curbs shall be as required by California Vehicle Code Sections 22500.l and 22658(a) and San Marcos Fire Department Standards.

20. Knox Key Boxes shall be provided. A master key for entry to all gates, enclosures and equipment rooms or areas is required. Knox box shall be mounted in area approved by fire dept. at height of 60 to 66 inches above grade. Knox Box shall be type with side hinged door. Knox boxes shall be installed for every building.

21. For multi-family buildings - fire extinguishers size, type and rating shall comply with California Fire Code, Section 906, extinguishers shall be rated at 2A:10B: C minimum.

22. New and existing gates or other devices that may obstruct fire access roadways shall be provided with Knox Key switch with cover and all drive gates shall be equipped with approved emergency traffic strobe sensor(s), which opens the gate on approach of emergency vehicles. Gates shall have battery back-up or manual means of disconnect in case of power failure.

ATTACHMENT A - C

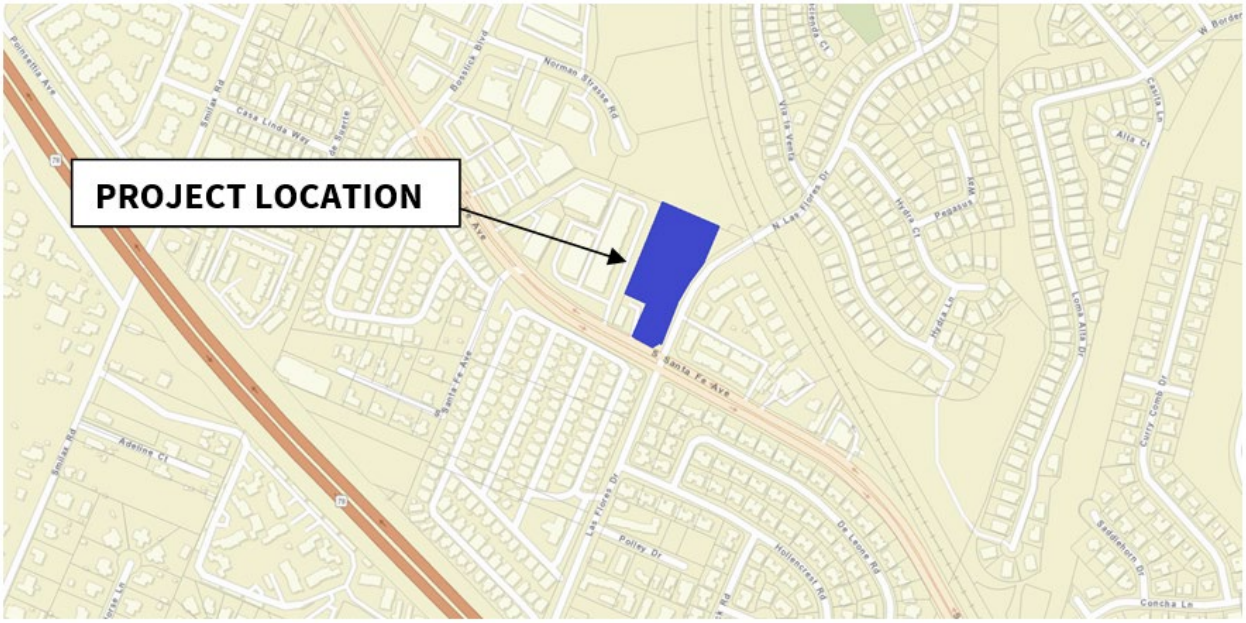
VICINITY MAP

REQUESTED ENTITLEMENTS

SITE AND PROJECT CHARACTERISTICS

City of San Marcos
1 Civic Center Drive
San Marcos, CA 92069

VICINITY MAP



Project No.: Addendum to ND22-008, GPA25-0001, R25-0001, MFSDP25-0001, & TSM25-0001

Location: Northeast corner of S. Santa Fe Avenue and N. Las Flores Drive

APNs: A 0.37-acre portion of 217-161-17-00, and the entirety of 217-161-18-00 and 217-161-19-00

City of San Marcos
1 Civic Center Drive
San Marcos, CA 92069

REQUESTED ENTITLEMENTS

1. Addendum to the Mitigated Negative Declaration (ND22-008).

2. General Plan Amendment (GPA25-0001)
   A General Plan Amendment for a land use change of 2.23-net acres from "Medium Density Residential 2" and 0.37-net acres from "Commercial" to "Medium High Density Residential".

3. Rezone (R25-0001)
   A rezone of 2.23-net acres from Multifamily Residential 3 (R-3-10) and 0.37-net acres from Commercial (C) to Multifamily Residential (R-3-6).

4. Multi-Family Site Development Plan (MFSDP25-0001)
   A Multi-Family Site Development Plan to allow the construction of the proposed 46-unit residential condominium development.

5. Tentative Subdivision Map (TSM25-0001)
   A Tentative Subdivision Map for creation of a condominium map for 46 residential condominium units.

City of San Marcos
1 Civic Center Drive
San Marcos, CA 92069

SITE AND PROJECT CHARACTERISTICS

Property	Existing Land use	Zoning	General Plan Designation
Subject	Vacant	R-3-10 & C	Medium Density Residential 2 & Commercial
North	Industrial Building	L-I	Light Industrial
South	Mobile Home Park	R-MHP	Low Density Residential
East	Multi-Family Residential	R-3-10	Medium Density Residential 2
West	Industrial and Commercial Buildings	L-I & C	Light Industrial & Commercial

ITEM	YES	NO
Flood Hazard Zone		X
Sewers	X	
Septic		X
Water	X	
Gen. Plan Conformance	X*	
Land Use Compatibility	X*	

*W/ Approval of a General Plan Amendment (GPA) and Rezone (R)

ATTACHMENT D

ADDENDUM NO. 1 TO MITIGATED NEGATIVE DECLARATION (ND22-008)

Addendum No. 1 to the Final Initial Study/Environmental Checklist and Mitigated Negative Declaration for the Santa Fe Flores, LP Project (Mitigated Negative Declaration ND22-008; SCH No. 2022090486) San Marcos, California

Project No. GPA25-0001; R25-0001; MFSDP25-0001; TSM25-0001

Prepared for
City of San Marcos
Development Services Department
Planning Division
1 Civic Center Drive
San Marcos, CA 92069

Prepared by
RECON Environmental, Inc.
3111 Camino del Rio North, Suite 600
San Diego, CA 92108
P 619.308.9333

RECON Number 10587
March 24, 2026

TABLE OF CONTENTS

1.0 Introduction 1
1.1 Project Background 1
1.2 Statutory Background 1
1.2 Approved Project 2
1.3 Purpose of Addendum 2
1.4 Basis for Addendum 5
1.5 Evaluation of Environmental Impacts 6
2.0 Modified Project 7
3.0 Environmental Determination/Findings 16
3.1 Impact Summary 16
4.0 Environmental Checklist 19
4.1 Aesthetics 19
4.2 Agriculture and Forestry Resources 22
4.3 Air Quality 25
4.4 Biological Resources 33
4.5 Cultural Resources 37
4.6 Energy 43
4.7 Geology and Soils 45
4.8 Greenhouse Gas Emissions 51
4.9 Hazards and Hazardous Materials 52
4.10 Hydrology and Water Quality 57
4.11 Land Use and Planning 64
4.12 Mineral Resources 66
4.13 Noise 67
4.14 Population and Housing 78
4.15 Public Services 80
4.16 Recreation 83
4.17 Transportation 84
4.18 Tribal Cultural Resources 88
4.19 Utilities and Service Systems 90
4.20 Wildfire 96
4.21 Mandatory Findings of Significance 98

TABLE OF CONTENTS (cont.)

5.0 Mitigation Monitoring and Reporting Program (Relevant Measures Carried Over from the Approved Project) 100

6.0 References Cited 109

FIGURES

1: Regional Location 3
2: Approved and Modified Project Locations on Aerial Photograph 4
3: Modified Project Site Plan 11
4: Existing General Plan Land Use 12
5: Proposed General Plan Land Use 13
6: Existing Zoning 14
7: Proposed Zoning 15
8: Construction Noise Contours 70
9: Future Vehicle and Rail Noise Contours 72
10: HVAC Noise Contours 76

TABLES

1: Adopted Project and Modified Project Comparison 8
2: Impact Assessment Summary 17
3: Commercial and Industrial Land Use Operational Emissions (pounds per day) 27
4: Summary of Maximum Construction Emissions (pounds per day) 28
5: Summary of Project Operational Emissions (pounds per day) 28
6: CARB Land Use Siting Constraints 32
7: Existing 100-year Storm Event Peak Discharge Rates 60
8: Modified Project 100-year Storm Event Peak Discharge Rates 60
9: Construction Noise Levels 71
10: Future Vehicle and Rail Traffic Noise Levels 73
11: Traffic Noise Level with and without Project and Ambient Noise Increases (CNEL) 74
12: Municipal Code Property Line Noise Standards 75
13: HVAC Noise Levels at Adjacent Properties 75
14: Tribal Consultation 90

TABLE OF CONTENTS (cont.)

ATTACHMENTS (Under Separate Cover)

1: Final Initial Study/Environmental Checklist and Mitigated Negative Declaration for the Santa Fe Flores, LP Project (SCH No. 2022090486)
2: Air Quality Analysis
3: Local Transportation Analysis
4: Biological Resources Letter Report
5: Cultural Resources Survey
6: Geotechnical Report
7: Climate Action Plan Consistency Checklist
8: Preliminary Hydrology Study
9: Stormwater Quality Management Plan
10: Noise Analysis
11: Vehicle Miles Traveled Assessment
12: Buena Sanitation District Letter, July 17, 2025
13: Buena Sanitation District Letter, September 3, 2025

1.0 Introduction

This document is Addendum No. 1 to the Santa Fe Flores, LP Project Final Initial Study/Environmental Checklist and Mitigated Negative Declaration (State Clearinghouse No. 2022090486; Attachment 1; City of San Marcos 2022), referred to hereafter as the "MND." This Addendum has been prepared pursuant to the California Environmental Quality Act (CEQA), Public Resources Code Section 15164.

1.1 Project Background

On February 28, 2023, the City of San Marcos City Council adopted a MND (ND22-008; State Clearinghouse No. 2022090486; see Attachment 1; City of San Marcos 2022), approved a General Plan Amendment (GPA) (GPA21-0008), and approved a Multi-Family Site Development Plan (MFSDP21-0002) for the Santa Fe Flores, LP Project (approved project). The requested Rezone (R21-0004) required a second reading prior to approval on March 14, 2023. Subsequent to MND approval, the applicant modified the site plan and added the northern portion (0.37 acres) of assessor parcel number (APN) 217-161-17 through a lot line adjustment to be processed (modified project). The modified project is discussed in more detail under Section 2.0 below. Figure 1 identifies the regional location and Figure 2 identifies the approved and modified project locations on an aerial photograph.

1.2 Statutory Background

The City of San Marcos (City) is the CEQA lead agency responsible for the project. Under CEQA, an addendum to a certified Environmental Impact Report (EIR) or a MND may be prepared if minor technical changes or additions to the proposed project are required or if none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR [or MND] have occurred (CEQA Guidelines Section 15164[b]). An addendum is appropriate if the project changes or modifications do not result in any new significant impacts or a substantial increase in the severity of previously identified significant impacts. The addendum need not be circulated for public review (CEQA Guidelines Section 15164[c]); however, an addendum is to be considered along with the approved MND by the decision-making body prior to making a decision on the project (CEQA Guidelines Section 15164[d]).

This Addendum demonstrates that the environmental analysis, impacts, and mitigation requirements identified in the MND for the approved project adopted on February 28, 2023, remain substantively unchanged by the modified project description detailed herein and supports the finding that the modified project does not raise any new issues and does not exceed the level of impacts identified in the adopted MND. The City has also evaluated the previous environmental document to determine if it retains any relevance in light of the proposed changes, and if any major revisions to the document are required due to the involvement of new, previously unstudied significant environmental effects. The subsequent review provisions of CEQA are designed to ensure that an agency proposing changes to a previously evaluated and approved project explores environmental impacts not considered in the original environmental document. This assumes that some of the environmental impacts of the modified project are considered in the original environmental document, such that the original document retains relevance to the decision-making process. If it is wholly irrelevant, then

it is only logical that the agency starts over from the beginning. The City has determined that project changes will not require major revisions to the initial environmental document. Accordingly, recirculation of the MND for public review is not necessary pursuant to Section 15164 of the CEQA Guidelines. Therefore, a decision was made by the City to not prepare a subsequent Negative Declaration pursuant to Section 15162 of the CEQA guidelines. To support this decision, the following discussion describes the modified project and the associated environmental analysis.

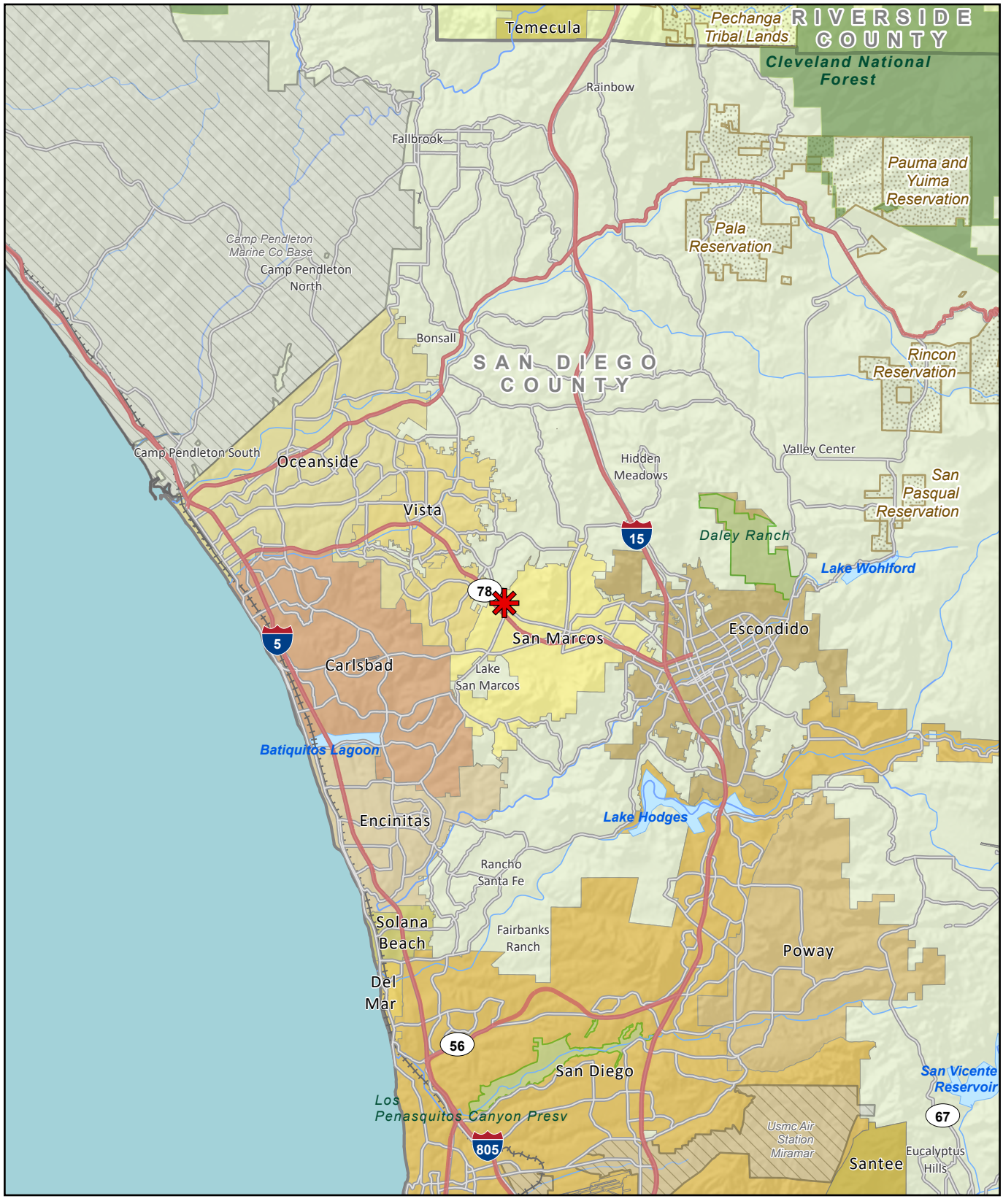
1.2 Approved Project

The approved project is located is in the city of San Marcos, California, at 2972 and 2982 South Santa Fe Avenue on APNs 217-161-18 and 217-161-19. The approved project evaluated the impacts associated with a GPA to change the land use from Commercial (C) and Light Industrial (L-I) to Medium Density Residential 2 (MDR2) and a zone change from Commercial (C) and Light Industrial (L-I) to Multi-Family Residential (R-3-10) to allow for the construction of 50 multi-family dwelling units, in conjunction with a Density Bonus, on a 2.53-acre site (2.23-acre net) consisting of two parcels.

The approved project would develop a 58,693-square-foot building with three stories and a maximum height of 62 feet on a previously graded project site. Out of the 50 dwelling units, 5 would be dedicated affordable units. The units would include a mix of studios, 1 bed/1 bath, and 2 bed/2 bath. The project would include 250 square feet of private open space for each ground floor unit and 55 to 63 square feet of private open space for upper floor units. In addition, 125 cubic feet of storage located in each of the 45 carports and locker storage was proposed as part of the approved project. In conjunction with the Density Bonus, and due to the site topography, the approved project requested a concession to allow for the proposed building height of 62 feet, 9 inches from the finished floor to exceed the three-story, 45-foot height limit of the R-3-10 Zone.

1.3 Purpose of Addendum

Addendum No. 1 addresses changes to the approved project associated with the modified project as discussed in greater detail in Section 2. The Final MND and Addendum No. 1, along with the other documents incorporated by reference herein, serve as environmental review of the modified project, as required pursuant to the provisions of CEQA, the CEQA Guidelines, and California Code of Regulations, Title 14, Section 15164 et seq. The environmental analysis in this Addendum, and all feasible mitigation measures identified in the Final MND, as applicable, shall be incorporated into the resolutions approving the modified project.



Project Location

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 10/29/2024 fmm

FIGURE 1
Regional Location

Image Source: Nearmap (flown May 2025)

Off-site Improvements
Approved Project
Modified Project

0 Feet 100

FIGURE 2
Approved and Modified Project Locations on Aerial Photograph

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 07/30/2025 bma

1.4 Basis for Addendum

Section 15164(b) of the CEQA Guidelines states, "An addendum to an adopted negative declaration may be prepared if only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR or negative declaration have occurred." Pursuant to Section 15162 of the CEQA Guidelines, no subsequent EIR or negative declaration may be required for the project unless the lead agency determines, on the basis of substantial evidence, that one or more of the following conditions are met:

1. When an EIR has been certified or a negative declaration adopted for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:

    a. Substantial changes are proposed in the project which would require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

    b. Substantial changes occur with respect to the circumstances under which the project is undertaken which would require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

    c. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:

        i. The project would have one or more significant effects not discussed in the previous EIR or negative declaration;

        ii. Significant effects previously examined would be substantially more severe than shown in the previous EIR;

        iii. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

        iv. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

2. If changes to a project or its circumstances occur or new information becomes available after adoption of a negative declaration, the lead agency shall prepare a subsequent EIR if required under subdivision a). Otherwise, the lead agency shall determine whether to prepare a subsequent negative declaration, an addendum, or no further documentation.

3. Once a project has been approved, the lead agency's role in project approval is completed, unless further discretionary approval on that project is required. Information appearing after an approval does not require reopening of that approval. If after the project is approved, any of the conditions described in subdivision a) occurs, a subsequent EIR or negative declaration shall only be prepared by the public agency which grants the next discretionary approval for the project, if any. In this situation no other responsible agency shall grant an approval for the project until the subsequent EIR has been certified or subsequent negative declaration adopted.

The lead agency has assessed the proposed modifications in light of the requirements defined under Section 15162 of the CEQA Guidelines. As discussed in this Addendum, none of the conditions requiring preparation of a subsequent negative declaration under Section 15162 of the CEQA Guidelines are satisfied.

1.5 Evaluation of Environmental Impacts

The responses to each of the Environmental Checklist questions addressed in this Addendum use CEQA terminology as specified below.

No New Impact/No Impact. The modified project would result in no impact or no new impact compared to the original approved project.

New Mitigation Required. The modified project would result in a new or substantially greater impact compared to the original approved project and new mitigation would be required to reduce the impact to a less than significant level, resulting in a subsequent EIR or MND.

New Potentially Significant Impact. The modified project would result in a new impact or substantially greater impact compared to the original approved project resulting in a significant and unavoidable impact. A subsequent EIR would be required.

2.0 Modified Project

1. Project Name:

Santa Fe Flores Townhomes (modified project; GPA25-0001; R25-0001; MFSDP25-0001; TSM25-0001)

2. Lead Agency:

City of San Marcos
Development Services Department, Planning Division
1 Civic Center Drive
San Marcos, CA 92069-2918

3. Contact Person and Phone Number:

Sarah Cluff, Senior Planner
City of San Marcos, Planning Division
760-744-1050 ext. 3227
scluff@san-marcos.net

4. Project Location:

The modified project site is located in the city of San Marcos, California, at the northern portion of 2966, 2972, and 2982 South Santa Fe Avenue on APNs 217-161-18, 217-161-19, and the northern portion of APN 217-161-17.

5. Project Applicant/Sponsor:

Santa Fe Flores, LP
Contact: Paul Mayer

6. General Plan Designation:

Existing Land Use Designation

- Medium Density Residential 2 (MDR2): APNs 217-161-18 and 217-161-19
- Commercial (C): APN 217-161-17 (0.37-acre portion on the northern half of the parcel)

Proposed Land Use Designation

- Medium High Density Residential (MHDR): APNs 217-161-18, 217-161-19, and 217-161-17 (0.37-acre portion on the northern half of the parcel)

7. Zoning:

Existing Zoning

- Multi-family Residential 3 (R-3-10): APNs 217-161-19 and 217-161-18
- Commercial (C): APN 217-161-17 (0.37-acre portion on the northern half of the parcel)

Proposed Zoning

- Multi-family Residential (R-3-6): APNs 217-161-18, 217-161-19, and 217-161-17 (0.37-acre portion on the northern half of the parcel)

8. Surrounding Land Use(s) and Project Setting:

The modified project site is bounded to the east by North Las Flores Drive and an existing multi-family residential development located east of North Las Flores Drive, by South Santa Fe Avenue to the south, existing industrial to the north and west, and an existing liquor store and parking lot to the southwest. The Sprinter railroad tracks and single-family residential homes off North Las Flores Drive are north and northeast of the project site, and the Vista Meadows mobile home community is south of South Santa Fe Avenue across from the project site.

9. Modified Project Description:

The modified project would develop 46 multi-family residential townhome units on a 2.6 net acre project site, in seven buildings for a total of 99,472 (gross) building square footage. The modified project would add 0.37 acres of the northern portion of APN 217-161-17 through a lot line adjustment to be processed. The southern portion of APN 217-161-17 is currently developed with a liquor store, Gourmet Liquor, which is not part of the project and would remain, and the northern portion consists of disturbed, previously graded land similar to APNs 217-161-18 and 217-161-19. Unlike the approved project, the modified project would not include a density bonus or affordable units. The modified project also proposes approximately 0.12 acres of off-site improvements, including the construction of a new shared driveway extending into the southern portion of APN 217-161-17, upgrades to the existing liquor store parking lot, and landscaping within the 8-foot-wide irrevocable offer of dedication area along the project frontage. The modified project site plan is shown in Figure 3. Table 1 compares key components of the adopted project and the modified project. It should be noted that the gross acreage of the project site is 2.87 acres; however, 0.27 acres of right-of-way, currently developed as Las Flores Drive, were dedicated to the City in 2005.

Table 1
Adopted Project and Modified Project Comparison

Project Component	Adopted Project	Modified Project
Total Project Site Acreage	2.23 net acres (2.53 gross acres)	2.6 net acres (2.72 gross acres)
Parcels	217-161-18 and 217-161-19	217-161-18, 217-161-19, and 217-161-17[1]
Dwelling Units	50 apartments	46 townhomes
Total Project Gross Building Square Footage	58,693 square feet	99,472 square feet
Earthwork Quantities	17,250 cubic yards of export	20,100 cubic yards of export
Maximum Proposed Building Height[2]	62 feet, 9 inches (three-story)	35 feet, 4 inches (three-story)

[1]The modified project includes 0.37-acre of the northern portion of APN 217-161-17 (see Figure 3).
[2]Maximum proposed building height is measured from finished floor.

The discretionary approvals required for the modified project include:

1. General Plan Amendment: The modified project would require a GPA from Medium Density Residential 2 (MDR2) to Medium High Density Residential (MHDR) for APNs 217-161-18, and 217-161-19, and a GPA from Commercial (C) to Medium High Density Residential (MHDR) for the northern portion of APN 217-161-17. The existing General Plan land uses are identified in Figure 4 and the proposed land uses are identified in Figure 5.

2. Rezone: The modified project would rezone APNs 217-161-18, and 217-161-19 from Multi-family Residential 3 (R-3-10) to Multi-family Residential (R-3-6) and rezone the northern portion of APN 217-161-17 from Commercial (C) to Multi-Family Residential (R-3-6). The existing zoning is identified in Figure 6 and the proposed zoning is identified in Figure 7.

3. Site Development Plan: The modified project would require a site development plan to develop 46 townhomes.

Parking and Site Access

Access to the modified project site would be located along South Santa Fe Avenue, and internal driveways would be constructed to allow for vehicular access throughout. Access to the project site would be restricted to right-in/right-out movements via South Santa Fe Avenue.

On-site parking would include two spaces per unit in attached garages resulting in a total of 92 parking spaces which would be consistent with the requirements set forth in the San Marcos Code Section 20.340.040. Consistent with California Green Building Standards Code 4.106.4.1, all attached garage spaces would have a dedicated raceway for the future installation of electronic vehicle chargers. In addition, the modified project would include one space per every three units for guest parking resulting in 15 guest parking spaces which would be consistent with the requirements set forth in the San Marcos Code Section 20.340.040. Of the 15 guest parking spaces, one space would be accessible consistent with California Building Code 1109A.5. Furthermore, the modified project would provide 10 bicycle racks consistent with San Marcos Code Section 20.340.080.

Grading

The topography of the project site is currently two levels; the southern portion of the site is relatively flat, while the central portion slopes up to an elevated pad at the north end of the site. Elevation of the project area ranges between approximately 495 feet above mean sea level in the south and 550 feet above mean sea level to the north. The project would require 23,300 cubic yards of cut and 3,200 cubic yards of fill for a net export of 20,100 cubic yards.

Landscaping

The modified project would plant 111 trees and landscape 36,499 square feet or 32 percent of the total 113,179-square-foot project site.

Drainage, Sewer, and Water

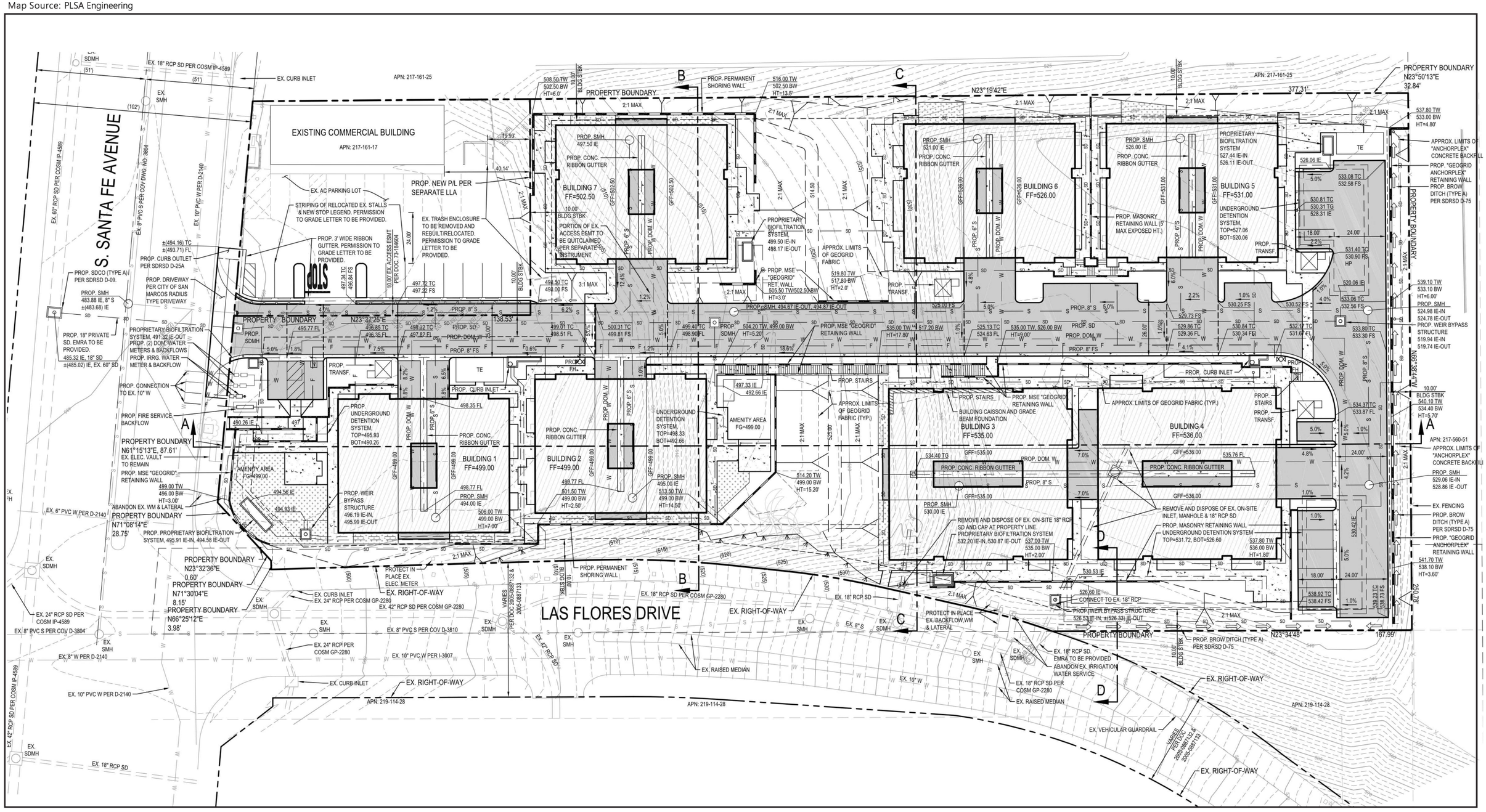
The modified project would connect to existing public water and sewer lines, as well as the existing storm drain within South Santa Fe Avenue. All private water facilities on-site would be designed and

constructed in accordance with the requirements of the California Uniform Plumbing Code and would connect to existing public water lines within South Santa Fe Avenue. All public water facilities, including services and meters, would be designed and constructed in accordance with current City Water Facility Design Guidelines and regulations.

Once developed, storm water runoff would be collected on-site in a proposed storm drain system and conveyed to the proposed proprietary biofiltration system and subsequently, the proposed underground storage facilities. Two storm drain systems, each with their own best management practices (BMPs), are proposed on-site to maintain the site's historical points of discharge to the public storm drain system within South Santa Fe Avenue and North Las Flores Drive. When developed, the project site would include six drainage basins. Runoff from the site would be directed to a new 18-inch reinforced concrete pipe storm drain pipe which would connect to the existing public 60-inch reinforced concrete pipe storm drain pipe in South Santa Fe Avenue.

The modified project would be required to receive an approved Out of Area Service Agreement from the San Diego Local Agency Formation Commission (LAFCO) for the Buena Sanitation District (BSD) to provide sewer services. Additionally, the modified project applicant would be required to provide a proportional cost-share contribution towards sewer capacity improvements.

Map Source: PLSA Engineering



RECON

M:\JOBS6\10587\env\graphics\Fig3.afdesign 07/23/25 bma

FIGURE 3
Modified Project Site Plan

Image Source: Nearmap (flown May 2025)

Project Boundary
Off-site Improvements

Existing General Plan Land Use
Commercial (C)
Medium Density Residential 2 (MDR2)

0 Feet 100

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 07/23/2025 bma

FIGURE 4
Existing General Plan Land Use

Image Source: Nearmap (flown May 2025)

Project Boundary

Off-site Improvements

Proposed General Plan Land Use

Medium High Density Residential (MHDR)

0 Feet 100

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 07/23/2025 bma

FIGURE 5
Proposed General Plan Land Use

Image Source: Nearmap (flown May 2025)

Project Boundary
Off-site Improvements

Existing Zoning
Commercial (C)
Multi-family Residential 3 (R-3-10)

0 Feet 100

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 07/23/2025 bma

FIGURE 6
Existing Zoning

Image Source: Nearmap (flown May 2025)

0 Feet 100

Project Boundary

Off-site Improvements

Proposed Zoning

Multi-Family Residential (R-3-6)

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 07/23/2025 bma

FIGURE 7
Proposed Zoning

3.0 Environmental Determination/Findings

The City previously adopted the Final MND and Mitigation Monitoring and Reporting Program for the approved project on February 28, 2023. Based on all available information, in light of the entire record, the analysis in this Addendum, and pursuant to Section 15162 of the State CEQA Guidelines, the City has determined:

- There are no substantial changes proposed in the project which would require major revisions of the previous environmental document due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

- Substantial changes have not occurred with respect to the circumstances under which the project is undertaken which would require major revisions of the previous environmental document due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

- There is no new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous environmental document was adopted, that shows any of the following:

    - The project would have one or more significant effects not discussed in the previous environmental document;
    - Significant effects previously examined will be substantially more severe than shown in the previous environmental document;
    - Mitigation measures previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
    - Mitigation measures or alternatives which are considerably different from those analyzed in the previous environmental document would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Based on a review of the modified project, none of the situations described in Section 15162 of the State CEQA Guidelines apply. No changed circumstances have occurred and no new information of substantial importance has become known, which would result in new significant or substantially increased adverse impacts as a result of the modified project. Therefore, this Addendum has been prepared in accordance with Section 15164 of the State CEQA Guidelines. Public review of this Addendum is not required under CEQA.

3.1 Impact Summary

The potential impacts of the modified project on the environmental factors in the checklist below were evaluated in this Addendum. None were found to involve new significant environmental effects

or a substantial increase in the severity of environmental effects either due to a change in the project, change in circumstances, or new information of substantial importance. As indicated in Table 2 and discussed in Section 4 of this Addendum, the modified project would not result in new or more severe environmental effects, and no new mitigation would be required.

Table 2
Impact Assessment Summary

Environmental Issue	Approved Project	Modified Project	New Mitigation?	Project Resultant Impact
Aesthetics	Less Than Significant Impact	No new impacts	No	Less Than Significant Impact
Agriculture and Forestry Resources	No Impact	No new impacts	No	No Impact
Air Quality	Less Than Significant Impact	No new impacts	No	Less Than Significant Impact
Biological Resources	Potentially Significant Unless Mitigation Incorporated	No new impacts	No	Potentially Significant Unless Mitigation Incorporated
Cultural Resources	Potentially Significant Unless Mitigation Incorporated	No new impacts	No	Potentially Significant Unless Mitigation Incorporated
Energy	Less Than Significant Impact	No new impacts	No	Less Than Significant Impact
Geology and Soils	Less Than Significant Impact	No new impacts	No	Less Than Significant Impact
Greenhouse Gas Emissions	Less Than Significant Impact	No new impacts	No	Less Than Significant Impact
Hazards and Hazardous Materials	Less Than Significant Impact	No new impacts	No	Less Than Significant Impact
Hydrology and Water Quality	Less Than Significant Impact	No new impacts	No	Less Than Significant Impact
Land Use and Planning	Less Than Significant	No new impacts	No	Less Than Significant Impact
Mineral Resources	No Impact	No new impacts	No	No Impact
Noise	Less Than Significant Impact	No new impacts	No	Less Than Significant Impact
Population and Housing	Less Than Significant Impact	No new impacts	No	Less Than Significant Impact
Public Services	Potentially Significant Unless Mitigation Incorporated	No new impacts	No	Potentially Significant Unless Mitigation Incorporated
Recreation	Less Than Significant Impact	No new impacts	No	Less Than Significant Impact
Transportation	Less Than Significant Impact	No new impacts	No	Less Than Significant Impact
Tribal Cultural Resources	Potentially Significant Unless Mitigation Incorporated	No new impacts	No	Potentially Significant Unless Mitigation Incorporated
Utilities and Service Systems	Less Than Significant Impact	No new impacts	No	Less Than Significant Impact
Wildfire	Less Than Significant Impact	No new impacts	No	Less Than Significant Impact

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that no substantial changes are proposed in the project, there are no substantial changes in the circumstances under which the project will be undertaken, and there is no new information of substantial importance that was unknown when the project was approved. Major revisions to the previous approved ND or MND or certified EIR are not required due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. Therefore, the previously adopted ND or MND or previously certified EIR adequately addresses the potential impacts of the project without modification.

☒ I find that no substantial changes are proposed in the project, there are no substantial changes in the circumstances under which the project will be undertaken, and there is no new information of substantial importance that was unknown when the project was approved. Major revisions to the previous approved ND or MND or certified EIR are not required due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. The previously adopted ND or MND or previously certified EIR adequately addresses the potential impacts of the project. However, minor changes require the preparation of an ADDENDUM.

☐ I find that substantial changes are proposed in the project, there are substantial changes in the circumstances under which the project will be undertaken, or there is new information of substantial importance that was unknown when the project was approved. Major revisions to the previous approved ND or MND or certified EIR are required due to the involvement of significant new environmental effects or a substantial increase in the severity of previously identified significant effects. However, all new potentially significant environmental effects or substantial increases in the severity of previously identified significant effects are reduced to below a level of significance through the incorporation of mitigation measures agreed to by the project applicant. Therefore, a SUBSEQUENT MND is required.

☐ I find that substantial changes are proposed in the project, there are substantial changes in the circumstances under which the project will be undertaken, or there is new information of substantial importance that was unknown when the project was approved. Major revisions to the previous approved environmental document are required due to the involvement of significant new environmental effects or a substantial increase in the severity of previously identified significant effects. However, only minor changes or additions or changes would be necessary to make the previously certified EIR adequate. Therefore, a SUPPLEMENTAL EIR is required.

☐ I find that substantial changes are proposed in the project, there are substantial changes in the circumstances under which the project will be undertaken, or there is new information of substantial importance that was unknown when the project was approved. Major revisions to the previously approved environmental document are required due to the involvement of significant new environmental effects or a substantial increase in the severity of previously identified significant effects. Therefore, a SUBSEQUENT EIR is required.

Signature	Date
Printed Name	Title

4.0 Environmental Checklist

The following analysis generally follows the CEQA Guidelines Appendix G Environmental Checklist to evaluate the adequacy of the environmental impact findings and mitigation determined in the approved project/MND relative to impacts and mitigation of the modified project.

4.1 Aesthetics

Would the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☒
b. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☒

EXPLANATIONS:

a. Scenic Vista

Approved Project

The MND determined that the approved project is not located within the City's Ridgeline Protection and Management Overlay Zone and does not include any primary or secondary ridgelines. The approved project site is not a viewing platform location, or a scenic vista under the City's General Plan. Therefore, the approved project would not have a substantial adverse effect on a scenic vista, and impacts would be less than significant.

Modified Project

The modified project site is not located within the City's Ridgeline Protection and Management Overlay Zone and does not include any primary or secondary ridgelines. The modified project site is

not a viewing platform location, or a scenic vista under the City's General Plan. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

b. Scenic Resources

Approved Project

The MND determined that the approved project would not result in significant damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within the City or a State Scenic Highway. Scenic resources within the City include, but are not limited to, undeveloped hillsides; prominent landforms such as the San Marcos Mountains, Merriam Mountains, Mount Whitney, Cerro de La Posas, Double Peak, Owens Peak, and Franks Peak. Views from Twin Oaks Valley Road include the San Marcos Mountains and Merriam Mountains on the north; and Double Peak and Mount Whitney on the south. State Route 78 (SR-78) is designated by the City as a view corridor and eligible as a state scenic highway. This highway corridor provides views of the Merriam Mountains, Mount Whitney, Double Peak, California State University San Marcos, and Palomar Community College. Other scenic resources within the City include, but are not limited to, creek corridors, eucalyptus stands, rock outcroppings, landmark or historic buildings, and ocean views. The approved project site is located approximately 0.25 miles north of SR-78; however, none of these identified undeveloped hillsides, prominent landforms, or other scenic resources were found to be visible from or contained within the approved project site. The highway corridor provides views of the Merriam Mountains, Mount Whitney, and Double Peak. The approved project would not impact views to these peaks from SR-78, as these peaks would not be visible by passengers in cars travelling along SR-78in the vicinity of the site. Additionally, the approved project is not located on any area identified as a primary or secondary ridgeline per the Open Space Element of the City's General Plan. Finally, the approved project site does not support any significant trees, rock outcroppings, or historic buildings as identified in or protected by the City's General Plan. Therefore, impacts would be less than significant.

Modified Project

The modified project site would include an additional 0.37-acre portion of APN 217-161-17. The additional 0.37 acres do not support any significant trees, rock outcroppings, or historic buildings as identified in or protected by the City's General Plan. Like the approved project, the modified project would not impact views to scenic resources from SR-78, as scenic resources would not be visible by passengers in cars travelling along SR-78 in the vicinity of the modified project site. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

c. Visual Character/Quality

Approved Project

The MND determined that the existing visual character in the approved project vicinity is a mix of residential, industrial, and commercial development. The approved project included a Density Bonus to provide five affordable housing units. Under state law, density bonus projects are permitted to

exceed the standard building heights of the local jurisdiction. Due to the site topography, the approved project included a concession to allow for the proposed building to exceed the three-story, 45-foot height limit of the R-3-10 Zone. Due to the topography of the site, the southern portion of the building had a height of 55 feet, and the building would be set back from South Santa Fe Avenue by more than 100 feet. Therefore, the building would not loom over the street or adjacent properties and would not impact views from properties along South Santa Fe Avenue, North Las Flores Drive, or the Rancho Santalina subdivision. The approved project would not result in a visual impact to the surrounding area since the southern portion of the site would sit at the lowest elevation of the road along South Santa Avenue.

The approved project was designed to naturally blend into the topography of the hillside as it progresses up the slope and would be substantially screened by North Las Flores Drive. Based on the way the building would follow the topography of the site, the first floor of the upper portion of the building would sit at an elevation of 533 feet, 20 feet above the first floor of the lower portion of the building. While the elevator core at the connection between the lower portion of the building and upper portion of the building would be the highest point of the building at 62 feet, 9 inches, it would then level out in relation to the natural topography at the north end to a height of 42 feet, 2 inches, which would be almost 3 feet less than the allowable 45 feet for a three-story apartment building. Less than 4 percent of the building would be higher than the typical 45-foot, three-story apartment building. As such, it was determined that development of the approved project site would not result in the substantial degradation of the project site and its surroundings, and impacts would be less than significant.

Modified Project

The modified project site would be considered an urbanized area, focusing this issue on whether the project would conflict with applicable zoning and other regulations governing scenic quality. The modified project proposes a GPA from Medium Density Residential 2 (MDR2) to Medium High Density Residential (MHDR) for APNs 217-161-18 and 217-161-19, and a GPA from Commercial (C) to Medium High Density Residential (MHDR) for the northern portion (0.37 acres) of APN 217-161-17. The modified project would also rezone APNs 217-161-18 and 217-161-19 from Multi-family Residential 3 (R-3-10) to Multi-family Residential (R-3-6) and rezone the northern portion (0.37 acres) of APN 217-161-17 from Commercial (C) to Multi-Family Residential (R-3-6).

Compared to the approved project, the modified project would also be three stories but would reduce the building heights to a maximum of 35 feet, 4 inches, measured from the finished floor, which is under the 45-foot height limit of the R-3-6 Zone. The modified project would also be designed to naturally blend into the topography of the hillside as it progresses up the slope. The project would also be consistent with R-3-6 zone development standards as set forth in the City's Municipal Code Section 20.215.050, Table 20.215-4 (R-3 and Attached Residential Development Standards). Thus, the modified project would not conflict with applicable zoning and other regulations governing scenic quality. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

d. Substantial Light Source

Approved Project

The MND determined that the approved project is surrounded by existing development that emits light. Lighting proposed under the approved project would be guided by standards set by the City, which requires downward directed LED lighting, except for specialized streetscape lighting or architectural detail lighting. These requirements aid in the preservation of dark-sky conditions, which are necessary for the local observatories. Development of the approved project would be required to comply with the City's lighting standards, and the location, type, and direction of the lighting would be reviewed during Improvement Plan review to ensure compliance. Therefore, the approved project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. Impacts would be less than significant.

Modified Project

Like the approved project, lighting proposed under the modified project would be guided by standards set by the City. Development of the modified project would be required to comply with the City's lighting standards, and the location, type, and direction of the lighting would be reviewed during Improvement Plan review to ensure compliance. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Mitigation Measures

None.

4.2 Agriculture and Forestry Resources

Would the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act Contract?	☐	☐	☒

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 1220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104[g])?	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☒
e. Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒

EXPLANATIONS:

a. Conversion of Designated Agricultural Lands

Approved Project

The MND determined that the approved project site is not in agricultural use and is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance based on both the California Department of Conservation's Farmland Mapping and Monitoring Program and Figure 4-4 of the City's General Plan. Therefore, no impact would occur.

Modified Project

The modified project site would include an additional 0.37-acre portion of APN 217-161-17. The additional 0.37 acres are not in agricultural use and are not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance based on both the Department of Conservation's Farmland Mapping and Monitoring Program and Figure 4-4 of the City's General Plan. No change in conditions has occurred to the 2.23-acre (net) portion included as part of the approved project. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

b. Conflict with Zoning/Williamson Contract

Approved Project

The MND determined that the approved project site is not zoned for agricultural use and does not have a history of agricultural use. The project is not located within a Williamson Act Contract area. No impact would occur.

Modified Project

The modified project site would include an additional 0.37-acre portion of APN 217-161-17. The additional 0.37 acres are not zoned for agricultural use, do not have a history of agricultural use, and are not located within a Williamson Act Contract area. No change in conditions has occurred to the 2.23-acre (net) portion included as part of the approved project. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

c. Conflict with Zoning/Forest Land or Timberland

Approved Project

The MND determined the approved project would not result in impacts pertaining to forest land, timberland, or timberland zoned for timberland production as the approved project site was zoned as Commercial (C) and Light Industrial (L-1). Therefore, no impact would occur.

Modified Project

The modified project site would include an additional 0.37-acre portion of APN 217-161-17. The additional 0.37 acres are currently zoned as Commercial (C). No change in conditions has occurred to the 2.23-acre (net) portion included as part of the approved project. As such, the modified project site is not zoned as forest land, timberland, or timberland zoned for timberland production. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

d. Conversion of Forest Land

Approved Project

The MND determined there would be no impact related to loss of forest land or the conversion of forest land to non-forest use because no forest land exists within the approved project site.

Modified Project

The modified project site would include an additional 0.37-acre portion of APN 217-161-17, which does not contain forest land. No change in conditions has occurred to the 2.23-acre (net) portion included as part of the approved project. As a result, the modified project would not cause the loss or conversion of forest land. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

e. Other Loss or Conversion

Approved Project

The MND determined that the approved project site does not support any agricultural or forest land. Therefore, the project would not involve other changes in the existing environment that, due to their

location or nature, could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use, resulting in no impact.

Modified Project

The modified project site would include an additional 0.37 acres of APN 217-161-17, which do not support any agricultural or forest land. No change in conditions has occurred to the 2.23-acre (net) portion included as part of the approved project. As a result, the modified project would not involve other changes in the existing environment that, due to their location or nature, could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use. Therefore, no new impacts would occur as a result of the modified project, and no new mitigation would be required.

Mitigation Measures

None.

4.3 Air Quality

Would the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒

EXPLANATIONS:

The modified project analysis in this section is based on the Air Quality Analysis prepared by RECON Environmental, Inc. (Attachment 2; RECON Environmental, Inc. [RECON] 2026a).

a. Air Quality Plan

The Regional Air Quality Standards (RAQS) is the applicable regional air quality plan that sets forth the San Diego Air Pollution Control District's (SDAPCD's) strategies for achieving the National

Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). The San Diego Air Basin (SDAB) is designated non-attainment for the federal and state ozone standard. Accordingly, the RAQS was developed to identify feasible emission control measures and provide expeditious progress toward attaining the standards for ozone. The two pollutants addressed in the RAQS are reactive organic gases (ROG) and nitrogen oxides (NOx), which are precursors to the formation of ozone. Projected increases in motor vehicle usage, population, and growth create challenges in controlling emissions and by extension to maintaining and improving air quality.

The growth projections used by the SDAPCD to develop the RAQS emissions budgets are based on the population, vehicle trends, and land use plans developed in general plans and used by the San Diego Association of Governments (SANDAG) in the development of the regional transportation plans and sustainable communities strategy. As such, projects that propose development that is consistent with the growth anticipated by SANDAG's growth projections and/or the general plan would not conflict with the RAQS. In the event that a project would propose development that is less dense than anticipated by the growth projections, the project would likewise be consistent with the RAQS. In the event a project proposes development that is greater than anticipated in the growth projections, further analysis would be warranted to determine if the project would exceed the growth projections used in the RAQS for the specific subregional area.

Approved Project

The approved project proposed a GPA to change the land uses of APNs 217-161-18 and 217-161-19 from Commercial (C) and Light Industrial (L-I) to Medium Density Residential 2 (MDR2). The MND determined that although the approved project would not be consistent with the existing land use and zoning designations for the project site, it would still be consistent with the air quality emissions associated with the growth projections assumed in the RAQS. To determine if emissions associated with the approved project were accounted for in the growth projections assumed in the RAQS, emissions due to operation of a project consistent with the existing land use and zoning designations were calculated and compared to emissions associated with operation of the project. Title 20 – Zoning of the City's Municipal Code establishes allowable floor area ratios (FAR) for each zone. Light Industrial zones have a FAR of 0.6 and Commercial zones have a FAR of 0.7. Under these requirements, should the site be developed with commercial and industrial land uses as allowed under the existing land use and zoning designations, approximately 38,000 square feet of light industrial development and 24,000 square feet of commercial development could be constructed. The approved project emissions were determined to be less than operational emissions associated with an industrial and commercial project that is consistent with the existing land use and zoning designations. Therefore, the approved project would not result in an increase in emissions that are not already accounted for in the RAQS, and the approved project emissions would be less than significant.

Modified Project

The 2022 RAQS was adopted in March 2023 after approval of the MND; therefore, the land uses considered in the 2022 RAQS are Commercial (C) and Light Industrial (L-I). As analyzed in the MND, these land use designations would allow for the construction of approximately 38,000 square feet of light industrial development and 24,000 square feet of commercial development based on the floor area ratios established in Title 20–Zoning of the City's Municipal Code. The modified project includes

0.37 acres of the northern half of APN 217-161-17, which would be redesignated from Commercial (C) to Medium High Density Residential (MHDR). The additional parcel is currently developed with a 2,200-square-foot liquor store that would remain in operation.

In order to determine if emissions associated with the modified project are accounted for in the growth projections assumed in the 2022 RAQS, emissions due to operation of a project consistent with the land use and zoning designations assumed in the 2022 RAQS were calculated and compared to emissions associated with operation of the project. Emissions were calculated for 38,000 square feet of light industrial development, 24,000 square feet of commercial development, and the existing 2,200-square-foot convenience market. Emissions were modeled using the CalEEMod default trip generations rates. Table 3 summarizes the emissions associated with industrial, commercial, and convenience market land uses along with the emissions associated with the project. The CalEEMod output files for the modified project and for the industrial and commercial project are contained in Attachment 2.

Table 3
Commercial and Industrial Land Use Operational Emissions
(pounds per day)

Source	Pollutant					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
PROJECT EMISSIONS						
Mobile Sources	1	1	9	<1	2	<1
Area Sources	3	<1	3	<1	<1	<1
Energy Sources	<1	<1	<1	<1	<1	<1
TOTAL	**4**	**1**	**11**	**<1**	**2**	**<1**
INDUSTRIAL, COMMERCIAL, AND CONVENIENCE MARKET EMISSIONS						
Mobile Sources	14	11	106	<1	23	6
Area Sources	2	<1	3	<1	<1	<1
Energy Sources	<1	<1	<1	<1	<1	<1
TOTAL	**16**	**11**	**109**	**<1**	**23**	**6**

NOTE: Totals may vary due to independent rounding.
ROG = reactive organic gases; NOx = nitrogen oxides; CO = carbon monoxide; SOx = oxides of sulfur; PM_{10} = 10-micron particulate matter; $PM_{2.5}$ = 2.5-micron particulate matter
SOURCE: Attachment 2; RECON Environmental, Inc. 2025a

As shown in Table 3, the modified project emissions would be less than operational emissions associated with an industrial, commercial, and convenience market project that is consistent with the land use assumptions used in the 2022 RAQS. Therefore, the modified project would not result in an increase in emissions that are not already accounted for in the 2022 RAQS. Additionally, as shown in Tables 4 and 5, project emissions would not exceed the screening level thresholds.

Table 4 Summary of Maximum Construction Emissions (pounds per day)						
Construction	Pollutant					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Site Preparation	1	10	11	<1	1	<1
Grading	2	23	18	<1	6	3
Building Construction	1	10	13	<1	1	<1
Paving	1	6	9	<1	<1	<1
Architectural Coatings	63	1	1	<1	<1	<1
Maximum Daily Emissions	**63**	**23**	**18**	**<1**	**6**	**3**
Significance Threshold	*250*	*250*	*550*	*250*	*100*	*67*
ROG = reactive organic gases; NOx = nitrogen oxides; CO = carbon monoxide; SOx = oxides of sulfur; PM_{10} = 10-micron particulate matter; $PM_{2.5}$ = 2.5-micron particulate matter SOURCE: Attachment 2; RECON Environmental, Inc. 2025a						

Table 5 Summary of Project Operational Emissions (pounds per day)						
Source	Pollutant					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Mobile Sources	1	1	9	<1	2	<1
Area Sources	3	<1	3	<1	<1	<1
Energy Sources	<1	<1	<1	<1	<1	<1
TOTAL	**4**	**1**	**11**	**<1**	**2**	**<1**
Significance Threshold	*250*	*250*	*550*	*250*	*100*	*67*
NOTE: Totals may vary due to independent rounding. ROG = reactive organic gases; NOx = nitrogen oxides; CO = carbon monoxide; SOx = oxides of sulfur; PM_{10} = 10-micron particulate matter; $PM_{2.5}$ = 2.5-micron particulate matter SOURCE: Attachment 2; RECON Environmental, Inc. 2025a						

Thus, the modified project would not result in an increase in emissions that are not already accounted for in the RAQS and would not obstruct or conflict with implementation of the RAQS. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

b. Criteria Pollutant

Approved Project

The MND determined that construction of the approved project would not exceed the applicable regional emissions thresholds. These thresholds are designed to provide limits below which project emissions would not significantly change regional air quality. Therefore, as construction emissions would be below these limits, construction of the approved project would not result in a cumulatively considerable net increase in emissions of ozone, 10-micron particulate matter (PM_{10}), or 2.5-micron particulate matter ($PM_{2.5}$), and impacts would be less than significant.

Long-term emissions of regional air pollutants occur from operational sources. Operation of the approved project would not exceed the applicable regional emissions thresholds. Therefore, as operational emissions would be below these limits, the approved project would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant.

Modified Project

The region is classified as an attainment area for all criterion pollutants except ozone, PM_{10}, and $PM_{2.5}$. The SDAB is a non-attainment area for the 8-hour federal and state ozone standards. Ozone is not emitted directly but is a result of atmospheric activity on precursors. NO_X and ROG are known as the chief "precursors" of ozone. These compounds react in the presence of sunlight to produce ozone. $PM_{2.5}$ includes fine particles that are found in smoke and haze and are emitted from all types of combustion activities (motor vehicles, power plants, wood burning, etc.) and certain industrial processes. PM_{10} includes both fine and coarse dust particles, and sources include crushing or grinding operations and dust from paved or unpaved roads.

As shown in Table 4, construction of the modified project would not exceed the applicable regional emissions thresholds. These thresholds are designed to provide limits below which project emissions would not significantly change regional air quality. Therefore, as construction emissions would be below these limits, construction of the modified project would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant. As analyzed in the Air Quality Analysis (see Attachment 2; RECON 2026a), the project would include 20,100 cubic yards of soil export during the grading phase. This export would occur over a one-month period, for a total of 105 hauling trips per day. The approved project included 17,250 cubic yards of soil export, which is less than the modified project; however, this export was modeled over a six-day grading period, for a total of approximately 359 hauling trips per day. Thus, daily emissions associated with hauling trucks would be less than those associated with the approved project.

Long-term emissions of regional air pollutants occur from operational sources. As shown in Table 5, operation of the modified project would not exceed the applicable regional emissions thresholds. As operational emissions would be below these limits, the modified project would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

c. Sensitive Receptors

Approved Project

The Sacramento Metropolitan Air Quality Management District developed a screening threshold in 2011, which states that any project involving an intersection experiencing 31,600 vehicles per hour or more will require detailed analysis. This screening criteria was considered applicable for the purposes of analyzing impacts associated with the approved project because the SDAB has the same carbon monoxide (CO) maintenance designation and the vehicle classifications in the regions are similar. The MND determined that based on the approved project's daily traffic volumes on roadways in the

vicinity, the hourly turning volumes at nearby intersections were projected to be well less than 31,600 vehicles per hour. Therefore, the approved project was not anticipated to result in a CO hot spot. The MND determined that diesel particulate matter (DPM) generated by construction of the approved project would not be expected to create conditions where the probability is greater than 10 in 1 million of contracting cancer for the Maximally Exposed Individual or to generate ground-level concentrations of noncarcinogenic toxic air contaminants (TACs) that exceed a Hazard Index greater than 1 for the Maximally Exposed Individual. Additionally, with ongoing implementation of U.S. Environmental Protection Agency (U.S. EPA) and California Air Resources Board (CARB) requirements for cleaner fuels; off-road diesel engine retrofits; and new, low-emission diesel engine types, the DPM emissions of individual equipment would be substantially reduced. Therefore, construction of the approved project would not expose sensitive receptors to substantial pollutant concentration. Furthermore, the approved project would not construct a stationary source of toxic emissions.

Modified Project

Sensitive land uses include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities. The nearest sensitive receptors to the modified project site are the residential uses located 300 feet to the northeast, 100 feet to the southeast, 160 feet to the south, and 115 feet to the southwest.

Carbon Monoxide Hot Spots

Localized CO concentration is a direct function of motor vehicle activity at signalized intersections (e.g., idling time and traffic flow conditions), particularly during peak commute hours and meteorological conditions. The SDAB is a CO maintenance area under the federal Clean Air Act. This means that SDAB was previously a non-attainment area and is currently implementing a 10-year plan for continuing to meet and maintain air quality standards.

Due to increased requirements for cleaner vehicles, equipment, and fuels, CO levels in the state have dropped substantially. All air basins are attainment or maintenance areas for CO. Therefore, more recent screening procedures based on more current methodologies have been developed. The Bay Area Air Quality Management District developed a screening threshold in their 2022 CEQA Guidelines (Bay Area Air Quality Management District 2022). These screening criteria are considered applicable in the SDAB because the San Francisco Bay Air Basin and the SDAB have the same CO maintenance designations, and the vehicle classifications in the regions are similar. If the following screening criteria are met, operation of a project would result in less than significant impacts related to CO:

- The project is consistent with an applicable congestion management program established by the County of San Diego congestion management agency for designated roads or highways, the regional transportation plan, and local congestion management agency plans.
- Project-generated traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.

- Project-generated traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

The modified project would generate 368 daily trips. Based on the Local Transportation Analysis (Attachment 3; Linscott, Law & Greenspan, Engineers [LLG] 2026), peak hour turning volumes at the study area intersections would be less than 44,000 vehicles per hour as well as the 31,600 vehicles per hour screening threshold utilized for the approved project. Additionally, all signalized intersections are projected to operate at an acceptable level of service. Therefore, the modified project is not anticipated to result in a CO hot spot.

Diesel Particulate Matter – Construction

Construction of the modified project and associated infrastructure would result in short-term diesel exhaust emissions from on-site heavy-duty equipment. Construction of the modified project would result in the generation of diesel-exhaust DPM emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities and on-road diesel equipment used to bring materials to and from the modified project site.

Generation of DPM from construction projects typically occurs in a single area for a short period. Construction of the modified project is anticipated to last for approximately one year. The dose to which the receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the Maximally Exposed Individual. The risks estimated for a Maximally Exposed Individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (Office of Environmental Health Hazard Assessment 2015). Thus, if the duration of proposed construction activities near any specific sensitive receptor were one year, the exposure would be 3 percent of the total 30-year exposure period used for health risk calculation. Further, the modified project would implement construction best management practices and would be conducted in accordance with CARB regulations. Specifically, the modified project would implement the following Best Available Control Technology for Toxics measures during construction:

- The construction fleet shall use any combination of diesel catalytic converters, diesel oxidation catalysts, diesel particulate filters and/or utilize CARB/U.S. EPA Engine Certification Tier 3 or better, or other equivalent methods approved by the CARB.

- The engine size of construction equipment shall be the minimum size suitable for the required job.

- Construction equipment shall be properly tuned and maintained in accordance with the manufacturer's specifications.

- Per CARB's Airborne Toxic Control Measures 13 (California Code of Regulations Chapter 10 Section 2485), the applicant shall not allow idling time to exceed 5 minutes unless more time is required per engine manufacturers' specifications or for safety reasons.

Therefore, DPM generated by construction of the modified project is not expected to create conditions where the probability is greater than 10 in 1 million of contracting cancer for the Maximally Exposed Individual or to generate ground-level concentrations of noncarcinogenic TACs that exceed a Hazard Index greater than 1 for the Maximally Exposed Individual. Additionally, with ongoing implementation of U.S. EPA and CARB requirements for cleaner fuels; off-road diesel engine retrofits; and new, low-emission diesel engine types, the DPM emissions of individual equipment would be substantially reduced. Further, as discussed in Section 4.3.b, the project would result in fewer daily hauling trips compared to the approved project. As these hauling trips would occur off-site, they would not be located near any given sensitive receptor for a long period of time and would not result in significant pollutant concentrations. These trucks would also be subject to CARB's idling restrictions while loading on-site. Therefore, construction of the modified project would not expose sensitive receptors to substantial pollutant concentration.

Stationary Sources

CARB provides guidance on siting land uses near major emitters or facilities of concern. These facilities include distribution centers, chrome platers, dry cleaners using perchloroethylene, and large gas stations. CARB siting constraints are summarized in Table 6. The modified project would not include any of the sources included in Table 6 and, therefore, would not construct a stationary source of toxic emissions.

Table 6
CARB Land Use Siting Constraints

Source Category	Recommended Buffer Distances (feet)
Distribution centers (that accommodate more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units per day, or where transport refrigeration unit operations exceed 300 hours per week)	1,000
Chrome platers	1,000
Dry cleaners using perchloroethylene (1 machine)	300
Dry cleaners using perchloroethylene (2 machines)	500
Dry cleaners using perchloroethylene (3 or more machines)	Requires consultation with APCD
Large gas station (3.6 million gallons or more per year)	300
Other gas stations	50

SOURCE: CARB 2005.

No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

d. Other Emissions

Approved Project

The MND determined that the approved project would not include heavy industrial or agricultural uses that are typically associated with odor complaints. During construction, diesel equipment may generate some nuisance odors. However, exposure to odors associated with construction of the approved project would be short term and temporary in nature. Impacts associated with odors would be less than significant.

Modified Project

The modified project does not include heavy industrial or agricultural uses that are typically associated with odor complaints. During construction, diesel equipment may generate some nuisance odors. However, exposure to odors associated with construction of the modified project would be short term and temporary in nature. Impacts associated with odors would be less than significant. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Mitigation Measures

None.

4.4 Biological Resources

Would the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Have substantial adverse effects, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS)?	☐	☐	☒
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS?	☐	☐	☒
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒
e. Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance?	☐	☐	☒
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒

EXPLANATIONS:

The modified project analysis in this section is based on the Biological Resources Letter Report prepared by RECON (Attachment 4; RECON 2026b).

a. Candidate, Sensitive, or Special Status Species

Approved Project

The MND identified two land cover types within the biological study area: disturbed land and urban/developed land. Direct impacts to migratory and nesting birds, including Cooper's hawk, could result from the accidental destruction of nests through removal of disturbed land, if construction were to occur during the general bird breeding season (between March and September). Pursuant to CDFW Code 3503, which protects nesting birds, implementation of mitigation measure BIO-1 would reduce potential impacts to migratory and nesting birds to a less than significant level.

Modified Project

As discussed in the Biological Resources Letter Report prepared for the modified project (see Attachment 4; RECON 2026b), the biological study area supports two land cover types: disturbed land and urban/developed land. Direct impacts to migratory and nesting birds, including Cooper's hawk, could result from the accidental destruction of nests during project construction activities. These impacts could occur if removal of suitable habitat for these species, such as the ornamental trees along the eastern edge of the survey area, were to occur during the general bird breeding season. Consistent with the approved project, the modified project would implement mitigation measure BIO-1 (with minor revisions) which would require a pre-construction nesting bird and raptor survey if construction initiation occurs within the general bird breeding season. Implementation of mitigation measure BIO-1 would reduce potential impacts to migratory and nesting birds to a less

than significant level. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

b. Riparian Habitat

Approved Project

The MND determined that the approved project site consists of disturbed land and urban/developed land. Native vegetation communities do not exist on the approved project site. The approved project site does not support any riparian habitat, nor does it support any sensitive natural communities identified in local or regional plans, policies, and regulations by the CDFW or the USFWS. No impact would occur.

Modified Project

The modified project site consists of disturbed land and urban/developed land. Native vegetation communities do not exist on the modified project site. The modified project site does not support any riparian habitat, nor does it support any sensitive natural communities identified in local or regional plans, policies, and regulations by the CDFW or the USFWS. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

c. Wetlands

Approved Project

The MND determined that no potential jurisdictional wetlands or waters were observed on-site. Therefore, there are no anticipated impacts to any jurisdictional wetlands or waterways, and no impact would occur.

Modified Project

No potential jurisdictional wetlands or waters were observed on the modified project site. Therefore, there are no anticipated impacts to any jurisdictional wetlands or waterways. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

d. Wildlife Movement or Nursery Sites

Approved Project

The MND determined that the approved project site as a whole does not function as a wildlife movement corridor and there is no indication that the site supports any wildlife nursery sites. Therefore, the approved project would not result in any impact to wildlife movement or nursery sites, and no impact would occur.

Modified Project

The modified project site as a whole does not function as a wildlife movement corridor and there is no indication that the site supports any wildlife nursery sites. Therefore, the modified project would

not result in any impact to wildlife movement or nursery sites. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

e. Local Policies or Ordinances

Approved Project

The MND determined that the approved project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. No impact would occur.

Modified Project

The modified project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

f. Conservation Plans

Approved Project

The City adheres to the draft Subarea Plan under the Multiple Habitat Conservation Program (MHCP), though it has not been formally approved. The MND determined that the approved project site is not located within a focused planning area of the City's Draft Subarea Plan for the MHCP, nor is the project subject to a Natural Community Conservation Plan (NCCP) (see Figure 4 of the Draft NCCP for the City). Therefore, the approved project would not conflict with the provisions of an adopted Habitat Conservation Plan, NCCP, or other approved local, regional, or state habitat conservation plan. No impact would occur.

Modified Project

The modified project site is not located within a focused planning area of the City's Draft Subarea Plan for the MHCP nor is the project subject to a NCCP (see Figure 4 of the Draft NCCP for the City). Therefore, the modified project would not conflict with the provisions of an adopted Habitat Conservation Plan, NCCP, or other approved local, regional, or state habitat conservation plan. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Mitigation Measures (Carried Forward from the Approved MND)

Mitigation measure BIO-1 in the approved MND specified that nesting bird surveys would be required between "March" and "September." To provide greater specificity and to ensure protection of all migratory bird species, including early nesting passerines and raptors, minor clarifying edits to mitigation measure BIO-1 are included below. In addition, because nesting bird impacts may occur up to 300 feet from the modified project footprint, BIO-1 has been revised to specify that surveys shall be conducted within this distance prior to construction. New language is shown as underline and removed language is shown in strike-through.

Mitigation Measure BIO-1

If construction initiation occurs between ~~March~~ February and September 15, a pre-construction nesting bird and raptor survey ~~of~~ within 300 feet of the project impact area shall be completed by a qualified biologist prior to vegetation removal. The pre-construction survey shall be conducted within 10 calendar days prior to the start of construction activities (including removal of vegetation). If any active nests are detected, the area will be flagged and mapped along with a buffer as recommended by the qualified biologist. The buffer area(s) established by the qualified biologist will be avoided until the nesting cycle is complete or it is determined that the nest is no longer active. The qualified biologist shall be a person familiar with bird breeding behavior and capable of identifying the bird species of San Diego County by sight and sound and determining alterations of behavior as a result of human interaction. Buffers will be based on species-appropriate buffers and/or local topography and line of sight, species behavior and tolerance to disturbance, and existing disturbance levels, as determined appropriate by the qualified biologist.

4.5 Cultural Resources

Would the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Cause a substantial adverse change in the significance of an historical resource pursuant to §15064.5?	☐	☐	☒
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒
c. Disturb human remains, including those interred outside of formal cemeteries?	☐	☐	☒

EXPLANATIONS:

The Modified Project analysis in this section is based on the Cultural Resources Survey prepared by RECON (Attachment 5; RECON 2026c).

a. Historical Resources

Approved Project

The MND determined that no prehistoric or historic cultural resources are recorded on or adjacent to the approved project site. A total of 31 cultural resources have been documented within one mile of the approved project boundary, including 9 prehistoric period resources and 22 historic period resources. In addition, there are 19 historic addresses listed within the one-mile search radius.

As there are no identified historical resources within the approved project site, and the approved project would not affect properties outside of the site, the approved project would not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5. Therefore, no impact would occur.

Modified Project

The original portion of the project site as analyzed in the adopted MND remains undeveloped; no change in conditions relative to historic resources has occurred. The modified project includes an additional 0.37-acre portion on the northern half of parcel APN 217-161-17. As discussed in the Cultural Resources Survey (see Attachment 5; RECON 2026c), no significant prehistoric or historic cultural resources were observed during the pedestrian survey of the modified project area or identified through the updated records search. The liquor store located on the southern portion of APN 217-161-17 is not part of the project and would remain. Therefore, the building was not evaluated for listing in the California Register of Historical Resources. As such, the modified project would not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

b. Archaeological Resources

Approved Project

The MND determined that the possibility exists for buried prehistoric archaeological deposits on-site. The MND identified standard mitigation measures CR-1 through CR-4, as developed by the City, which would reduce potential impacts to undiscovered archaeological resources and tribal cultural resources. Therefore, impacts to archaeological resources would be less than significant with the incorporation of mitigation.

Modified Project

No significant prehistoric or historic archaeological resources were observed during the survey of the project area conducted in 2024 for the modified project. Additionally, an updated record search

did not identify prehistoric or historic cultural resources on or immediately adjacent to the property; refer to Attachment 5 (RECON 2026c) for additional details.

Consistent with the approved project, the modified project would be required to implement mitigation measures CR-1 through CR-4, which would reduce potential impacts to undiscovered archaeological resources and tribal cultural resources. Therefore, impacts to archaeological resources would be less than significant with the incorporation of mitigation. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

c. Human Remains

Approved Project

The MND found no evidence of human remains on the approved project site. In the event that human remains are discovered during earth moving activities, the construction contractors shall immediately stop all activities in the immediate area of the find pursuant to state Health and Safety Code Section 7050.5. Furthermore, mitigation measures CR-1 through CR-4 would require an archaeological monitor and a Native American monitor (or Traditionally and Culturally Affiliated [TCA] Native American Tribe monitor) to be present during earth moving and grading activities to assure that any resources found during project grading be protected. With mitigation and adherence to the state Health and Safety Code, the approved project would not cause a significant impact to human remains. Impacts would be less than significant with the incorporation of mitigation.

Modified Project

No evidence of human remains was found on the modified project site. In the event that human remains are discovered during earth-moving activities, the construction contractors shall immediately stop all activities in the immediate area of the find pursuant to state Health and Safety Code Section 7050.5. Furthermore, consistent with the approved project, mitigation measures CR-1 through CR-4 would require an archaeological monitor and a Native American monitor (or TCA Native American Tribe monitor) to be present during earth-moving and grading activities to assure that any resources found during project grading be protected. With mitigation and adherence to the state Health and Safety Code, the modified project would not cause a significant impact to human remains. Impacts would be less than significant with the incorporation of mitigation. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Mitigation Measures (Carried Forward from the Approved MND)

Mitigation Measure CR-1: Pre-Excavation Agreement

Prior to the issuance of a Grading Permit, or ground disturbing activities, the Applicant/Owner shall enter into a Tribal Cultural Resources Treatment and Repatriation Agreement (Pre-Excavation Agreement) with a Traditionally and Culturally Affiliated Native American Tribe (TCA Tribe), identified in consultation with the City. The purpose of the Pre-Excavation Agreement shall be to formalize protocols and procedures between the Applicant/Owner and the TCA Tribe for the protection, treatment, and repatriation of Native American human remains, funerary objects, cultural and/or

religious landscapes, ceremonial items, traditional gathering areas, and other tribal cultural resources. Such resources may be located within and/or discovered during ground disturbing and/or construction activities for the proposed project, including any additional culturally appropriate archaeological studies, excavations, geotechnical investigations, grading, preparation for wet and dry infrastructure, and other ground disturbing activities. Any project-specific monitoring plans and/or excavation plans prepared by the project archaeologist shall include the TCA Tribe requirements for protocols and protection of tribal cultural resources that were agreed to during the tribal consultation.

The landowner shall relinquish ownership of all non-burial related tribal cultural resources collected during construction monitoring and from any previous archaeological studies or excavations on the project site to the TCA Tribe for proper treatment and disposition per the Pre-Excavation Agreement, unless ordered to do otherwise by responsible agency or court of competent jurisdiction. The requirement and timing of such release of ownership, and the recipient thereof, shall be reflected in the Pre-Excavation Agreement. If the TCA Tribe does not accept the return of the cultural resources, then the cultural resources will be subject to curation.

Mitigation Measure CR-2: Construction Monitoring

Prior to the issuance of a Grading Permit or ground disturbing activities, the Applicant/Owner or Grading Contractor shall provide written documentation (either as signed letters, contracts, or emails) to the City's Planning Division stating that a Qualified Archaeologist and Traditionally and Culturally Affiliated Native American monitor (TCA Native American monitor) have been retained at the Applicant/Owner or Grading Contractor's expense to implement the construction monitoring program, as described in the Pre-Excavation Agreement.

The Qualified Archaeologist and TCA Native American monitor shall be invited to attend all applicable pre-construction meetings with the General Contractor and/or associated subcontractors to present the construction monitoring program. The Qualified Archaeologist and TCA Native American monitor shall be present on-site during grubbing, grading, trenching, and/or other ground disturbing activities that occur in areas of native soil or other permeable natural surfaces that have the potential to unearth any evidence of potential archaeological resources or tribal cultural resources. In areas of artificial paving, the Qualified Archaeologist and TCA Native American monitor shall be present on-site during grubbing, grading, trenching, and/or other ground disturbing activities that have the potential to disturb more than six inches below the original pre-project ground surface to identify any evidence of potential archaeological or tribal cultural resources. No monitoring of fill material, existing or imported, will be required if the General Contractor or developer can provide documentation to the satisfaction of the City that all fill materials being utilized at the site are either: (1) from existing commercial (previously permitted) sources of materials; or (2) are from private or other non-commercial sources that have been determined to be absent of tribal cultural resources by the Qualified Archaeologist and TCA Native American monitor.

The Qualified Archaeologist and TCA Native American monitor shall maintain ongoing collaborative coordination with one another during all ground disturbing activities. The requirement for the construction monitoring program shall be noted on all applicable construction documents, including demolition plans, grading plans, etc. The Applicant/Owner or Grading Contractor shall provide

written notice to the Planning Division and the TCA Tribe, preferably through e-mail, of the start and end of all ground disturbing activities.

Prior to the release of any grading bonds, or prior to the issuance of any project Certificate of Occupancy, an archaeological monitoring report, which describes the results, analysis, and conclusions of the construction monitoring shall be submitted by the Qualified Archaeologist, along with any TCA Native American monitor's notes and comments received by the Qualified Archaeologist, to the Planning Division Manager for approval. Once approved, a final copy of the archaeological monitoring report shall be retained in a confidential City project file and may be released, as a formal condition of Assembly Bill (AB) 52 consultation, to the Pechanga Band of Luiseño Indians, San Luis Rey Band of Mission Indians, and the Rincon Band of Luiseño Indians or any parties involved in the project specific monitoring or consultation process. A final copy of the report, with all confidential site records and appendices, will also be submitted to the South Coastal Information Center after approval by the City.

Mitigation Measure CR-3: Unanticipated Discovery Procedures

Both the Qualified Archaeologist and the TCA Native American monitor may temporarily halt or divert ground disturbing activities if potential archaeological resources or tribal cultural resources are discovered during construction activities. Ground disturbing activities shall be temporarily directed away from the area of discovery for a reasonable amount of time to allow a determination of the resource's potential significance. Isolates and clearly non-significant archaeological resources (as determined by the Qualified Archaeologist, in consultation with the TCA Native American monitor) will be minimally documented in the field. All unearthed archaeological resources or tribal cultural resources will be collected, temporarily stored in a secure location (or as otherwise agreed upon by the Qualified Archaeologist and the TCA Tribe), and repatriated according to the terms of the Pre-Excavation Agreement, unless ordered to do otherwise by responsible agency or court of competent jurisdiction.

If a determination is made that the archaeological resources or tribal cultural resources are considered potentially significant by the Qualified Archaeologist, the TCA Tribe, and the TCA Native American monitor, then the City and the TCA Tribe shall determine, in consultation with the Applicant/Owner and the Qualified Archaeologist, the culturally appropriate treatment of those resources.

If the Qualified Archaeologist, the TCA Tribe, and the TCA Native American monitor cannot agree on the significance or mitigation for such resources, these issues will be presented to the Planning Division Manager for decision. The Planning Division Manager shall make a determination based upon the provisions of CEQA and California Public Resources Code Section 21083.2(b) with respect to archaeological resources and California Public Resources Section 21704 and 21084.3 with respect to tribal cultural resources, and shall take into account the religious beliefs, cultural beliefs, customs, and practices of the TCA Tribe.

All sacred sites, significant tribal cultural resources, and/or unique archaeological resources encountered within the project area shall be avoided and preserved as the preferred mitigation. If avoidance of the resource is determined to be infeasible by the City as the Lead Agency, then the

City shall require additional culturally appropriate mitigation to address the negative impact to the resource, such as, but not limited to, the funding of an ethnographic study and/or a data recovery plan, as determined by the City in consultation with the Qualified Archaeologist and the TCA Tribe. The TCA Tribe shall be notified and consulted regarding the determination and implementation of culturally appropriate mitigation and the drafting and finalization of any ethnographic study and/or data recovery plan, and/or other culturally appropriate mitigation. Any archaeological isolates or other cultural materials that cannot be avoided or preserved in place as the preferred mitigation shall be temporarily stored in a secure location on-site (or as otherwise agreed upon by the Qualified Archaeologist and TCA Tribe) and repatriated according to the terms of the Pre-Excavation Agreement, unless ordered to do otherwise by responsible agency or court of competent jurisdiction. The removal of any artifacts from the project site will be inventoried with oversight by the TCA Native American monitor.

If a data recovery plan is authorized as indicated above and the TCA Tribe does not object, then an adequate artifact sample to address research avenues previously identified for sites in the area will be collected using professional archaeological collection methods. If the Qualified Archaeologist collects such resources, the TCA Native American monitor must be present during any testing or cataloging of those resources. Moreover, if the Qualified Archaeologist does not collect the cultural resources that are unearthed during the ground disturbing activities, the TCA Native American monitor may, at their discretion, collect said resources for later reburial or storage at a local curation facility, as described in the Pre-Excavation Agreement.

In the event that curation of archaeological resources or tribal cultural resources is required by a superseding regulatory agency, curation shall be conducted by an approved local facility within San Diego County, and the curation shall be guided by California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections. The City shall provide the Applicant/Owner final curation language and guidance on the project grading plans prior to issuance of the grading permit, if applicable, during project construction. The Applicant/Owner shall be responsible for all repatriation and curation costs and provide to the City written documentation from the TCA Tribe or the curation facility, whichever is most applicable, that the repatriation and/or curation have been completed.

Mitigation Measure CR-4: Human Remains

As specified by California Health and Safety Code Section 7050.5, if human remains, or remains that are potentially human, are found on the project site during ground disturbing activities or during archaeological work, the person responsible for the excavation, or his or her authorized representative, shall immediately notify the San Diego County Medical Examiner's Office by telephone. No further excavation or disturbance of the discovery or any nearby area reasonably suspected to overlie adjacent remains (as determined by the Qualified Archaeologist and/or the TCA Native American monitor) shall occur until the Medical Examiner has made the necessary findings as to origin and disposition pursuant to Public Resources Code 5097.98.

If such a discovery occurs, a temporary construction exclusion zone shall be established surrounding the area of the discovery so that the area would be protected (as determined by the Qualified Archaeologist and/or the TCA Native American monitor), and consultation and treatment could

occur as prescribed by law. As further defined by State law, the Medical Examiner will determine within two working days of being notified if the remains are subject to his or her authority. If the Medical Examiner recognizes the remains to be Native American, and not under his or her jurisdiction, then he or she shall contact the Native American Heritage Commission by telephone within 24 hours. The Native American Heritage Commission will make a determination as to the Most Likely Descendent, who shall be afforded 48 hours from the time access is granted to the discovery site to make recommendations regarding culturally appropriate treatment.

If suspected Native American remains are discovered, the remains shall be kept in situ (in place) until after the Medical Examiner makes its determination and notifications, and until after the Most Likely Descendent is identified, at which time the archaeological examination of the remains shall only occur on site in the presence of the Most Likely Descendent. The specific locations of Native American burials and reburials will be proprietary and not disclosed to the general public. According to California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). In the event that the Applicant/Owner and the Most Likely Descendant are in disagreement regarding the disposition of the remains, state law will apply, and the mediation process will occur with the Native American Heritage Commission. In the event that mediation is not successful, the landowner shall rebury the remains at a location free from future disturbance (see Public Resources Code Section 5097.98(e) and 5097.94(k)).

4.6 Energy

Would the proposed project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒

EXPLANATIONS:

a. Consumption of Energy Resources

Approved Project

Construction

The MND determined that during construction, the approved project would consume energy in two general forms: (1) the fuel energy consumed by construction vehicles and equipment and (2) energy

used in the manufacturing of construction materials, such as asphalt and pipes. Construction of the approved project would require the use of construction equipment for hauling and building activities. Construction equipment requires electricity which would be powered by gas or diesel. Construction also includes the vehicles of construction workers traveling to and from the approved project site. Furthermore, there are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction projects. Therefore, short-term construction activities would not result in inefficient, wasteful, or unnecessary fuel consumption. Impacts would be less than significant.

Transportation

The MND determined that transportation energy use during construction of the approved project would come from the transport and use of construction equipment and construction employee vehicles that would use diesel fuel and/or gasoline. The use of energy resources by these vehicles would be temporary. Impacts related to transportation energy use during construction would be temporary and would not require expanded energy supplies or the construction of new infrastructure. Impacts would be less than significant.

Operation

The MND determined that operational impacts of the approved project would be comparable to similar uses in the City. Therefore, impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during operation would be less than significant.

Modified Project

Construction

Like the approved project, construction of the modified project would require the use of construction equipment for hauling and building activities. Anticipated construction equipment would be similar to the approved project requiring electricity which would be powered by gas or diesel. Construction also includes the vehicles of construction workers traveling to and from the approved project site. Furthermore, there are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction projects. Therefore, no new impacts would occur as a result of the modified project, and no new mitigation would be required.

Transportation

Like the approved project, transportation energy use during construction of the modified project would come from the transport and use of construction equipment and construction employee vehicles that would use diesel fuel and/or gasoline. The use of energy resources by these vehicles would be temporary. Impacts related to transportation energy use during construction would be temporary and would not require expanded energy supplies or the construction of new infrastructure. Therefore, no new impacts would occur as a result of the modified project, and no new mitigation would be required.

Operation

Like the approved project, operational impacts would be comparable to similar uses in the City. Therefore, the modified project would not result in impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during operation. No new impacts would occur as a result of the modified project, and no new mitigation would be required.

b. State or Local Plan for Renewable Energy or Energy Efficiency

Approved Project

The MND determined that development of the approved project would be required to adhere to the City's Climate Action Plan (CAP) and Title 24 of the California Building Code. Therefore, the approved project would not obstruct a state or local plan for renewable energy or energy efficiency, and no impacts would occur.

Modified Project

Like the approved project, development of the modified project would be required to adhere to the City's CAP and Title 24 of the California Building Code. As discussed in Section 4.8 below, the modified project would emit less than 500 metric tons of carbon dioxide equivalent (MT CO_2E) per year; therefore, the modified project would not conflict with the City's CAP. The modified project would not obstruct a state or local plan for renewable energy or energy efficiency. No new impacts would occur as a result of the modified project, and no new mitigation would be required.

Mitigation Measures

None.

4.7 Geology and Soils

Would the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:			
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☐	☒
ii. Strong seismic ground shaking?	☐	☐	☒

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒
iv. Landslides?	☐	☐	☒
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒

EXPLANATIONS:

The modified project analysis in this section is based on the Update to the Geotechnical Investigation prepared by Geocon Incorporated (Attachment 6; Geocon Incorporated 2025).

a.i. Earthquake Faults

Approved Project

The MND determined that the approved project site, as with most of southern California, is situated in an area of active and potentially active faults. However, the approved project site does not lie within an Alquist-Priolo Special Studies zone and there are no known active fault traces that underlie or project toward the approved project site. Therefore, the potential for direct surface fault rupture is considered to be low. As such, the approved project site could be subjected to significant shaking in the event of a major earthquake on any of the faults noted above or other faults in the southern California or northern Baja California area. Potential impacts would be reduced through adherence to requirements specified in the Uniform Building Code and Title 24 of the California Building Code. Impacts would be less than significant.

Modified Project

The modified project site would include an additional 0.37-acre portion of APN 217-161-17. The additional 0.37 acres do not lie within an Alquist-Priolo Special Studies zone and there are no known

active fault traces that underlie or project toward the modified project site. Therefore, the potential for direct surface fault rupture is considered to be low. As such, the modified project site could be subjected to significant shaking in the event of a major earthquake on any of the faults noted above or other faults in the southern California or northern Baja California area. Potential impacts would be reduced through adherence to requirements specified in the Uniform Building Code and Title 24 of the California Building Code. Therefore, no new impacts would occur as a result of the modified project, and no new mitigation would be required.

a.ii. Seismic Ground Shaking

Approved Project

The MND determined that the approved project site is located in seismically active southern California and the site could be subject to strong seismic ground shaking from regional seismic activity. All structures would be designed in accordance with seismic parameters of the current Uniform Building Code and Title 24 of the California Building Code. Therefore, impacts related to seismic ground shaking would be less than significant.

Modified Project

Like the approved project, the modified project would be designed in accordance with seismic parameters of the current Uniform Building Code and Title 24 of the California Building Code. Therefore, no new impacts would occur as a result of the modified project, and no new mitigation would be required.

a.iii. Seismic-Related Ground Failure, Including Liquefaction

Approved Project

The MND determined that the approved project site is not mapped within a potential liquefaction zone. Based on the type of soil, mapped shallow depth to bedrock, and groundwater depth greater than 50 feet, liquefaction is not considered a geologic constraint. Therefore, impacts related to liquefaction would be less than significant.

Modified Project

The modified project site would include an additional 0.37-acre portion of APN 217-161-17. The additional 0.37 acres are not mapped within a potential liquefaction zone. As discussed in the Update to the Geotechnical Investigation (see Attachment 6; Geocon Incorporated 2025), seepage was encountered in borings at 21, 30, and 35 feet. Considering the lack of shallow permanent groundwater and the density and age of the underlying geologic units, the risk associated with seismically induced soil liquefaction is low. Therefore, no new impacts would occur as a result of the modified project, and no new mitigation would be required.

a.iv. Landslides

Approved Project

The MND determined that there was no visual evidence of landslides on or near the approved project site. In addition, the approved project site is not mapped within a potential landslide zone. Therefore, impacts related to landslides would be less than significant.

Modified Project

The modified project site would include an additional 0.37-acre portion of APN 217-161-17. The additional 0.37 acres do not contain visual evidence of landslides. No slopes with the potential for landslides were observed on or near the project site during the field investigation, and no landslides are mapped at the project site or in an area that could impact the site. Therefore, no new impacts would occur as a result of the modified project, and no new mitigation would be required.

b. Soil Erosion or Loss of Topsoil

Approved Project

The MND determined that the construction phase of the approved project would displace soils and temporarily increase the potential for soil erosion. Based on the topography of the project site (the southern portion of the site is relatively flat while the central portion slopes up to an elevated pad at the north end of the site), the approved project would require 17,500 cubic yards of cut and 250 cubic yards of fill for a net export of 17,250 cubic yards. Construction-phase BMPs may include, but are not limited to, soil stabilizers, sandbag berms, stabilized construction entrances, and other runoff controls. Operational BMPs would include landscaping, and a storm drain system, which would reduce the potential for erosion. With implementation of construction and operational BMPs, impacts would be less than significant.

Modified Project

The modified project would require 23,300 cubic yards of cut and 3,200 cubic yards of fill for a net export of 20,100 cubic yards. Although total grading requirements would be greater than the approved project, construction-phase BMPs may include, but are not limited to, soil stabilizers, sandbag berms, stabilized construction entrances, and other runoff controls. Operational BMPs would include landscaping and a storm drain system, which would reduce the potential for erosion. With implementation of construction and operational BMPs, impacts would be less than significant. Therefore, no new impacts would occur as a result of the modified project, and no new mitigation would be required.

c. Landslide, Lateral Spreading, Subsidence, Liquefaction or Collapse

Approved Project

The MND determined that the approved project site does not lie within an area zoned for liquefaction. In addition, based on the type of soil, mapped shallow depth to bedrock, and

groundwater depth of greater than 50 feet, liquefaction is not considered to be a geologic constraint. Furthermore, the approved project site is not located on an unstable geologic unit. Therefore, the approved project would have a less than significant impact related to on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

Modified Project

The modified project site would include an additional 0.37-acre portion of APN 217-161-17. As discussed under Sections 4.7.a.iii. and 4.7.a.iv. above, the potential for liquefaction is considered low and no slopes with the potential for landslides were encountered on or near the project site during the field investigation. Temporary excavations are anticipated to adhere to standard engineering practices, as well as the project specific recommendations detailed in the Geotechnical Investigation (see Attachment 6), which would prevent lateral spreading, subsidence, and settlement. Therefore, the project would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and impacts would be less than significant. No new impacts would occur as a result of the modified project, and no new mitigation would be required.

d. Expansive Soil

Approved Project

The MND determined that during preparation of the final geotechnical evaluation for the grading operations, the project applicant would work with the project geotechnical engineer to further define the soil expansion potential and, if necessary, implement standard geotechnical requirements to ensure that grading complies with all required geotechnical conditions. Thus, impacts associated with expansive soils would be less than significant.

Modified Project

As documented in Attachment 6, some on-site soils have been identified as having a high to very high expansion potential. Consistent with the approved project, the modified project would require the project applicant to work with the project geotechnical engineer to further define the soil expansion potential and, if necessary, implement standard geotechnical requirements to ensure that grading complies with all required geotechnical conditions. Thus, impacts associated with expansive soils would be less than significant. No new impacts would occur as a result of the modified project, and no new mitigation would be required.

e. Septic Tanks or Alternative Wastewater Disposal Systems

Approved Project

The MND determined that the approved project would connect to the public sewer system and would not include the installation of septic tanks or alternative wastewater disposal systems; therefore, there would be no impact.

Modified Project

The modified project would connect to the public sewer system and would not include the installation of septic tanks or alternative wastewater disposal systems. Therefore, no new impacts would occur as a result of the modified project, and no new mitigation would be required.

f. Paleontological Resource or Unique Geologic Feature

Approved Project

The MND determined that the approved project site has a low to no potential to produce paleontological resources during construction. No mitigation is proposed as a result of the project. However, in the event that fossils are uncovered during construction, a qualified paleontologist should be retained to evaluate the find, in accordance with county, and state guidelines. Potential impacts to paleontological resources were determined to be less than significant.

Modified Project

The modified project site would include an additional 0.37-acre portion of APN 217-161-17. The modified project site is underlain by documented artificial fill, colluvium, Santiago Formation, and metavolcanic rock (Attachment 6; Geocon Incorporated 2025). No changes to the underlying soils or geologic formations have occurred since approval of the MND. However, according to the County of San Diego Guidelines for Determining Significance Paleontological Resources (2009), the Santiago Formation is considered to have a moderate potential for paleontological resources.

Consistent with the approved project, the modified project would include a Condition of Approval requiring that if paleontological resources are discovered during grading, excavation, or other ground-disturbing activities, all work in the immediate vicinity of the discovery shall cease. The project applicant shall retain a qualified paleontologist, meeting the Society of Vertebrate Paleontology (SVP) professional standards, to evaluate the findings in accordance with the County of San Diego *Guidelines for Determining Significance – Paleontological Resources* and applicable State of California guidelines. The qualified paleontologist shall determine the significance of the discovery and recommend appropriate treatment, which may include avoidance, monitoring, or recovery. Construction activities in the affected area may resume only after the paleontologist determines that the resource has been appropriately addressed and authorizes continuation of work. This condition provides for the appropriate evaluation and treatment of any unanticipated discoveries. Therefore, no new impacts would occur as a result of the modified project, and no new mitigation would be required.

Mitigation Measures

None.

4.8 Greenhouse Gas Emissions

Would the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒

EXPLANATIONS:

The modified project analysis in this section is based on the CAP Consistency Review Checklist (Checklist) prepared by RECON (Attachment 7; RECON 2026d). The City's CAP Checklist includes a GHG screening threshold of 500 MT CO_2E per year for new development projects. New discretionary development projects subject to CEQA review that emit fewer than 500 MT CO_2E annually would not contribute considerably to cumulative climate change impacts as stated in the City's Guidance Document, and therefore, would be considered consistent with the CAP and associated emissions projections and would not need to provide additional analysis to demonstrate consistency with the CAP. The CAP Checklist also includes project types and sizes that correspond to the 500 MT CO_2E screening threshold. For multi-family housing uses, the screening size is 55 dwelling units.

a. Greenhouse Gas Emissions

Approved Project

The MND determined that the approved project would develop 50 multi-family units. Thus, consistent with the City's CAP screening thresholds, it is presumed that the approved project would emit less than 500 MT CO_2E per year, and the GHG impact would be consistent with the CAP and associated emissions projections. Therefore, impacts would be less than significant.

Modified Project

The modified project would develop 46 multi-family units. Thus, consistent with the City's CAP screening thresholds, it is presumed that the modified project would emit less than 500 MT CO_2E per year and the GHG impact would be consistent with the CAP and associated emissions projections. Therefore, no new impacts would occur as a result of the modified project, and no new mitigation would be required.

b. Plan, Policies, or Regulations

Approved Project

The MND determined that the approved project would not make a considerable contribution to the cumulative impact of climate change because it would emit less than 500 MT CO_2E per year; therefore, the approved project would not conflict with the CAP. Since the CAP is a "qualified" CAP that demonstrates how the City will achieve GHG reductions consistent with state reduction targets codified by AB 32 (2006) and Senate Bill (SB) 32 (2016), the approved project would not conflict with the 2017 Scoping Plan. Therefore, impacts would be less than significant.

Modified Project

The modified project would not make a considerable contribution to the cumulative impact of climate change because it would emit less than 500 MT CO_2E per year; therefore, the modified project would not conflict with the CAP. Since the CAP is a "qualified" CAP that demonstrates how the City will achieve GHG reductions consistent with state reduction targets codified by AB 32 (2006) and SB 32 (2016), the approved project would not conflict with the 2017 Scoping Plan. Therefore, no new impacts would occur as a result of the modified project, and no new mitigation would be required.

Mitigation Measures

None.

4.9 Hazards and Hazardous Materials

Would the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Create a significant hazard to the public or the environment through routine transport, use, or disposal of hazardous materials?	☐	☐	☒
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☒
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒

EXPLANATIONS:

a. Transport, Use, or Disposal of Hazardous Materials

Approved Project

The MND determined that the approved project would be required to comply with federal, state, and City Municipal Code restrictions which regulate, and control hazardous construction materials handled on-site. Compliance with these restrictions and laws would ensure that potentially significant impacts would not occur during construction of the approved project.

In addition, as a residential development, hazardous materials anticipated to be used during site operations are those routinely used by residential uses such as paint and garden maintenance products. It is anticipated that the use, handling, and disposal of these products would be addressed by hazardous waste programs that are part of the Integrated Waste Management Plan of the County of San Diego and other federal, state, and City Municipal Code regulations. Additionally, there are numerous regulations in place that regulate proper disposal of hazardous materials and protect public safety including the Clean Air Act, Clean Water Act, Comprehensive Environmental Response, Compensation and Liability Act, and the Toxic Substances Control Act. Therefore, impacts related to the transportation of hazardous materials for the approved project would be less than significant.

Modified Project

Like the approved project, the construction of the modified project would be required to comply with federal, state, and City Municipal Code restrictions which regulate, and control hazardous construction materials handled on-site. Compliance with these restrictions and laws would ensure that potentially significant impacts would not occur during construction. In addition, hazardous materials anticipated during operation of the approved project would be the same as the modified project. Therefore, no new impacts would occur as a result of the modified project, and no new mitigation would be required.

b. Release of Hazardous Materials

Approved Project

The MND determined that the approved project would be required to comply with all existing local, state, and federal regulations governing the use, handling, and disposal of hazardous materials during construction. In addition, the approved project would not involve a use that would result in foreseeable upset and accident conditions from the release of hazardous materials into the environment.

The MND determined that the use, handling, and disposal of hazardous materials routinely used by residential uses would be addressed by hazardous waste programs that are part of the Integrated Waste Management Plan of the County of San Diego and other federal, state, and City Municipal Code regulations. Additionally, there are numerous regulations in place that regulate proper disposal of hazardous materials and protect public safety including the Clean Air Act, Clean Water Act, Comprehensive Environmental Response, Compensation and Liability Act, and the Toxic Substances Control Act. Therefore, the approved project would result in a less than significant risk to the public related to hazardous materials.

Modified Project

Like the approved project, the modified project would be required to comply with all existing local, state, and federal regulations governing the use, handling, and disposal of hazardous materials during construction. In addition, the modified project would not involve a use that would result in foreseeable upset and accident conditions from the release of hazardous materials into the environment. Furthermore, the use, handling, and disposal of hazardous materials routinely used by residential uses would be addressed by hazardous waste programs that are part of the Integrated Waste Management Plan of the County of San Diego and other federal, state, and City Municipal Code regulations. Additionally, there are numerous regulations in place that regulate proper disposal of hazardous materials and protect public safety including the Clean Air Act, Clean Water Act, Comprehensive Environmental Response, Compensation and Liability Act, and the Toxic Substances Control Act. Compliance with such regulations would minimize the potential for a release to occur and provide planning mechanisms for prompt and effective cleanup if an accidental release did occur. Therefore, no new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

c. Emit Hazardous Materials or Handle Hazardous Materials within One-Quarter Mile of an Existing or Proposed School

Approved Project

The MND determined that the approved project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school because no schools are within one-quarter mile of the approved project site. Additionally, the approved project would not include a use that would emit hazardous emissions or handle hazardous or acutely hazardous materials or substances, resulting in a less than significant impact.

Modified Project

Like the approved project, the modified project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school because no schools are within one-quarter mile of the modified project site. Additionally, the modified project would not include a use that would emit hazardous emissions or handle hazardous or acutely hazardous materials or substances. Therefore, no new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

d. Hazardous Materials Sites

Approved Project

The MND determined that the approved project site is not located on any hazardous materials sites pursuant to Government Code Section 65962.5. Therefore, no impact would occur.

Modified Project

Review of the Department of Toxic Substances Control (DTSC) Envirostor database (DTSC 2025) and the State Water Resources Control Board (SWRCB) Geotracker database (SWRCB 2025) determined that there are no contaminated sites with an open status on or adjacent to the modified project site. Therefore, the modified project site is not located on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

e. Airport Land Use Plan or Public Use Airport

Approved Project

The MND determined that there are no public or private airports located within City boundaries; however, the McClellan-Palomar Airport is located approximately 4.3 miles to the southwest within the city of Carlsbad. As described in the McClellan-Palomar Airport Land Use Compatibility Plan (ALUCP) and Figure 6-5 of the City's General Plan, the approved project site is located within the McClellan-Palomar Airport Influence Area (AIA). The McClellan-Palomar AIA is divided into Review Area 1 and Review Area 2. The approved project site is located within Review Area 2. The

only restriction on land uses within Review Area 2 is limitations on the heights of structures. Within Review Area 2, any structure which has a height greater than 35 feet above ground level requires Airport Land Use Commission (ALUC) review. The approved project would be 62 feet 9 inches above ground level. Thus, the approved project would require ALUC review prior to approval.

Modified Project

The modified project site would include an additional 0.37-acre portion of APN 217-161-17. Like the approved project, the modified project site is located within Review Area 2 of the McClellan-Palomar AIA. Proposed building height with the modified project would be a maximum of 35 feet, 4 inches measured from the finished floor. However, the modified project site is not located within a High Terrain Zone or in an area of terrain penetration to airspace surfaces which have a height greater than 35 feet above ground level. Therefore, the modified project would not require ALUC review prior to approval. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

f. Emergency Response Plan or Emergency Evacuation Plan

Approved Project

The MND determined that the approved project would not involve the development of structures that could potentially impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. All proposed internal roadways and project access points would comply with City standards for emergency and fire protection vehicles and distances. The approved project would comply with all design recommendations and requirements provided by the San Marcos Fire Department to ensure that emergency access meets City standards. Therefore, impacts related to the impairment of an emergency response plan would be less than significant.

Modified Project

The modified project would not alter the existing circulation network. All construction activities would be required to comply with the City's standards and regulations for emergency and fire protection vehicles and distances. The approved project would comply with all design recommendations and requirements provided by the San Marcos Fire Department. Therefore, the modified project would not interfere with an adopted emergency response plan or emergency evacuation plan. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

g. Wildland Fires

Approved Project

The MND determined that the approved project site is not located within a local, state, or federal fire hazard severity zone. Thus, impacts involving wildland fires would not occur.

Modified Project

Since adoption of the MND, the California Department of Forestry and Fire Protection (CAL FIRE) has updated the Fire Hazard Severity Zone (FHSZ) maps. Review of the updated CAL FIRE FHSZ maps shows that the modified project site is located within a Local Responsibility Area, meaning the financial responsibility of preventing and suppressing wildfires is primarily the responsibility of the local agency. In addition, the northeastern corner of the project site is mapped as a moderate fire hazard severity zone (CAL FIRE 2025). No substantial change in conditions has occurred since adoption of the MND; compliance with applicable state and local regulations and review of the modified project by the City's Fire Prevention Division would further reduce the potential for fire risk. The modified project site is located within an urbanized portion of the City away from any urban/wildland interface. Therefore, the modified project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Mitigation Measures

None.

4.10 Hydrology and Water Quality

Would the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces in a manner, which would:	☐	☐	☒
i. result in substantial erosion or siltation on- or off-site;	☐	☐	☒
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☒

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒
iv. impede or redirect flood flows?	☐	☐	☒
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒

EXPLANATIONS:

The modified project analysis in this section is based on the Preliminary Hydrology Study prepared by PLSA (Attachment 8; PLSA 2025a) and the Storm Water Quality Management Plan prepared by PLSA (Attachment 9; PLSA 2025b).

a. Water Quality Standards or Waste Discharge Requirements or Degrade Surface or Groundwater Quality

Approved Project

The MND determined that construction and post-construction activities would be required to adhere to various federal, state, and regional water quality standards, such as the Municipal Separate Storm Sewer System Permit (MS4) and Construction General Permit. As such, runoff volumes and pollutants leaving the approved project site during construction and postconstruction operations would be substantially reduced through source control, site design, and/or treatment-control BMPs mandated by these permits. The approved project would require preparation of a storm water pollution prevention plan (SWPPP). The SWPPP would identify erosion and sediment controls that would substantially reduce soil disturbance, erosion, and sediment transport into receiving waters, and pollutants in site runoff during construction. The BMPs would provide hydromodification management flow control and storm water pollutant control to meet the requirements of the California Regional Water Quality Control Board (RWQCB) San Diego Region municipal separate storm sewer system permit (Order No. R9-2013-0001, referred to as MS4 Permit). Furthermore, the approved project has been designed to comply with the land development requirements of the Regional MS4 Permit and the 2016 City's Best Management Practices Design Manual (BMP Design Manual). Adherence with the City's BMP Design Manual and the National Pollutant Discharge Elimination System (NPDES) permit that is in place at the time of development would be required. Impacts would be less than significant.

Modified Project

Construction of the modified project would have the potential to generate erosion/sedimentation and pollutants that could impact water quality. However, the modified project would implement construction BMPs consistent with the City's BMP Design Manual and preparation of a SWPPP would be required. Adherence to the City's BMP Design Manual and the NPDES permit that is in place at the time of development would be required. Impacts would be less than significant. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

b. Groundwater Supplies or Groundwater Recharge

Approved Project

The MND determined that compliance with the City's BMP Design Manual and the NPDES permit that is in place at the time of development would be required. The approved project would not use any groundwater. All water for the approved project would be provided by Vista Irrigation District (VID). Therefore, the approved project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. No impact would occur.

Modified Project

The modified project would not use any groundwater. All water for the modified project would be provided by VID. Therefore, the modified project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

c.i. Erosion or Siltation

Approved Project

The MND determined that the approved project site is not located within a Federal Emergency Management Agency (FEMA) floodplain, as designated on Figure 6-3, FEMA Flood Hazards and Reservoir/Dam Inundation Zones, in the City's General Plan Safety Element. Implementation of the approved project would involve ground-disturbing activities, including grading and excavation, and could cause soil erosion. The approved project would be required to comply with the City's Municipal Code Chapter 17.32, Grading and Related Activities, which contains design standards and performance requirements to avoid or reduce excessive erosion. Therefore, the approved project would not result in substantial erosion or siltation, and impacts would be less than significant.

Modified Project

The Hydrology Study (see Attachment 8) prepared for the modified project identified four drainage basins in the existing condition. Table 7 summarizes peak flows during the 100-year storm event in the existing condition using the Rational Method Procedure outlined in the San Diego County

Hydrology Manual. As shown in Table 7, peak flows during the 100-year storm event in the existing condition total 7.98 cubic feet per second (cfs).

Table 7
Existing 100-year Storm Event Peak Discharge Rates

Drainage Basin	Area (acres)	100-year Storm Event Peak Flows (cfs)
Drainage Basin 1	1.24	2.35
Drainage Basin 2	0.04	0.10
Drainage Basin 3	1.65	5.16
Drainage Basin 4	0.14	0.37
Total		7.98

SOURCE: Attachment 8; PLSA 2025a.
cfs = cubic feet per second

The modified project would increase the amount of impervious surface area as compared to the approved project, which would potentially increase runoff from the project site. Additionally, the modified project would change the drainage pattern to include six drainage basins. The modified project would incorporate a proprietary biofiltration system and underground detention system containing six modular wetland units and four detention vaults including a flow control device to treat and detain runoff prior to discharging off-site. As shown in Table 8 below, introduction of the detention vaults would reduce peak flows during the 100-year storm event from 16.66 cfs (undetained) to 3.18 cfs (detained). Therefore, the modified project would not result in substantial erosion or siltation on- or off-site and impacts would be less than significant. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Table 8
Modified Project 100-year Storm Event Peak Discharge Rates

Drainage Basin	Area (acres)	100-year Storm Event Peak Flows Undetained (cfs)	100-year Storm Event Peak Flows Detained (cfs)
Drainage Basin 1	0.74	3.82	0.44
Drainage Basin 2	1.12	10.77	2.74
Drainage Basin 3	0.40		
Drainage Basin 4	0.50		
Drainage Basin 5	0.29	2.04	N/A
Drainage Basin 6	0.01	0.03	N/A
Total		16.66	3.18

SOURCE: Attachment 8; PLSA 2025a.
cfs = cubic feet per second

c.ii. Flooding

Approved Project

The MND determined that implementation of the approved project would involve construction activities that would increase the amount of impervious surface that could result in an increase of surface runoff. Further, the project is required to comply with General Plan Policy COS-8.4, which directs the City to require development to protect natural drainage systems through site design,

runoff reduction measures, and BMPs consistent with the San Diego RWQCB Municipal Stormwater NPDES Permit. Construction and post-construction activities would be required to adhere to various federal, state, and regional water quality standards, such as the MS4 Permit and Construction General Permit. As such, runoff volumes and pollutants leaving the site during construction and post-construction operations would be substantially reduced through source control, site design, and/or treatment-control BMPs mandated by these permits. Erosion and sediment controls identified in the project-specific SWPPP would substantially reduce the amount of soil disturbance, erosion, and sediment transport into receiving waters, and pollutants in site runoff during construction. For all of the foregoing reasons, implementation of the proposed project would not increase the rate or amount of surface runoff. Therefore, impacts would be less than significant.

Modified Project

Construction of the modified project would increase the amount of impervious surface that could result in an increase of surface runoff. As discussed under 4.10.c.i. above, the modified project would incorporate a proprietary biofiltration system and underground detention system to treat and detain runoff prior to discharging off-site through a new 18-inch reinforced concrete storm drain pipe which would connect to the existing public 60-inch reinforced concrete storm drain pipe in South Santa Fe Avenue and through an existing 18-inch reinforced concrete storm drain pipe which connects to public storm drain in North Las Flores Drive. Introduction of the biofiltration basin would reduce peak flows during the 100-year storm event from 16.66 cfs to 3.18 cfs. Therefore, the existing (off-site) public storm system would have the capacity to accommodate flows from the project site. The modified project would not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site and impacts would be less than significant. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

c.iii. Stormwater Drainage Systems

Approved Project

The MND determined that the project design included an on-site storm water runoff system that would collect runoff in a storm drain system and then convey it to a proprietary biofiltration system and subsequently into underground storage facilities. Two storm drain systems, each with their own BMPs, were proposed to maintain the site's historical points of discharge. As such, runoff volumes and pollutants leaving the project site during construction and post-construction operations would be substantially reduced through source control, site design, and/or treatment-control BMPs mandated by the Municipal Permit and Construction General Permit. Furthermore, erosion and sediment controls identified in the SWPPP would substantially reduce the amount of soil disturbance, erosion, and sediment transport into receiving waters, and pollutants in site runoff during construction. Therefore, implementation of the approved project would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. No impact would occur.

Modified Project

Construction of the modified project would increase the amount of impervious surface that could result in an increase of surface runoff. As discussed under c.i. above, the modified project would incorporate a proprietary biofiltration system and underground detention system to treat and detain runoff prior to discharging off-site. Introduction of the biofiltration basin would reduce peak flows during the 100-year storm event from 16.66 cfs to 3.18 cfs, which represents a decrease from that which occurs under existing conditions (7.98 cfs). Therefore, it is anticipated that the existing storm water system can adequately accommodate runoff from the project as proposed. The modified project would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems and impacts would be less than significant. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

c.iv. Impede or Redirect Flood Flows

Approved Project

The MND determined that the approved project site is not located within a FEMA floodplain, as designated on Figure 6-3 in the City's General Plan. The approved project would be required to comply with the City's Municipal Code Section 17.32.150, which directs the City to deny grading permits in flood hazard areas. Therefore, implementation of the approved project would not impede or redirect flood flows and impacts would be less than significant.

Modified Project

Construction of the modified project would increase the amount of impervious surface that could result in an increase of surface runoff. As discussed under 4.10.c.i. above, the modified project would incorporate a proprietary biofiltration system and underground detention system to treat and detain runoff prior to discharging off-site. The proposed improvements would maintain the site's historical points of discharge and would reduce stormwater flows from the site as compared to existing conditions. Therefore, the modified project would not impede or redirect flood flows and impacts would be less than significant. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

d. Release Pollutants Due to Project Inundation

Approved Project

The MND determined that the approved project site is not located within a FEMA floodplain, as designated on Figure 6-3 in the City's General Plan. The approved project site is located approximately 10.5 miles east of the Pacific Ocean and, therefore, impacts as a result of a tsunami would not occur. In addition, seiches are considered unlikely due to the absence of large nearby confined bodies of water. No impact would occur.

Modified Project

The modified project site is not located within a FEMA floodplain, as designated on Figure 6-3 in the City's General Plan. The modified project site is located approximately 10.5 miles east of the Pacific Ocean and, therefore, impacts as a result of a tsunami would not occur. In addition, seiches are considered unlikely due to the absence of large nearby confined bodies of water. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

e. Water Quality Control Plan or Sustainable Groundwater Management Plan

Approved Project

The MND determined that the approved project site is located within the boundaries of the Carlsbad Management Area Water Quality Improvement Plan. The General Construction Permit requires preparation and implementation of a SWPPP, which must include erosion and sediment control BMPs that would meet or exceed measures required by the NPDES General Permit, as well as BMPs that control hydrocarbons, trash and debris, and other potential construction-related pollutants. In accordance with the SWQMP (see Attachment 9; PLSA 2025b), the approved project would be required to implement proprietary biofiltration BMPs (BF-3) to meet pollutant control requirements. Furthermore, the approved project would not utilize groundwater. Therefore, the approved project would not conflict with or obstruct the implementation of a water quality control plan or sustainable groundwater management plan and impacts would be less than significant.

Modified Project

Project construction would have the potential to generate erosion/sedimentation and pollutants that could impact water quality. The modified project would implement construction BMPs consistent with the City's BMP Design Manual and preparation of a SWPPP would be required. As discussed under 4.10.c.i. above, the modified project would incorporate a proprietary biofiltration system and underground detention system containing six modular wetland units and four detention vaults including a flow control device to treat and detain runoff prior to discharging off-site. Furthermore, the modified project would not utilize groundwater. Therefore, the modified project would not conflict with or obstruct the implementation of a water quality control plan or sustainable groundwater management plan, and impacts would be less than significant. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Mitigation Measures

None.

4.11 Land Use and Planning

Would the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Physically divide an established community?	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒

EXPLANATIONS:

a. Divide an Established Community

Approved Project

The MND determined the approved project site is bounded by an existing multi-family residential development located east of North Las Flores Drive, by South Santa Fe Avenue followed by the Vista Meadows mobile home park to the south, existing industrial to the north and west, commercial uses to the west, and an existing liquor store and parking lot to the southwest. The Sprinter railroad tracks and single-family residential homes off North Las Flores Drive are north and northeast of the project site. The proposed use of multi-family dwelling units would be similar to the adjacent multi-family dwelling units to the east and would not physically divide an established community. Therefore, no impact would occur.

Modified Project

The modified project would construct 46 townhomes and would not affect the surrounding land use pattern. Similarly, the modified project would not alter the existing circulation network. The modified project would connect to existing utilities that are adjacent to the modified project site and are already serving the surrounding development. Therefore, the modified project would not physically divide an established community. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

b. Conflict with a Land Use Plan, Policy, or Regulation

Approved Project

The MND determined that the approved project would require a GPA to change the land use from Commercial (C) and Light Industrial (L-I) to Medium Density Residential 2 (MDR2) and a rezone to change the zone from Commercial (C) and Light Industrial (L-I) to Multi-Family Residential (R-3-10). The approved project received a Density Bonus in accordance with Section 20.305 of the City's

Municipal Code. In conjunction with the Density Bonus, and due to the site's topography, the approved project also requested a concession to allow for the proposed building height of 62 feet, 9 inches from the finished floor, exceeding the three-story, 45-foot height limit of the R-3-10 Zone. Despite the physical and regulatory changes, the approved project was found to be consistent with the planned growth outlined in the adopted 2021–2029 Housing Element Update. Therefore, impacts would be less than significant.

Modified Project

The modified project would require a GPA from Medium Density Residential 2 (MDR2) to Medium High Density Residential (MHDR) for APNs 217-161-18, and 217-161-19, and a GPA from Commercial (C) to Medium High Density Residential (MHDR) for the northern portion (0.37 acres) of APN 217-161-17. The modified project would also rezone APNs 217-161-18, and 217-161-19 from Multi-family Residential 3 (R-3-10) to Multi-family Residential (R-3-6) and rezone the northern portion (0.37 acres) of APN 217-161-17 from Commercial (C) to Multi-Family Residential (R-3-6).

The Medium High Density Residential (MHDR) land use designation allows 20 to 30 dwelling units per acre. Based on the 2.6-acre project site, development could typically range from 52 to 78 dwelling units. However, due to site constraints, only a single access point is feasible. The San Marcos Fire Department limits residential development to no more than 50 dwelling units where a single access point is provided. In addition, compliance with the City's open space and recreation requirements, landscape requirements, building setback standards, and the project site's topography further limits the number of dwelling units that can be feasibly developed on the site. The zone's development standards only implement the maximum density allowed; due to these constraints, the City has agreed to a total of 46 dwelling units (approximately 18 dwelling units per acre), which is slightly below the maximum allowable 50 dwelling units.

While the modified project would require physical and regulatory changes, the project would be consistent with planned growth under the adopted 2021-2029 Housing Element Update. Additionally, as compared to the approved project, the modified project would reduce proposed structure heights to have a maximum height of 35 feet, 4 inches, which is under the 45-foot height limit of the R-3-6 Zone. The project would also be consistent with R-3-6 zone development standards as set forth in the City's Municipal Code Section 20.215.050, Table 20.215-4 (R-3 and Attached Residential Development Standards). Therefore, impacts would be less than significant. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

<u>Mitigation Measures</u>

None.

4.12 Mineral Resources

Would the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☒

EXPLANATIONS:

a. Loss of Availability of a Known Mineral Resources

Approved Project

The MND determined that the City does not have any active mines or quarries, although two historical mining/quarry locations do exist within the corporate City limits; Meadowlark Ranch Quarry located in the Questhaven/La Costa Meadows Neighborhood and the former mine near Village Drive at Twin Oaks Valley Road. The areas around the approved project site are not being used for the recovery of mineral resources and are not designated by the City's General Plan or other local, state, or federal land use plan for mineral resources recovery. Therefore, the approved project would not result in the loss of mineral resources, and no impact would occur.

Modified Project

No change in conditions has occurred regarding the loss of availability of a known mineral resource since adoption of the MND. Therefore, the modified project would not result in the loss of availability of a known mineral resource. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

b. Loss of Availability of a Locally Important Mineral Resource

Approved Project

The MND determined that the approved project site is not designated as a locally important mineral resource recovery site in the City's General Plan, or any other specific plan or land use plan. No impact would occur.

Modified Project

No change in conditions has occurred regarding the loss of availability of a locally important mineral resource since adoption of the MND. Therefore, the modified project would not result in the loss of mineral resource recovery sites. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Mitigation Measures

None.

4.13 Noise

Would the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒
b. Generation of excessive ground borne vibration or ground borne noise levels?	☐	☐	☒
c. For a project located within the vicinity of a private airstrip or an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	☐	☐	☒

EXPLANATIONS:

The modified project analysis in this section is based on the Noise Analysis prepared by RECON (Attachment 10; RECON 2026e).

a. Increase in Ambient Noise Levels

Approved Project

Construction Noise

The MND determined that noise levels from construction of the approved project would range from 57 to 74 A-weighted decibels one-hour equivalent noise level [dB(A) L_{eq}] at the adjacent property

lines. The City's Municipal Code does not place noise limit restrictions on construction activities; however, the County noise level limit of 75 dB(A) L_{eq} is used by the City at residential uses. Construction activities under the approved project would generally occur over the period between 7:00 a.m. and 6:00 p.m. on weekdays. Although the existing adjacent uses would be exposed to construction noise levels that may be heard above ambient conditions, the exposure would be temporary and would not exceed 75 dB(A) L_{eq}. As construction activities associated with the approved project would comply with the time limits established in Section 10.24.020 (b)(9) of the City's Municipal Code, temporary increases in noise levels from construction activities would be less than significant.

On-Site Traffic and Rail Noise

The MND determined that the main sources of exterior noise are vehicle traffic on South Santa Fe Avenue and North Las Flores Drive as well as the Sprinter on the adjacent rail line. The exterior noise level standard for multi-family uses is 65 community noise equivalent level (CNEL). This standard is applicable at exterior use areas which included the patios, balconies, and the open play lawn, tot lot, and seating areas on the western side of the approved buildings. The approved project's exterior noise levels were projected to range from 45 to 63 CNEL at the outdoor use areas and building façade. Therefore, noise levels would be compatible with the City's exterior multi-family noise level standard of 65 CNEL and exterior noise impacts would be less than significant.

The MND determined that the interior noise level standard is 45 CNEL. Interior noise levels can be reduced through standard construction techniques. When windows are closed, standard construction techniques provide various exterior-to-interior noise level reductions depending on the type of structure and window. Standard light-frame construction would reduce exterior to interior noise levels by at least 20 dB. Therefore, interior noise levels would be 43 CNEL or less and were not projected to exceed the interior noise level standard of 45 CNEL. Interior noise impacts would be less than significant.

Off-Site Traffic Noise

The MND determined that additional vehicle trips associated with the approved project would increase noise levels on nearby roadways. A noise increase of 3 dB or more would be considered significant because 3 dB is the level at which an increase in noise is perceptible to a person. It was calculated that the approved project would result in traffic-related noise level increases ranging from 1.3 dB to 2.5 dB over existing noise levels. The approved project would not result in a direct or cumulative noise increase of more than 3 dB. Therefore, the approved project would result in less than significant direct and cumulative impact related to traffic noise.

On-Site Generated Noise

The project site is surrounded by single-family residential uses to the northeast and southeast, multi-family residential uses to the east, a mobile home park to the south, a commercial use to the southwest, and industrial uses to the west and north. The applicable daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) Noise Ordinance limits are 60 dB(A) L_{eq} and 50 dB(A) L_{eq} at the single family residential uses, 65 dB(A) L_{eq} and 55 dB(A) L_{eq} at the multi-family residential and mobile home park uses, 65 dB(A) L_{eq} and 55 dB(A) L_{eq} at the commercial uses, and 65 dB(A) L_{eq} and

60 dB(A) L_{eq} at the industrial uses. The MND determined that noise sources from operation of the approved project are anticipated to be those that would be typical of any residential use, such as vehicles arriving and leaving, children at play, and landscape maintenance machinery. None of these noise sources were anticipated to violate the City's Municipal Code. Rooftop heating, ventilation, and air conditioning (HVAC) noise levels were modeled at the adjacent properties. HVAC noise levels would range from 33 to 44 dB(A) L_{eq}. Therefore, noise levels would not exceed the applicable Noise Ordinance limits at the property lines and impacts would be less than significant.

Modified Project

Construction Noise

Modified project construction noise would be generated by diesel engine-driven construction equipment used for site preparation and grading, building construction, loading, unloading, and placing materials and paving. Diesel engine-driven trucks would bring materials to the site and transport soils excavated from the site for off-site disposal. Average construction noise levels were calculated for the simultaneous operation of three common pieces of construction equipment: dozer, excavator, and loader. FTA guidance recommends analyzing the two noisiest pieces of construction equipment (FTA 2018); therefore, this is a conservative assessment. Noise levels were modeled at a series of 17 receivers located at the adjacent uses (Figure 8).

As shown in Table 9, construction noise levels for the modified project would range from 56 to 73 dB(A) L_{eq} at the adjacent property lines. The City's Municipal Code does not place noise limit restrictions on construction activities; however, the County of San Diego commonly applies a noise level limit of 75 dB(A) L_{eq} at residential uses. Construction activities would generally occur over the period between 7:00 a.m. and 6:00 p.m. on weekdays. Although the existing adjacent uses would be exposed to construction noise levels that may be heard above ambient conditions, the exposure would be temporary and would not exceed 75 dB(A) L_{eq}. As construction activities associated with the approved project would comply with the time limits established in Section 10.24.020 (b)(9) of the City's Municipal Code, temporary increases in noise levels from construction activities would be less than significant. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Image Source: Nearmap (flown May 2025)

Project Boundary
Off-site Improvements
Receivers

Construction Noise
60 dB(A) L_{eq}
65 dB(A) L_{eq}
70 dB(A) L_{eq}
75 dB(A) L_{eq}

0 Feet 200

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 01/21/2026 bma

FIGURE 8
Construction Noise Contours

Table 9 Construction Noise Levels		
Receiver	Land Use	Noise Level [dB(A) L_{eq}]
1	Single-Family Residential	58
2	Single-Family Residential	60
3	Single-Family Residential	61
4	Single-Family Residential	60
5	Single-Family Residential	59
6	Multi-Family Residential	56
7	Multi-Family Residential	58
8	Multi-Family Residential	68
9	Multi-Family Residential	70
10	Single-Family Residential	63
11	Mobile Home Park	66
12	Mobile Home Park	65
13	Mobile Home Park	61
14	Mobile Home Park	59
15	Industrial	68
16	Industrial	66
17	Industrial	73
18	Commercial	73
dB(A) L_{eq} = A-weighted decibels equivalent noise level SOURCE: Attachment 10; RECON Environmental, Inc. 2026e		

It should be noted that the modified project would also include trucks to haul 20,100 cubic yards of export soil off-site during the grading phase. Based on CalEEMod modeling prepared as part of the Air Quality Analysis, this results in approximately 105 daily truck trips over a one-month period. These truck trips are not anticipated to result in a significant noise impact because the trucks would be subject to CARB's idling restrictions while loading on-site thereby generating average hourly noise levels less than those summarized in Table 9, and once they leave the project site, they would travel along existing roadways and would not be located near any given receiver for a long period of time.

On-Site Traffic and Rail Noise

The main source of noise at the modified project site is vehicle traffic on South Santa Fe Avenue and North Las Flores Drive as well as the Sprinter on the adjacent rail line. The exterior noise level standard for multi-family uses is 65 CNEL. This standard is applicable at exterior use areas which include second- and third-floor balconies, rooftop decks, and the five proposed amenity areas consisting of active play areas and passive gathering areas These amenity areas are located on the south side of Building 1, on the north side of Building 2, on the east side of Building 4, on the north side of Building 5, and between Buildings 6 and 7 (refer to Figure 3, Modified Project Site Plan). As shown in Table 10, without consideration of any noise barriers, exterior noise levels are projected to range from 42 to 70 CNEL at the building façades and amenity areas. Noise levels would be compatible with the City's exterior multi-family noise level standard of 65 CNEL at all locations except the amenity area on the south side of Building 1 (Receiver 1) and the south and east sides of Building 1 facing the roadways (Receivers 8 and 9; Figure 9). In order to reduce noise levels at these locations, the project would include a 6-foot barrier adjacent to the amenity area south of Building 1, and a solid 3.5-foot barrier on the balconies located on the south and east sides of Building 1 and on the south and east

Image Source: Nearmap (flown May 2025)

Project Boundary
Off-site Improvements
Receivers
Site Plan
Amenity Area A 6-foot Barrier
Buildings

Vehicle and Rail Noise
50 CNEL
55 CNEL
60 CNEL
65 CNEL

0 Feet 150

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 12/08/2025 bma

FIGURE 9
Future Vehicle and Rail Noise Contours

sides of the Building 1 roof deck. With construction of these barriers, exterior noise levels would be reduced to less than 65 CNEL and exterior noise impacts would be less than significant; refer to Attachment 10 (RECON 2026e) for additional details.

Table 10
Future Vehicle and Rail Traffic Noise Levels

Receiver	Location	Exterior Noise Level (CNEL)		
		First-Floor	Second-Floor	Third-Floor
1	Amenity Area A	**68**	--	--
2	Amenity Area B	46	--	--
3	Amenity Area C	50	--	--
4	Amenity Area D	46	--	--
5	Amenity Area E	54	--	--
6	Amenity Area E	42	--	--
7	Building 1	61	63	65
8	Building 1	**67**	**69**	**70**
9	Building 1	63	65	**66**
10	Building 1 and 2	49	53	55
11	Building 2	57	61	61
12	Building 2	46	50	52
13	Building 2	54	58	60
14	Building 3	54	55	56
15	Building 3	58	60	61
16	Building 3	57	60	60
17	Building 3 and 4	45	49	51
18	Building 4	51	55	59
19	Building 4	48	51	52
20	Building 4	46	51	52
21	Building 5	46	50	51
22	Building 5	45	49	50
23	Building 5	48	54	56
24	Building 5 and 6	43	49	50
25	Building 6	51	56	57
26	Building 6	55	58	59
27	Building 6	49	53	55
28	Building 7	43	45	49
29	Building 7	47	56	60
30	Building 7	59	63	65
31	Building 7	54	56	58

CNEL = community noise equivalent level
Bold = Exceeds 65 CNEL
SOURCE: Attachment 10; RECON Environmental, Inc. 2026e

The interior noise level standard is 45 CNEL. Interior noise levels can be reduced through standard construction techniques. When windows are closed, standard construction techniques provide various exterior-to-interior noise level reductions depending on the type of structure and window. Standard light-frame construction would reduce exterior to interior noise levels by at least 20 dB (FHWA 2011). With the installation of windows with an STC rating of 25 or higher for units located on the south and east sides of Building 1, interior noise levels within the units in Building 1 would be reduced

to 45 CNEL and interior noise levels would be less than significant. Interior noise levels at all other buildings would be 45 CNEL with standard light frame construction and without consideration of specific building components. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Off-Site Traffic Noise

The additional vehicle trips associated with the modified project would increase noise levels on nearby roadways. A noise increase of 3 dB or more would be considered significant because 3 dB is the level at which an increase in noise is perceptible to a person. As shown in Table 11, the modified project would not result in a direct or cumulative noise increase of more than 3 dB. Therefore, the modified project would result in less than significant direct and cumulative impacts related to traffic noise. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Table 11
Traffic Noise Level with and without Project and Ambient Noise Increases
(CNEL)

Roadway Segment	Existing			Near-Term (Year 2027)			Future (Year 2050)			Cumulative Increase Over Existing
	No Project	Project	Increase	No Project	Project	Increase	No Project	Project	Increase	
S. Santa Fe Avenue										
Similax Road to Bosstick Boulevard	71.3	71.3	0.0	71.6	71.7	0.1	73.0	73.1	0.1	1.8
Bosstick Boulevard to Community Drive	71.8	71.8	0.0	72.1	72.2	0.1	73.0	73.1	0.1	1.3
Community Drive to N. Las Flores Drive	71.8	71.9	0.1	72.1	72.2	0.1	73.0	73.1	0.1	1.3
N. Las Flores Drive to N. Rancho Santa Fe Road	71.2	71.3	0.1	71.6	71.6	0.0	72.9	72.9	0.0	1.7
N. Rancho Santa Fe Road to N. Pacific Street	69.8	69.8	0.0	70.1	70.1	0.0	72.3	72.3	0.0	2.5
Hollencrest Road										
De Leone Road to Hollenbeck Road	52.7	53.0	0.3	53.1	53.4	0.3	54.4	54.6	0.2	1.9
N. Rancho Santa Fe Avenue										
S. Santa Fe Avenue to Capalina Road	69.1	69.2	0.1	69.5	69.5	0.0	70.7	70.7	0.0	1.6

NOTE: Increase calculations may vary due to independent rounding.
SOURCE: Attachment 10; RECON Environmental, Inc. 2026e

On-Site Generated Noise

The primary noise sources on-site would be HVAC equipment. Rooftop HVAC equipment that would have the potential to produce noise in excess of City limits (see Table 12). Noise levels were modeled at a series of 17 receivers located at the adjacent properties. Noise generated by HVAC equipment would occur on an intermittent basis, primarily during the day and evening hours and less frequently during the nighttime hours. For a worst-case analysis, it was assumed that the HVAC units would operate at maximum capacity during the daytime and nighttime hours.

Table 12 Municipal Code Property Line Noise Standards		
Zone	Time	Allowable Property Line Noise Level [dB(A) L_{eq}]
Single-Family Residential (A, R-1, R-2)	7:00 a.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	60 50
Multi-Family Residential (R-3)	7:00 a.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	65 55
Commercial (C, O-P, SR)	7:00 a.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	65 55
Industrial	7:00 a.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	65 60
SOURCE: Section 20.300.070(f) Table 20.300-4, San Marcos Municipal Code Title 20 – Zoning Code dB(A) L_{eq} = A-weighted decibels equivalent noise level SOURCE: Attachment 10; RECON Environmental, Inc. 2026e		

HVAC noise levels were modeled at a series of 17 receivers located at the adjacent properties (Figure 10). Future projected noise levels are summarized in Table 13. As shown, HVAC noise levels would range from 33 to 42 dB(A) L_{eq}. Therefore, noise levels would not exceed the applicable Noise Ordinance limits at the property lines and impacts related to on-site generated noise would be less than significant. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Table 13 HVAC Noise Levels at Adjacent Properties			
Receiver	Land Use	Noise Level [dB(A) L_{eq}]	Noise Ordinance Limit Daytime/Nighttime [dB(A) L_{eq}]
1	Single Family Residential	33	60/50
2	Single Family Residential	35	60/50
3	Single Family Residential	36	60/50
4	Single-Family Residential	35	60/50
5	Single-Family Residential	34	60/50
6	Multi-Family Residential	34	65/55
7	Multi-Family Residential	35	65/55
8	Multi-Family Residential	42	65/55
9	Multi-Family Residential	41	65/55
10	Single-Family Residential	35	60/50
11	Mobile Home Park	36	65/55
12	Mobile Home Park	36	65/55
13	Mobile Home Park	35	65/55
14	Mobile Home Park	34	65/55
15	Industrial	39	65/60
16	Industrial	38	65/60
17	Industrial	40	65/60
dB(A) L_{eq} = A-weighted decibels equivalent noise level SOURCE: Attachment 10; RECON Environmental, Inc. 2026e			

Image Source: Nearmap (flown May 2025)

Project Boundary
Off-site Improvements
Receivers
HVAC
Site Plan
Buildings

HVAC Noise
30 dB(A) L_{eq}
35 dB(A) L_{eq}
40 dB(A) L_{eq}
45 dB(A) L_{eq}

0 Feet 200

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 01/21/2026 bma

FIGURE 10
HVAC Noise Contours

b. Ground Borne Vibration or Ground Borne Noise Levels

Approved Project

The MND determined that the City's Municipal Code does not place noise limit restrictions on construction activities; however, other jurisdictions commonly apply a noise level limit of 75 dB(A) L_{eq} at residential uses and the City uses the County of San Diego's 75 dB(A) L_{eq} limit at the adjacent property lines. Construction activities would generally occur over the period between 7:00 a.m. and 6:00 p.m. on weekdays.

Although the existing adjacent uses would be exposed to construction noise levels that may be heard above ambient conditions, the exposure would be temporary and would not exceed 75 dB(A) L_{eq}. As construction activities associated with the approved project would comply with the time limits established in Section 10.24.020(b)(9) of the City's Municipal Code, temporary increases in noise levels from construction activities causing ground borne vibration or ground borne noise levels would be less than significant.

Construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction equipment used and operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effects of ground vibration may be imperceptible at the lowest levels, low rumbling sounds and detectable vibrations at moderate levels, and damage to nearby structures at the highest levels. Vibration perception would occur at structures, as people do not perceive vibrations without vibrating structures.

Human reaction to vibration is dependent on the environment the receiver is in as well as individual sensitivity. For example, vibration outdoors is rarely noticeable and generally not considered annoying. Typically, humans must be inside a structure for vibrations to become noticeable and/or annoying. Based on several federal studies, the threshold of perception is 0.035 inches per second (in/sec) peak particle velocity (PPV), with 0.24 in/sec PPV being a distinctly perceptible (Caltrans 2020). Based on vibration standards developed by the Federal Transit Administration, the criterion for building damage caused by construction vibration is 0.2 in/sec in PPV.

Construction equipment associated with the approved project included loaded trucks, excavators, small dozers, and loaders. Vibration levels from these pieces of equipment would generate vibration levels with a PPV ranging from 0.035 to 0.076 in/sec PPV at 25 feet. A vibration level of 0.076 in/sec PPV at 25 feet would be 0.2 in/sec at 10 feet. The nearest structure is located approximately 25 feet from the approved project footprint. Thus, vibration levels would be 0.076 in/sec or less. Therefore, vibration levels are not anticipated to exceed 0.2 in/sec PPV. Operation of the approved project would not generate groundborne vibration.

Modified Project

Vibration impacts associated with the modified project would be the same as those associated with the approved project. The nearest structure is located approximately 25 feet from the modified project footprint, and construction of the modified project would include the same equipment required for the approved project. As discussed, vibration levels would be 0.076 in/sec or less at the

nearest structure. Therefore, vibration levels are not anticipated to exceed 0.2 in/sec PPV. Operation of the modified project would not generate groundborne vibration. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

c. Expose People Residing or Working in the Area to Excessive Noise Levels

Approved Project

The MND determined that the closest airport to the approved project site is the McClellan-Palomar Airport, which is located 4.3 miles to the southwest. The approved project site is located well outside the 60 CNEL noise contour for aircraft operations at McClellan-Palomar Airport. Thus, the approved project would not expose people residing or working in the project area to excessive noise levels resulting from proximity to a private airstrip and impacts would be less than significant.

Modified Project

The McClellan-Palomar Airport remains the closest airport to the project site. The modified project site would include an additional 0.37-acre portion of APN 217-161-17. The 0.37 acres are located the same distance to the McClellan-Palomar Airport as the approved project site. The overall project site remains outside of the 60 CNEL noise contour for aircraft operations at McClellan-Palomar Airport. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Mitigation Measures

None.

4.14 Population and Housing

Would the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☒

EXPLANATIONS:

a. Unplanned Population Growth

Approved Project

The MND determined that the approved project would require a GPA to change the land use from Commercial (C) and Light Industrial (L-I) to Medium Density Residential 2 (MDR2) and a rezone to change the zone from Commercial (C) and Light Industrial (L-I) to Multi-Family Residential (R-3-10). While the approved project would present additional housing, the housing would be consistent with planned growth under the adopted 2021-2029 Housing Element Update. Additionally, the approved project site has access to existing water, sewer, and storm water infrastructure within South Santa Fe Avenue. Impacts related to population growth would be less than significant.

Modified Project

The modified project would require a GPA from Medium Density Residential 2 (MDR2) to Medium High Density Residential (MHDR) for APNs 217-161-18 and 217-161-19, and a GPA from Commercial (C) to Medium High Density Residential (MHDR) for 0.37 acres of APN 217-161-17. Additionally, the project would rezone APNs 217-161-18 and 217-161-19 from Multi-Family Residential 3 (R-3-10) to Multi-Family Residential (R-3-6) and rezone 0.37 acres of APN 217-161-17 from Commercial (C) to Multi-Family Residential (R-3-6). The modified project would construct 46 townhomes, which would be four fewer units than the approved project. The proposed housing would be similarly consistent with planned growth under the adopted 2021-2029 Housing Element Update. The modified project site has access to existing water, sewer, and storm water infrastructure within South Santa Fe Avenue and would not indirectly induce substantial unplanned population growth through the extension of such infrastructure to areas that are currently unserved. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

b. Displace Existing People or Housing, Necessitating the Construction of Housing Elsewhere

Approved Project

The MND determined that the approved project site was vacant at the time of approval. As such, the approved project would not displace existing people or housing, and no impact would occur.

Modified Project

The modified project site would include an additional 0.37-acre portion of APN 217-161-17. The southern portion of APN 217-161-17 is currently developed with a liquor store, Gourmet Liquor, which is not part of the project and would remain, and the northern portion consists of undeveloped, previously graded land similar to APNs 217-161-18 and 217-161-19. Therefore, the approved project would not displace people or housing. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Mitigation Measures

None.

4.15 Public Services

Would the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:			
i. Fire protection?	☐	☐	☒
ii. Police protection?	☐	☐	☒
iii. Schools?	☐	☐	☒
iv. Parks?	☐	☐	☒
v. Other public facilities?	☐	☐	☒

EXPLANATIONS:

a.i. Fire Protection

Approved Project

The MND determined that the San Marcos Fire Department would service the approved project. The station closest to the approved project site is Fire Station No. 1, located approximately 2.6 miles southeast at 180 West Mission Road. The approved project site is within the existing service area of San Marcos Fire Department, and on-site construction would comply with applicable Fire Code requirements. New fire protection facilities were not anticipated at the time of project approval. However, development of the approved project would contribute to the incremental increase in demand for fire protection services city-wide. The MND identified mitigation measure PS-1, which requires participation in the Community Facilities District (CFD; 2001-01; Fire and Paramedic). Implementation of mitigation measure PS-1 would reduce potential impacts on fire protection services resulting from implementation of the approved project to a less than significant level.

Modified Project

Development of the modified project would contribute to the incremental increase in demand for fire protection services city-wide. As identified in the MND, the modified project would comply with mitigation measure PS-1, which requires participation in the Community Facilities District (CFD 2001-01) (Fire and Paramedic). Implementation of mitigation measure PS-1 would reduce potential impacts on fire protection services resulting from implementation of the modified project to a less than significant level. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

a.ii. Police Protection

Approved Project

The MND determined that San Diego County Sheriff's Department San Marcos Station would service the approved project. The station is located at 182 Santar Place, San Marcos, California 92069, approximately 4.6 miles east of the approved project site. Development of the approved project would contribute to the incremental increase in demand for police protection services city-wide. The MND identified mitigation measure PS-2, which requires the project applicant to annex the site into the preexisting CFD for Police Services (CFD 98-01, Improvement Area No. 1). Implementation of mitigation measure PS-2 would reduce potential impacts on police protection services resulting from implementation of the approved project to a less than significant level.

Modified Project

Development of the modified project would contribute to the incremental increase in demand for police protection services city-wide. As identified in the MND, the modified project would comply with mitigation measure PS-2, which requires participation in the CFD for Police Services (CFD 98-01, Improvement Area No. 1). Implementation of mitigation measure PS-2 would reduce potential impacts on police protection services resulting from implementation of the modified project to a less than significant level. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

a.iii. Schools

Approved Project

The MND determined that the approved project site is located within the San Marcos Unified School District (SMUSD). SMUSD collects residential and commercial developer fees for projects within its service area to support costs of construction and expansion of school facilities. At the time of project approval, developer fees were $4.38 per square foot for residential projects. The project applicant would have paid school mitigation fees pursuant to California Education Code Section 17620 et seq. and Government Code Sections 65995(h), 65996(b), and 65996(h) in effect at the time of building permit issuance, thereby ensuring impacts would be less than significant.

Modified Project

The modified project site is located within the SMUSD. Since approval of the MND, developer fees have increased to $5.17 per square foot for residential projects. The project applicant shall pay school mitigation fees pursuant to California Education Code Section 17620 et seq. and Government Code Sections 65995(h), 65996(b), and 65996(h) in effect at the time of building permit issuance, thereby ensuring impacts would be less than significant. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

a.iv. Parks

Approved Project

The MND determined that the approved project would not increase demand on existing parks through the contribution of funds for the acquisition and development of local and community park facilities via the City's Public Facilities Fee (PFF). Impacts were determined to be less than significant.

Modified Project

Consistent with the approved project, the modified project would not increase demand on existing parks through the contribution of funds for the acquisition and development of local and community park facilities via the City's PFF. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

a.v. Other Public Facilities

Approved Project

The MND concluded that the approved project would not result in an impact to any other public facilities. Impacts were determined to be less than significant.

Modified Project

The modified project would not result in an impact to any other public facilities; no change in circumstances has occurred since the MND was approved that would increase project demand for other public facilities (i.e., libraries, hospitals, etc.). No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

<u>Mitigation Measures (Carried Forward from Approved MND)</u>

Mitigation Measure PS-1

Prior to the issuance of a grading permit, the applicant/developer/property owner shall submit an executed version of petition to annex into and establish, with respect to the property, the special taxes levied by the following Community Facility District: CFD 2001-01 (Fire and Paramedic).

Participation in the CFD will offset the cost of increases in necessary fire services resulting from implementation of the proposed project and impacts would be reduced to below a level of significance.

Mitigation Measure PS-2

Prior to the issuance of a grading permit, the applicant/developer/property owner shall submit an executed version of petition to annex into and establish, with respect to the property, the special taxes levied by the CFD 98-01 Improvement Area No. 1 (Police). Participation in the CFD would offset the cost of increases in necessary police protection services resulting from implementation of the proposed project and impacts would be reduced to below a level of significance.

4.16 Recreation

Would the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒
b. Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☒

EXPLANATIONS:

a. Increase the Use of Existing Parks or Recreational Facilities

b. Include Recreational Facilities or Require the Construction or Expansion of Recreational Facilities

Approved Project

The MND determined that the approved project would construct outdoor amenities including a playground and picnic tables. The approved project would not cause an increase in use in existing parks and recreational facilities, namely Valley View Park, approximately 1.9 miles east of the project site at 1399 Camino Del Sol, and Cerro de las Posas Park, approximately 2.2 miles east of the project site at 1387 West Borden Road. Additionally, it would not require the construction or expansion of new recreational facilities. The applicant would be required to pay the City's PFF, a portion of which is designated for parks. The PFF money would go towards the acquisition and development of local and community park facilities throughout the City. Payment of the PFF would be required prior to

issuance of a building permit. As such, the approved project would not have an adverse physical effect on the environment due to the construction of recreational facilities. Impacts would be less than significant.

Modified Project

The closest community parks to the modified project site are Valley View Park, located approximately 1.9 miles east of the project site at 1399 Camino Del Sol, and Cerro de las Posas Park, located approximately 2.2 miles east of the project site at 1387 West Borden Road. The modified project would not involve the provision or alteration of a new or existing park facility and would not require the construction or expansion of recreational facilities. The modified project also proposes five amenity areas for project residents consisting of active play areas and passive gathering areas. These amenity areas are located on the south side of Building 1, on the north side of Building 2, on the east side of Building 4, on the north side of Building 5, and between Buildings 6 and 7 (refer to Figure 3, Modified Project Site Plan). Further, the applicant would be required to pay the City's PFF, a portion of which is designated for parks. The PFF money would go towards the acquisition and development of local and community park facilities throughout the City. Payment of the PFF would be required prior to issuance of a building permit. As such, the modified project would not have an adverse physical effect on the environment due to the construction of recreational facilities. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Mitigation Measures

None.

4.17 Transportation

Would the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒
b. Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒
d. Result in inadequate emergency access?	☐	☐	☒

EXPLANATIONS:

The modified project analysis in this section is based on the Local Transportation Analysis (see Attachment 3; LLG 2026) and the Vehicle Miles Traveled (VMT) Assessment (Attachment 11) prepared by LLG (2025).

a. Program Plan, Ordinance, or Policy

Approved Project

The MND determined that transit service is provided to the approved project via North County Transit District bus routes 304 and 305. The approved project site is located within one-half mile walking distance, depending on ultimate pedestrian site access, from stop pairs serving both Route 304 and Route 305 located along South Santa Fe Avenue. The closest bus stops are located near the intersection of South Santa Fe Avenue/North Las Flores Drive and the intersection of South Santa Fe Avenue (Mission Road) and Rancho Santa Fe Road on both sides of the street. The approved project site is also approximately 1.25-mile walking or biking distance from Palomar College Station. Class II bike lanes are provided on South Santa Fe Avenue, from Bosstick Boulevard to slightly south of North Rancho Santa Fe Road (both sides); and North Rancho Santa Fe Road, along its entire length (both sides). In the City's *Bicycle and Pedestrian Master Plan*, no additional bike facilities are recommended along the study street segments. Therefore, the MND determined that the approved project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or otherwise decrease the performance or safety of such facilities.

The MND evaluated whether additional traffic generated by the project would impact acceptable operations of surrounding roadways. Specifically, Policy M-1.4 of the Mobility Element sets City standards for roadway operations at a level of service (LOS) D or better. Based on the established LOS standards, the approved project would add a small amount of traffic to the intersection of South Santa Fe Avenue/Smilax Road, which operates below City standards. However, the project contributes only 0.45 percent (15 trips) of the total combined AM and PM peak hour traffic to this intersection under near term conditions. The existing traffic conditions at this location are already substandard. The Local Transportation Analysis prepared for the approved project found that the provision of a traffic signal would result in acceptable LOS D or better operations and that a traffic signal is planned at the South Santa Fe Avenue/Smilax Road intersection as part of the City's Capital Improvement Project (CIP) 88179 (IP 4750). Since the existing traffic conditions at the intersection of South Santa Fe Avenue/Smilax Road are already substandard and the approved project would only contribute 15 trips of the total combined AM and PM peak hour traffic, the MND determined that traffic impacts from the approved project would be less than significant.

Modified Project

Consistent with the approved project, transit service is provided to the modified project via North County Transit District bus routes 304 and 305. The modified project site is located within one-half mile walking distance, depending on ultimate pedestrian site access, from stop pairs serving both Route 304 and Route 305 located along South Santa Fe Avenue. The closest bus stops are located near the intersection of South Santa Fe Avenue/North Las Flores Drive and the intersection of South Santa Fe Avenue (Mission Road) and Rancho Santa Fe Road on both sides of the street. The modified

project site is also approximately 1.25-mile walking or biking distance from Palomar College Station. Currently, Class II bike lanes are provided on South Santa Fe Avenue, from Bosstick Boulevard to slightly south of North Rancho Santa Fe Road (both sides); and North Rancho Santa Fe Road, along its entire length (both sides). Subsequent to approval of the MND, the, City Council approved an Active Transportation Plan as part of the General Plan in August 2024. According to Table 5, *Interim Pedestrian Prioritization,* and Table 8, *Ultimate Bike Prioritization*, in the Active Transportation Plan (2024), the ultimate conditions for South Santa Fe Avenue/Mission Road include a Class IV bikeway and new sidewalk. The modified project would meet these requirements by providing an 8-foot-wide irrevocable offer of dedication along the project frontage on South Santa Fe Avenue/Mission Road to support construction of future bicycle and pedestrian facilities by others. .Therefore, the modified project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or otherwise decrease the performance or safety of such facilities.

The Local Transportation Analysis prepared for the modified project evaluated whether traffic generated by the modified project would impact acceptable operations of surrounding roadways. Specifically, Policy M-1.4 of the Mobility Element sets City standards for roadway operations at a LOS D or better. As discussed in the Local Transportation Analysis (see Attachment 3; LLG 2026), the modified project would add 20 peak hour trips to the intersection of South Santa Fe Avenue/Smilax Road, which operates at LOS F, below City standards. This amounts to 0.58 percent of the total combined AM and PM peak hour traffic at this intersection under near-term conditions. The Local Transportation Analysis found that provision of a traffic signal would result in acceptable LOS D or better operations, and a traffic signal is planned at the South Santa Fe Avenue/Smilax Road intersection as part of the City's CIP 88179 (IP 4750). Since the existing traffic conditions at the intersection of South Santa Fe Avenue/Smilax Road are already substandard and the modified project would contribute less than one percent of the total combined AM and PM peak hour traffic, traffic impacts from the modified project would be less than significant. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

b. CEQA Guidelines Section 15064.3, Subdivision (b)

Approved Project

The MND determined that in accordance with SANDAG's online residential VMT map, the approved project site is located within Census Tract 200.18. The VMT per capita of this Census Tract is 15.4 VMT, which is 81.2 percent of the SANDAG regional average of 19.0 VMT per capita. Therefore, the approved project would meet the criteria for residential projects proposed in census tracts with residential VMT per capita below the City's threshold of exceeding 85 percent of the SANDAG regional average and impacts would be less than significant.

Modified Project

As discussed in the VMT Assessment (see Attachment 11; LLG 2025), the modified project site is located within Census Tract 200.18. The VMT per capita of this Census Tract is 15.4 VMT, which is 81.2 percent of the SANDAG regional average of 19.0 VMT per capita. Therefore, the modified project would meet the criteria for residential projects proposed in census tracts with residential VMT per capita below the City's threshold of exceeding 85 percent of the SANDAG regional average and

impacts would be less than significant. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

c. Hazards Due to a Geometric Design Feature

Approved Project

The MND determined that access to the approved project would be via the existing driveway to South Santa Fe Avenue, which the Gourmet Liquor store currently utilizes. This driveway is limited to right turns in and out only by the raised median within South Santa Fe Avenue. The approved project would not include driveway access from North Las Flores Drive. All proposed roadway improvements would be required to comply with the City's Street Design Standards, which require streets to be designed to current City standards and final pavement approval by the Public Works Director before installation. Therefore, implementation of the approved project would not substantially increase hazards due to a geometric design feature, and impacts would be less than significant.

Modified Project

Access to the modified project site would be provided via a single right-in/right-out only driveway on South Santa Fe Avenue. The modified project would not include driveway access from North Las Flores Drive. All proposed roadway improvements would be required to comply with the City's Street Design Standards, which require streets to be designed to current City standards and final pavement approval by the Public Works Director before installation. Therefore, implementation of the modified project would not substantially increase hazards due to a geometric design feature, and impacts would be less than significant. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

d. Inadequate Emergency Access

Approved Project

The MND determined that access to the approved project site would be restricted to right-in/ right--out movements via South Santa Fe Avenue. All future roadway improvements would be required to comply with the California Fire Code, adopted by reference in the City's Municipal Code Chapter 17.64 and Section 17.64.120, which requires the width of an unobstructed roadway to measure no less than 24 feet to provide adequate access for fire and emergency responders. Therefore, the approved project would not result in inadequate emergency access. Therefore, impacts would be less than significant.

Modified Project

Access to the modified project site would be restricted to right-in/right-out movements via South Santa Fe Avenue. All future roadway improvements would be required to comply with the California Fire Code, adopted by reference in the City's Municipal Code Chapter 17.64 and Section 17.64.120, which requires the width of an unobstructed roadway to measure no less than 24 feet to provide adequate access for fire and emergency responders. Therefore, the modified project would not result

in inadequate emergency access. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Mitigation Measures

None.

4.18 Tribal Cultural Resources

Would the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/No Impact
a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:			
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	☐	☐	☒
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☐	☐	☒

EXPLANATIONS:

a.i. Listed or Eligible for Listing

a.ii. Significant Resources Pursuant to Criteria Set Forth in Subdivision (c) of Public Resources Code Section 5024.1

Approved Project

As described in Section 4.5(a), the MND determined that the project site does not support any listed historic resources and the approved project would not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5. This includes the California Register of Historical Resources, which is encoded by Public Resources Code Section 5024.1. The MND determined that the City formally notified California Native American tribes of the opportunity to consult via letter in accordance with SB 18 and AB 52 consultation processes in January and June of 2022, respectively. The formal SB 18 notification letters were sent to California Native American tribes as identified on the Native American Heritage Commission list while the AB 52 letters were sent to the Mesa Grande Band of Diegueno Mission Indians, San Luis Rey Band of Mission Indians, Rincon Band of Luiseño Indians, and Pechanga Band of Luiseño Indians. Formal consultation was requested by the Pechanga Band of Luiseño Indians, San Luis Rey Band of Mission Indians, and Rincon Band of Luiseño Indians.

As a result of the tribal consultation process, the City developed standard mitigation measures CR-1 through CR-4, as outlined under Section 4.5 above. Implementation of mitigation measures CR-1 through CR-4, which would require that an archaeological monitor and a TCA Native American Tribe monitor be present during earth-moving and grading activities, would reduce potential impacts to tribal cultural resources to a less than significant level.

Modified Project

If a project requires a GPA, SB 18 (Government Code §65352.3) mandates consultation with California Native American tribes. The modified project would require a GPA; therefore, in accordance with SB 18, the City sent opportunity to consult letters on March 18, 2025. In response to tribes that accepted consultation, the City provided the modified project's Cultural Resources Survey (see Attachment 5; RECON 2026c) on November 14, 2025, as noted in Table 14 below. As a result of consultation, a request was received to ensure that the City's current mitigation measures are incorporated into the environmental document, which the City has confirmed. Table 14 summarizes the City's consultation efforts.

Table 14 Tribal Consultation			
Tribe	Date Letter Mailed	Response Received	Date Cultural Resources Survey Emailed
San Luis Rey Band of Mission Indians	March 18, 2025	April 15, 2025; Accepted	November 14, 2025
Rincon Band of Luiseño Indians	March 18, 2025	March 28, 2025; Accepted	November 14, 2025
Pechanga Band of Mission Indians	March 18, 2025	April 23, 2025; Accepted	November 14, 2025
Pala Band of Mission Indians	March 18, 2025	March 24, 2025; Accepted	November 14, 2025

Consistent with the approved project, the modified project site does not contain any listed historic resources, including those listed on the California Register of Historical Resources pursuant to Public Resources Code Section 5024.1, and it would not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5. Additionally, consistent with the approved project, the modified project would be required to implement mitigation measures CR-1 through CR-4, which would reduce potential impacts to tribal cultural resources. Implementation of mitigation measures CR-1 through CR-4, which would require an archaeological monitor and a TCA Native American Tribe monitor be present during earth-moving and grading activities, would reduce potential impacts to tribal cultural resources to a less than significant level. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Mitigation Measures (Carried Forward from the Approved MND)

Mitigation measures CR-1 through CR-4 as outlined in Section 4.5 above.

4.19 Utilities and Service Systems

Would the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒
d. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒
e. Comply with federal, state, and local management and reduction statutes and regulation related to solid waste?	☐	☐	☒

EXPLANATIONS:

The modified project analysis in this section is based on the Buena Sanitation District Letter dated July 17, 2025 (Attachment 12; City of Vista 2025a) and the Buena Sanitation District Letter dated September 3, 2025 (Attachment 13; City of Vista 2025b).

a. New or Expanded Water, Wastewater Treatment or Storm Water Drainage, Electric Power, Natural Gas, or Telecommunications Facilities

Approved Project

The MND determined that the approved project would require a sewer study and approval by the BSD and would be subject to all applicable improvement fees as determined by the BSD. Any improvements required by the sewer study would be in an existing public street right-of-way and no new significant environmental impacts would occur. The approved project would connect to existing sewer lines within South Santa Fe Avenue and would not require the construction of new wastewater treatment facilities that could cause significant environmental effects. A Water Supply Study was prepared by VID for the approved project. As concluded in the Water Supply Study, the approved project would connect to existing public water lines in South Santa Fe Avenue and would not require construction of off-site water facilities that could cause significant environmental effects. Connections to existing sewer and water lines would be within the developed right-of-way. All public water facilities, including services and meters, would be designed and constructed in accordance with current City Water Facility Design Guidelines and regulations.

The approved project would provide an electrical, natural gas, and telecommunication connection to each unit. Potential impacts associated with construction of proposed on-site facilities have been considered within the approved MND. The approved project would not require construction of off-site electrical, natural gas, and telecommunication facilities or expansion of existing facilities. Impacts would be less than significant.

Modified Project

Water and Sewer

Like the approved project, the modified project would not require the construction of off-site water facilities or expansion of existing facilities that could cause significant environmental effects. All private water facilities on-site would be designed and constructed in accordance with the requirements of the California Uniform Plumbing Code and would connect to existing public water lines within South Santa Fe Avenue. South Santa Fe Avenue is a developed public right-of-way and potential environmental effects that may result from construction are analyzed throughout this addendum. All public water facilities, including services and meters, would be designed and constructed in accordance with current City Water Facility Design Guidelines and regulations. Furthermore, VID confirmed with the City that the study prepared for the approved project is sufficient for the modified project. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Wastewater Treatment

Like the approved project, the modified project would connect to the existing sewer line within South Santa Fe Avenue. South Santa Fe Avenue is a developed public right-of-way and potential environmental effects that may result from construction are analyzed throughout this addendum. On July 17, 2025, the BSD provided an updated sewer service letter for the modified project (Attachment 12; City of Vista 2025a). An additional letter was provided by BSD on September 13, 2025 (Attachment 13; City of Vista 2025b). As discussed in both letters, BSD infrastructure is available to service the modified project and has sufficient capacity; however, the site is not located within the BSD boundary. As a condition of project approval, the modified project would be required to receive an approved Out of Area Service Agreement from San Diego LAFCO for BSD to provide sewer services. Additionally, as stated in the BSD letter dated September 13, 2025 (see Attachment 13), the modified project applicant would be required to provide a proportional cost-share contribution towards sewer capacity improvements. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Storm Water Drainage

As discussed under Section 4.10.c.iii. above, storm water runoff would be collected on-site in a proposed storm drain system and conveyed to the proposed proprietary biofiltration system and subsequently, the proposed underground storage facilities to treat and detain runoff prior to discharging off-site.. Two storm drain systems, each with their own BMPs, are proposed on-siteonsite to maintain the site's historical points of discharge to the public storm drain system within South Santa Fe Avenue. South Santa Fe Avenue is a developed public right-of-way and potential environmental effects that may result from construction are analyzed throughout this addendum.

No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Electric Power, Natural Gas, and Telecommunications Facilities

As described in Section 4.14.a. above, the modified project would accommodate population growth that is already anticipated within the City, and therefore, would be consistent with the growth assumptions utilized to forecast demand for electric power, natural gas, and telecommunications. Consequently, the project would not require relocation or construction of new or expanded off-site electric power, natural gas, or telecommunications facilities.

The modified project would include an electrical, natural gas, and telecommunication connection for each townhome, all of which would be located within the project footprint. Consequently, potential impacts associated with construction of proposed on-site facilities have been considered within this environmental document. The project would not require construction of off-site electrical, natural gas, and telecommunication facilities or expansion of existing facilities, and impacts would be less than significant. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

b. Water Supplies

Approved Project

A Water Supply Study was prepared for the approved project by the VID which would supply water service to the site. The Water Study determined that the projected average annual water demand for the approved project is 8,140 gallons per day (gpd). The Water Supply Study prepared for the approved project concluded that the required fire flow demand of 1,500 gallons per minute can be met at both proposed private fire hydrants within the development and no existing system deficiencies were identified in any pipe segments in the vicinity of the development. Furthermore, the approved project would install a water service and master meter sized to accommodate the development and connect to VID's 10-inch main in South Santa Fe Avenue, install a reduced pressure detector assembly and fire service connected to VID's main in South Santa Fe Avenue, and install an 8-inch minimum private fire system sized to serve the project. Therefore, the approved project would not require new or expanded entitlements. Impacts would be less than significant.

Modified Project

The modified project would construct four fewer dwelling units than the approved project. Therefore, the annual water demand for the modified project would be less than the approved project, and the project would not substantially change anticipated service provisions by the VID. Furthermore, the modified project would install a water service and master meter sized to accommodate the development and connect to VID's 10-inch main in South Santa Fe Avenue, install a reduced pressure detector assembly and fire service connected to VID's main in South Santa Fe Avenue, and install an 8-inch minimum private fire system sized to serve the project. Therefore, the modified project would not require new or expanded entitlements. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

c. Wastewater

Approved Project

The MND determined that the approved project would increase the demand for wastewater treatment as well as land outfall capacity. The approved project would require a sewer study and approval by the BSD and would be subject to all applicable improvement fees as determined by the BSD. The approved project would be required to pay the Capital Expansion and Capital Facility Funds (Fund 505 and Fund 510, respectively) which are used for revenues and expenses related to capacity expansion and development. BSD considers payment of these fees as mitigation for the increase in treatment need. Therefore, the approved project would not result in a determination by the wastewater treatment provider which serves the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments. Impacts would be less than significant.

Modified Project

On July 17, 2025, the BSD provided an updated sewer service letter for the modified project (see Attachment 12; City of Vista 2025a). An additional letter was provided by BSD on September 13, 2025 (see Attachment 13). As discussed in both letters, BSD infrastructure is available to service the modified project and has sufficient capacity; however, the site is not located within the BSD boundary. As a condition of project approval, the modified project would be required to receive an approved Out of Area Service Agreement from San Diego LAFCO for BSD to provide sewer services. Additionally, as stated in the BSD letter dated September 13, 2025 (see Attachment 13), the modified project applicant would be required to provide a proportional cost-share contribution towards capacity improvements. Therefore, the modified project would not result in a determination by the wastewater treatment provider which serves the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

d. Generate Solid Waste

Approved Project

The MND determined that the approved project would generate solid waste from operational uses. Solid waste service in the city is provided by a private franchise hauler, EDCO Waste and Recycling (EDCO), which handles all residential, commercial, and industrial collections within the city. Waste collected by EDCO is hauled to the Escondido Resources Recovery Transfer Station where it is then transported to the Sycamore Sanitary Landfill in Santee. At the time of project approval, the Escondido Resources Recovery Transfer Station had a permitted throughput of 3,223 tons per day, with a permitted capacity of 8,743 tons per day and the Sycamore Sanitary Landfill had a daily permitted capacity of 5,000 tons per day of solid waste, with a remaining capacity of 113,972,637 cubic yards with an anticipated closure date of December 31, 2042.

The MND determined that construction debris would be generated by the approved project. Construction debris recycling is available through EDCO, and the approved MND determined that

negligible solid waste generation was anticipated during project construction. At the time of project approval, the solid waste generation rate for multi-family land uses from CalRecycle was 4 pounds per dwelling unit per day. Therefore, the approved project was expected to generate approximately 200 pounds per day of solid waste during operation. This did not account for any waste diversion through recycling. Assuming a 50 percent diversion rate, to be conservative, the anticipated solid waste generated by the approved project during operation would be reduced to approximately 100 pounds per day. With consideration of the diversion rate, the approved project's solid waste generation during operation would be accommodated at the landfill based upon the available daily permitted capacity. Impacts would be less than significant.

Modified Project

The modified project would generate solid waste from operational uses. Solid waste service in the City is provided by a private franchise hauler, EDCO, which handles all residential, commercial, and industrial collections within the city. Waste collected by EDCO is hauled to the Escondido Resources Recovery Transfer Station where it is then transported to the Sycamore Sanitary Landfill in Santee. The Escondido Resources Recovery Transfer Station currently has a permitted throughput of 3,223 tons per day, with a permitted capacity of 10,643 tons per day and the Sycamore Sanitary Landfill has a daily permitted capacity of 5,000 tons per day of solid waste, with a remaining capacity of 99,477,838 cubic yards and an anticipated closure date of December 31, 2042 (CalRecyle 2025a, 2025b).

Construction debris would be generated by the modified project. Construction debris recycling is available through EDCO. Similar to the approved project, negligible solid waste generation is anticipated during construction of the modified project, in particular with adherence to applicable federal, state, and local regulations aimed at reducing landfill disposal of construction waste. The solid waste generation rate for multi-family land uses from CalRecycle is 4 pounds per dwelling unit per day (CalRecycle 2025c). Therefore, the modified project is expected to generate approximately 184 pounds per day of solid waste during operation. This does not account for any waste diversion through recycling. Assuming a 50 percent diversion rate, to be conservative, the anticipated solid waste generated by the modified project during operation would be reduced to approximately 92 pounds per day. With consideration of the diversion rate, the modified project's solid waste generation during operation would be accommodated at the landfill based upon the available daily permitted capacity. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

e. Comply Statutes and Regulation Related to Solid Waste

Approved Project

The MND determined that waste associated with construction and operation of the approved project would be disposed of properly via the Escondido Transfer Station managed by EDCO and the Sycamore Sanitary Landfill. The approved project would comply with existing regulations related to solid waste disposal. Additionally, the approved project would comply with the City's General Plan policies designed to reduce impacts to solid waste facilities, including Policy COS-10.1, Policy COS-10.2, and Policy COS-10.3. As the approved project would comply with all federal, state, and

City statutes and regulations related to solid waste, including proper handling of construction debris, impacts would be less than significant.

Modified Project

Waste associated with construction and operation of the modified project would be disposed of properly via the Escondido Transfer Station managed by EDCO and the Sycamore Sanitary Landfill. The modified project would comply with existing regulations related to solid waste disposal. Additionally, the modified project would comply with the City's General Plan policies designed to reduce impacts to solid waste facilities, including Policy COS-10.1, Policy COS-10.2, and Policy COS-10.3. As the modified project would comply with all federal, state, and City statutes and regulations related to solid waste, including proper handling of construction debris, impacts would be less than significant. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Mitigation Measures

None.

4.20 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒

EXPLANATIONS:

a. Adopted Emergency Response Plan or Emergency Evacuation Plan

Approved Project

The MND determined that the approved project would not involve the development of structures that could potentially impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. All proposed internal roadways and project access points would comply with City standards for emergency and fire protection vehicles and distances. The approved project would comply with all design recommendations and requirements provided by the San Marcos Fire Department to ensure that emergency access meets City standards. Therefore, impacts would be less than significant.

Modified Project

The modified project would not alter the existing circulation network. All construction activities would be required to comply with the City's standards and regulations. Therefore, the modified project would not interfere with an adopted emergency response plan or emergency evacuation plan. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

b. Exacerbate Wildfire Risks Due to Slope, Prevailing Winds, and Other Factors

c. Require Infrastructure that may Exacerbate Fire Risk

d. Downslope or Downstream Flooding or Landslides

Approved Project

The MND determined that the approved project site is not located within a local, state, or federal fire hazard severity zone. Thus, impacts involving wildfire would not occur.

Modified Project

Since adoption of the MND, CAL FIRE has updated the FHSZ maps. Review of the updated CAL FIRE FHSZ maps shows that the modified project site is located within a Local Responsibility Area, meaning the financial responsibility of preventing and suppressing wildfires is primarily the responsibility of the local agency. In addition, the northeastern corner of the project site is mapped as a moderate FHSZ (CAL FIRE 2025). The modified project site is located within an urbanized portion of the City away from any urban/wildland interface. The modified project would be designed in accordance with applicable state and local fire codes and would be subject to review by the San Marcos Fire Department. Therefore, the modified project would not exacerbate fire risk or expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes, and impacts would be less than significant. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

Mitigation Measures

None.

4.21 Mandatory Findings of Significance

Does the project:

Issue	New Potentially Significant Impact	New Mitigation Required	No New Impact/ No Impact
a. Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒
b. Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable futures projects)?	☐	☐	☒
c. Have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒

EXPLANATIONS:

a. Substantially Degrade the Quality of the Environment

Approved Project

The MND determined that implementation of the approved project has the potential to result in significant impacts to biological resources, cultural resources, and tribal cultural resources. Given the implementation of the recommended mitigation measures, potential impacts would be mitigated to a less than significant level.

Modified Project

Consistent with the approved project, the modified project has the potential to result in significant impacts to biological resources, cultural resources, and tribal cultural resources. Given the implementation of the recommended mitigation measures, potential impacts would be mitigated to a less than significant level. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

b. Cumulative Impacts

Approved Project

The MND determined that implementation of the approved project has the potential to result in cumulatively significant impacts to fire and police protection. Development of the approved project would contribute to the incremental increase in demand for fire and police protection services city-wide. Given the implementation of the recommended mitigation measures, cumulatively considerable impacts would be mitigated to a less than significant level.

Modified Project

Consistent with the approved project, the modified project has the potential to result in cumulatively significant impacts to fire and police protection. Development of the approved project would contribute to the incremental increase in demand for fire and police protection services city-wide. Given the implementation of the recommended mitigation measures, cumulatively considerable impacts would be mitigated to a less than significant level. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

c. Substantial Adverse Effects on Human Beings, Either Directly or Indirectly

Approved Project

The MND determined that the approved project would be required to adhere to all applicable codes and regulations. Therefore, direct or indirect impacts on humans resulting from the approved project would be less than significant.

Modified Project

Consistent with the approved project, the modified project would be required to adhere to all applicable codes and regulations. Therefore, direct or indirect impacts on humans resulting from the approved project would be less than significant. No new or more severe impacts would occur as a result of the modified project, and no new mitigation would be required.

5.0 Mitigation Monitoring and Reporting Program (Relevant Measures Carried Over from the Approved Project)

Mitigation Monitoring and Reporting Program for the Santa Fe Flores, LP Project			
Mitigation Measure	Description	Timeframe of Mitigation	Monitoring, Enforcement, and Reporting Responsibility
Biological Resources			
BIO-1	If construction initiation occurs between ~~March~~ February 1 and September 15, a pre-construction nesting bird and raptor survey ~~of~~ within 300 feet of the project impact area shall be completed by a qualified biologist prior to vegetation removal. The pre-construction survey shall be conducted within 10 calendar days prior to the start of construction activities (including removal of vegetation). If any active nests are detected, the area will be flagged and mapped along with a buffer as recommended by the qualified biologist. The buffer area(s) established by the qualified biologist will be avoided until the nesting cycle is complete or it is determined that the nest is no longer active. The qualified biologist shall be a person familiar with bird breeding behavior and capable of identifying the bird species of San Diego County by sight and sound and determining alterations of behavior as a result of human interaction. Buffers will be based on species-appropriate buffers and/or local topography and line of sight, species behavior and tolerance to disturbance, and existing disturbance levels, as determined appropriate by the qualified biologist.	If construction initiation occurs between ~~March~~ February 1 and September 15.	Qualified Biologist; City of San Marcos
Cultural Resources			
CR-1: Pre-Excavation Agreement	Prior to the issuance of a Grading Permit, or ground disturbing activities, the Applicant/Owner shall enter into a Tribal Cultural Resources Treatment and Repatriation Agreement (Pre-Excavation Agreement) with a Traditionally and Culturally Affiliated Native American Tribe (TCA Tribe), identified in consultation with the City. The purpose of the Pre-Excavation Agreement shall be to formalize	Prior to the issuance of a Grading Permit, or ground disturbing activities.	Applicant/Owner and City of San Marcos

Mitigation Monitoring and Reporting Program for the Santa Fe Flores, LP Project			
Mitigation Measure	Description	Timeframe of Mitigation	Monitoring, Enforcement, and Reporting Responsibility
	protocols and procedures between the Applicant/Owner and the TCA Tribe for the protection, treatment, and repatriation of Native American human remains, funerary objects, cultural and/or religious landscapes, ceremonial items, traditional gathering areas, and other tribal cultural resources. Such resources may be located within and/or discovered during ground disturbing and/or construction activities for the proposed project, including any additional culturally appropriate archaeological studies, excavations, geotechnical investigations, grading, preparation for wet and dry infrastructure, and other ground disturbing activities. Any project-specific monitoring plans and/or excavation plans prepared by the project archaeologist shall include the TCA Tribe requirements for protocols and protection of tribal cultural resources that were agreed to during the tribal consultation. The landowner shall relinquish ownership of all non-burial related tribal cultural resources collected during construction monitoring and from any previous archaeological studies or excavations on the project site to the TCA Tribe for proper treatment and disposition per the Pre-Excavation Agreement, unless ordered to do otherwise by responsible agency or court of competent jurisdiction. The requirement and timing of such release of ownership, and the recipient thereof, shall be reflected in the Pre-Excavation Agreement. If the TCA Tribe does not accept the return of the cultural resources, then the cultural resources will be subject to curation.		
CR-2: Construction Monitoring	Prior to the issuance of a Grading Permit or ground disturbing activities, the Applicant/Owner or Grading Contractor shall provide written documentation (either as signed letters, contracts, or emails) to the City's Planning Division stating that a Qualified Archaeologist and Traditionally and Culturally Affiliated Native American monitor (TCA Native	Prior to the issuance of a Grading Permit or ground disturbing activities.	Applicant/Owner, Grading Contractor

Mitigation Monitoring and Reporting Program for the Santa Fe Flores, LP Project			
Mitigation Measure	Description	Timeframe of Mitigation	Monitoring, Enforcement, and Reporting Responsibility
	American monitor) have been retained at the Applicant/Owner or Grading Contractor's expense to implement the construction monitoring program, as described in the Pre-Excavation Agreement. The Qualified Archaeologist and TCA Native American monitor shall be invited to attend all applicable pre-construction meetings with the General Contractor and/or associated subcontractors to present the construction monitoring program. The Qualified Archaeologist and TCA Native American monitor shall be present on-site during grubbing, grading, trenching, and/or other ground disturbing activities that occur in areas of native soil or other permeable natural surfaces that have the potential to unearth any evidence of potential archaeological resources or tribal cultural resources. In areas of artificial paving, the Qualified Archaeologist and TCA Native American monitor shall be present on-site during grubbing, grading, trenching, and/or other ground disturbing activities that have the potential to disturb more than six inches below the original pre-project ground surface to identify any evidence of potential archaeological or tribal cultural resources. No monitoring of fill material, existing or imported, will be required if the General Contractor or developer can provide documentation to the satisfaction of the City that all fill materials being utilized at the site are either: (1) from existing commercial (previously permitted) sources of materials; or (2) are from private or other non-commercial sources that have been determined to be absent of tribal cultural resources by the Qualified Archaeologist and TCA Native American monitor. The Qualified Archaeologist and TCA Native American monitor shall maintain ongoing collaborative coordination with one another during all ground disturbing activities. The requirement for the construction monitoring program shall be noted on all applicable		

Mitigation Monitoring and Reporting Program for the Santa Fe Flores, LP Project			
Mitigation Measure	Description	Timeframe of Mitigation	Monitoring, Enforcement, and Reporting Responsibility
	construction documents, including demolition plans, grading plans, etc. The Applicant/Owner or Grading Contractor shall provide written notice to the Planning Division and the TCA Tribe, preferably through e-mail, of the start and end of all ground disturbing activities. Prior to the release of any grading bonds, or prior to the issuance of any project Certificate of Occupancy, an archaeological monitoring report, which describes the results, analysis, and conclusions of the construction monitoring shall be submitted by the Qualified Archaeologist, along with any TCA Native American monitor's notes and comments received by the Qualified Archaeologist, to the Planning Division Manager for approval. Once approved, a final copy of the archaeological monitoring report shall be retained in a confidential City project file and may be released, as a formal condition of AB 52 consultation, to the Pechanga Band of Luiseño Indians, the San Luis Rey Band of Mission Indians, and the Rincon Band of Luiseño Indians or any parties involved in the project specific monitoring or consultation process. A final copy of the report, with all confidential site records and appendices, will also be submitted to the South Coastal Information Center after approval by the City.		
CR-3: Unanticipated Discovery Procedures	Both the Qualified Archaeologist and the TCA Native American monitor may temporarily halt or divert ground disturbing activities if potential archaeological resources or tribal cultural resources are discovered during construction activities. Ground disturbing activities shall be temporarily directed away from the area of discovery for a reasonable amount of time to allow a determination of the resource's potential significance. Isolates and clearly non-significant archaeological resources (as determined by the Qualified Archaeologist, in consultation with the TCA Native American monitor) will be minimally documented in the field. All unearthed archaeological resources or	During ground disturbing activities.	Qualified Archaeologist and the TCA Native American monitor

Mitigation Monitoring and Reporting Program for the Santa Fe Flores, LP Project			
Mitigation Measure	Description	Timeframe of Mitigation	Monitoring, Enforcement, and Reporting Responsibility
	tribal cultural resources will be collected, temporarily stored in a secure location (or as otherwise agreed upon by the Qualified Archaeologist and the TCA Tribe), and repatriated according to the terms of the Pre-Excavation Agreement, unless ordered to do otherwise by responsible agency or court of competent jurisdiction. If a determination is made that the archaeological resources or tribal cultural resources are considered potentially significant by the Qualified Archaeologist, the TCA Tribe, and the TCA Native American monitor, then the City and the TCA Tribe shall determine, in consultation with the Applicant/Owner and the Qualified Archaeologist, the culturally appropriate treatment of those resources. If the Qualified Archaeologist, the TCA Tribe, and the TCA Native American monitor cannot agree on the significance or mitigation for such resources, these issues will be presented to the Planning Division Manager for decision. The Planning Division Manager shall make a determination based upon the provisions of CEQA and California Public Resources Code Section 21083.2(b) with respect to archaeological resources and California Public Resources Section 21704 and 21084.3 with respect to tribal cultural resources, and shall take into account the religious beliefs, cultural beliefs, customs, and practices of the TCA Tribe. All sacred sites, significant tribal cultural resources, and/or unique archaeological resources encountered within the project area shall be avoided and preserved as the preferred mitigation. If avoidance of the resource is determined to be infeasible by the City as the Lead Agency, then the City shall require additional culturally appropriate mitigation to address the negative impact to the resource, such as, but not limited to, the funding of an ethnographic study and/or a data recovery plan, as determined by the City in consultation		

Mitigation Monitoring and Reporting Program for the Santa Fe Flores, LP Project			
Mitigation Measure	Description	Timeframe of Mitigation	Monitoring, Enforcement, and Reporting Responsibility
	with the Qualified Archaeologist and the TCA Tribe. The TCA Tribe shall be notified and consulted regarding the determination and implementation of culturally appropriate mitigation and the drafting and finalization of any ethnographic study and/or data recovery plan, and/or other culturally appropriate mitigation. Any archaeological isolates or other cultural materials that cannot be avoided or preserved in place as the preferred mitigation shall be temporarily stored in a secure location on-site (or as otherwise agreed upon by the Qualified Archaeologist and TCA Tribe) and repatriated according to the terms of the Pre-Excavation Agreement, unless ordered to do otherwise by responsible agency or court of competent jurisdiction. The removal of any artifacts from the project site will be inventoried with oversight by the TCA Native American monitor. If a data recovery plan is authorized as indicated above and the TCA Tribe does not object, then an adequate artifact sample to address research avenues previously identified for sites in the area will be collected using professional archaeological collection methods. If the Qualified Archaeologist collects such resources, the TCA Native American monitor must be present during any testing or cataloging of those resources. Moreover, if the Qualified Archaeologist does not collect the cultural resources that are unearthed during the ground disturbing activities, the TCA Native American monitor may, at their discretion, collect said resources for later reburial or storage at a local curation facility, as described in the Pre-Excavation Agreement. In the event that curation of archaeological resources or tribal cultural resources is required by a superseding regulatory agency, curation shall be conducted by an approved local facility within San Diego County and the curation shall be guided by California State Historical Resources Commission's Guidelines for the		

Mitigation Monitoring and Reporting Program for the Santa Fe Flores, LP Project			
Mitigation Measure	Description	Timeframe of Mitigation	Monitoring, Enforcement, and Reporting Responsibility
	Curation of Archaeological Collections. The City shall provide the Applicant/Owner final curation language and guidance on the project grading plans prior to issuance of the grading permit, if applicable, during project construction. The Applicant/Owner shall be responsible for all repatriation and curation costs and provide to the City written documentation from the TCA Tribe or the curation facility, whichever is most applicable, that the repatriation and/or curation have been completed.		
CR-4: Human Remains	As specified by California Health and Safety Code Section 7050.5, if human remains, or remains that are potentially human, are found on the project site during ground disturbing activities or during archaeological work, the person responsible for the excavation, or his or her authorized representative, shall immediately notify the San Diego County Medical Examiner's Office by telephone. No further excavation or disturbance of the discovery or any nearby area reasonably suspected to overlie adjacent remains (as determined by the Qualified Archaeologist and/or the TCA Native American monitor) shall occur until the Medical Examiner has made the necessary findings as to origin and disposition pursuant to Public Resources Code 5097.98. If such a discovery occurs, a temporary construction exclusion zone shall be established surrounding the area of the discovery so that the area would be protected (as determined by the Qualified Archaeologist and/or the TCA Native American monitor), and consultation and treatment could occur as prescribed by law. As further defined by State law, the Medical Examiner will determine within two working days of being notified if the remains are subject to his or her authority. If the Medical Examiner recognizes the remains to be Native American, and not under his or her jurisdiction, then he or she shall contact the Native American Heritage Commission by telephone within 24 hours. The Native	During ground disturbing activities.	Applicant/Owner, Grading Contractor

Mitigation Monitoring and Reporting Program for the Santa Fe Flores, LP Project			
Mitigation Measure	Description	Timeframe of Mitigation	Monitoring, Enforcement, and Reporting Responsibility
	American Heritage Commission will make a determination as to the Most Likely Descendent, who shall be afforded 48 hours from the time access is granted to the discovery site to make recommendations regarding culturally appropriate treatment. If suspected Native American remains are discovered, the remains shall be kept in situ (in place) until after the Medical Examiner makes its determination and notifications, and until after the Most Likely Descendent is identified, at which time the archaeological examination of the remains shall only occur on site in the presence of the Most Likely Descendent. The specific locations of Native American burials and reburials will be proprietary and not disclosed to the general public. According to California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). In the event that the Applicant/Owner and the Most Likely Descendant are in disagreement regarding the disposition of the remains, state law will apply, and the mediation process will occur with the Native American Heritage Commission. In the event that mediation is not successful, the landowner shall rebury the remains at a location free from future disturbance (see Public Resources Code Section 5097.98(e) and 5097.94(k)).		

Mitigation Monitoring and Reporting Program for the Santa Fe Flores, LP Project			
Mitigation Measure	Description	Timeframe of Mitigation	Monitoring, Enforcement, and Reporting Responsibility
Public Services			
PS-1	Prior to the issuance of a grading permit, the applicant/developer/property owner shall submit an executed version of petition to annex into and establish, with respect to the property, the special taxes levied by the following Community Facility District: CFD 2001-01 (Fire and Paramedic). Participation in the CFD will offset the cost of increases in necessary fire services resulting from implementation of the proposed project and impacts would be reduced to below a level of significance.	Prior to the issuance of a grading permit.	Applicant/Owner; City of San Marcos
PS-2	Prior to the issuance of a grading permit, the applicant/developer/property owner shall submit an executed version of petition to annex into and establish, with respect to the property, the special taxes levied by the CFD 98-01 Improvement Area No. 1 (Police). Participation in the CFD would offset the cost of increases in necessary police protection services resulting from implementation of the proposed project and impacts would be reduced to below a level of significance.	Prior to the issuance of a grading permit.	Applicant/Owner; City of San Marcos
Tribal Cultural Resources			
See Mitigation Measures CR-1 to CR-4	See above.	See Cultural Resources, above.	See Cultural Resources, above

6.0 References Cited

Bay Area Air Quality Management District
2022 California Environmental Quality Act Air Quality Guidelines.

California Air Resources Board (CARB)
2005 Air Quality and Land Use Handbook: A Community Health Perspective. California Air Resources Board. April.

California Department of Forestry and Fire Services (CAL FIRE)
2025 Fire Hazard Severity Zones. https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones.

California Department of Transportation (Caltrans)
2020 Transportation and Construction Vibration Guidance Manual. April 2020.

California Department of Resources Recycling and Recovery (CalRecycle)
2025a SWIS Facility Detail Escondido Resource Recovery (37-AA-0906). Accessed July 24, 2025. https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1830?siteID=2903.

2025b SWIS Facility Detail Sycamore Landfill (37-AA-0023). Accessed July 24, 2025. https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1798?siteID=2871.

2025c Estimated Solid Waste Generation Rates. July 24, 2025. https://www2.calrecycle.ca.gov/wastecharacterization/general/rates.

Department of Toxic Substances Control (DTSC)
2025 Envirostor Database. https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=137+West+Valley+Parkway%2C+Escondido%2C+CA.

Federal Highway Administration (FHWA)
2011 Highway Traffic Noise: Analysis and Abatement Guidance. FHWA-HEP-10-025. December.

Geocon Incorporated
2025 Update to Geotechnical Investigation: San Marcos Residences, 2972 South Santa Fe Avenue. November 25.

Linscott, Law & Greenspan, Engineers (LLG)
2025 Santa Fe Flores VMT Assessment. December 4.

2026 Local Transportation Analysis for the Santa Fe Flores Townhomes Project. February.

Office of Environmental Health Hazard Assessment
2015 Air Toxics Hot Spots Program Guidance Manual for the Preparation of Risk Assessments (Guidance Manual), February.

PLSA

2025a Preliminary Hydrology Study for South Santa Fe Townhomes. June.

2025b Priority Development Project (PDP) Stom Water Quality Management Plan (SWQMP) for South Santa Fe Townhomes.

RECON Environmental, Inc. (RECON)

2026a Air Quality Analysis for the South Santa Fe Townhomes Project. Prepared for Santa Fe Flores, LP. January 28.

2026b Biological Resources Letter Report for South Santa Fe Townhomes. Prepared for the City of San Marcos. March 25.

2026c Cultural Resources Report for the South Santa Fe Townhomes Project. Prepared for Santa Fe Flores, LP. January 29.

2026d Climate Action Plan Consistency Review Checklist for the South Santa Fe Townhomes Project.

2026e Noise Analysis for the South Santa Fe Townhomes Project. Prepared for Santa Fe Flores, LP. January 28.

San Diego, County of

2009 Guidelines for Determining Significance Paleontological Resources.

San Marcos, City of

2022 Final Initial Study/Environmental Checklist and Mitigated Negative Declaration for the Santa Fe Flores, LP Project. Project No. GPA21-0008, R21-0004, & MFSDP21-0002; Mitigated Negative Declaration ND22-008; SCH No. 2022090486. December 2.

2024 Active Transportation Plan. June 2024. https://www.san-marcos.net/departments/development-services/land-development/application-documents-design-standards?utm_source=chatgpt.com.

State Water Resources Control Board

2025 Geotracker Database. https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=137+West+Valley+Parkway%2C+Escondido%2C+CA.

Vista, City of

2025a Sewer Service for GPA25-0004—Santa Fe Flores 46-Unit Condos.

2025b Reconsideration of August 4, 2025 Sewer Service Determination – Santa Fe Flores 46-Unit Condos (GPA25-0001)

ATTACHMENTS

Under Separate Cover

ATTACHMENT D.1a

FINAL INITIAL STUDY/MITIGATED NEGATIVE DECLARATION (ND22-008)

Final Initial Study/Environmental Checklist and Mitigated Negative Declaration for the Santa Fe Flores, LP Project San Marcos, California

Project No. GPA21-0008, R21-0004, & MFSDP21-0002

Mitigated Negative Declaration ND22-008

SCH No. 2022090486

Prepared for
City of San Marcos
Development Services Department
Planning Division
1 Civic Center Drive
San Marcos, CA 92069

Prepared by
RECON Environmental, Inc.
3111 Camino del Rio North, Suite 600
San Diego, CA 92108
P 619.308.9333

RECON Number 9865
December 2, 2022

Santa Fe Flores, LP Project Final IS/MND

Letters of Comment and Responses

The Draft IS/MND was circulated for a 30-day public review comment period, beginning on September 27, 2022 and ending on October 27, 2022. The following letters of comment were received from agencies and organizations during the public review period. A copy of each comment letter followed by the corresponding responses are included here. One of the comments received resulted in minor revisions to the appendices to the Biological Resources Report (Appendix B to the Final MND). In addition, the Buena Sanitation District (BSD) indicated that the project would require an applicant-provided sewer study that would be approved by the BSD. The project would be subject to all applicable improvement fees as determined by the BSD. Text changes reflecting incorporation of a sewer study in the Final MND and revisions to the Biological Resources Report are indicated by strikeout (deleted) and underline (inserted) markings. Revisions are intended to correct minor discrepancies and provide additional clarification. The revisions do not affect the conclusions of the document.

Letter	Author	Page
A	San Diego County Archaeological Society, Inc.	RTC-2
B	U.S. Fish and Wildlife Service	RTC-4

Letter A

San Diego County Archaeological Society, Inc.

Environmental Review Committee

22 October 2022

To: Mr. Norm Pedersen, Associate Planner
Planning Division
City of San Marcos
1 Civic Center Drive
San Marcos, California 92069

Subject: Draft Mitigated Negative Declaration
Santa Fe Flores Project
GPA21-0008, R21-0004, MFSDP21-0002, ND22-008

Dear Mr. Pedersen:

A-1 I have reviewed the subject DMND on behalf of this committee of the San Diego County Archaeological Society.

A-2 Based on the information contained in the DMND and the cultural resources report prepared by RECON, we concur with the impact analysis and with the mitigation measures as proposed.

A-3 Thank you for the opportunity to review and comment upon this project's environmental documents.

Sincerely,

James W. Royle, Jr., Chairperson
Environmental Review Committee

cc: RECON
SDCAS President
File

Letter A – San Diego County Archaeological Society, Inc. (October 22, 2022)

A-1 This introductory language is in regards to the content of this comment letter. The language does not raise an issue related to the adequacy of the analysis contained within the Draft IS/MND.

A-2 Comment noted. This comment does not raise an issue related to the adequacy of the analysis contained within the Draft IS/MND.

A-3 Comment noted. This comment does not raise an issue related to the adequacy of the analysis contained within the Draft IS/MND.

United States Department of the Interior
U.S. FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

In Reply Refer to:
FWS-SD-2023-0011268

November 2, 2022
Sent Electronically

Norman Pedersen
Associate Planner
Development Services Department
City of San Marcos
1 Civic Center Drive
San Marcos, California 92069

Subject: Comments on the Initial Study and draft Mitigated Negative Declaration for the Santa Fe Flores Project, City of San Marcos, San Diego County, California

Dear Norman Pedersen:

B-1 The U.S. Fish and Wildlife Service (Service) has reviewed the Initial Study (IS) and draft Mitigated Negative Declaration (MND) for the Santa Fe Flores project (project), in the City of San Marcos (City), California. Our comments and recommendations are based on the information provided in the IS/MND and our knowledge of sensitive and declining vegetation communities in San Diego County; and our participation in the Multiple Habitat Conservation Program (MHCP) and the City's draft MHCP Subarea Plan (SAP).

The primary concern and mandate of the Service is the protection of public fish and wildlife resources and their habitats. The Service has legal responsibility for the welfare of migratory birds, anadromous fish, and threatened and endangered animals and plants occurring in the United States. The Service is also responsible for administering the Federal Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq*.), including habitat conservation plans (HCP) developed under section 10(a)(1) of the Act.

B-2 The proposed 2.5-acre site is located at 2972 and 2982 South Santa Fe Avenue in the City of San Marcos. The property is surrounded by existing development and the project will result in the development of a multi-family residential project.

The federally and state threatened thread-leaved brodiaea (*Brodiaea filifolia*; brodiaea) has been found in the vicinity of the project site (Service 2011), which also has clay soils that may support this species (Web Soil Surveys 2022). In additon, the clay soils may support vernal pools, which are seasonal wetlands that also occur in the vicinity of the project site (Service 1998). We are unclear on the disturbance history of the project site; therefore, we recommend that a habitat assessment and/or protocol-level surveys be conducted for brodiaea and for State and federally listed vernal pool species, such as San Diego fairy shrimp (*Branchinecta sandiegonensis*),

at the project site. If brodiaea or vernal pools are found at the project site, the MND should include alternatives that avoid, minimize and/or mitigate potential impacts to these sensitive biological resources.

B-3 We appreciate the opportunity to comment on this MND. If you have any questions regarding our comments, please contact Taylor Curtis[1] at 760-431-9440, extension 371.

Sincerely,

DAVID ZOUTENDYK
Digitally signed by DAVID ZOUTENDYK
Date: 2022.11.02 17:23:04 -07'00'

for Jonathan D. Snyder
Assistant Field Supervisor

LITERATURE CITED

[Service] U.S. Fish and Wildlife Service. 2011. *Final Revised Critical Habitat for Brodiaea filifolia (Thread Leaved Brodiaea)*. Retrieved from Environmental Conservation Online System.

[Service] U.S. Fish and Wildlife Service. 1998. *Recovery plan for vernal pools of southern California.* U.S. Fish and Wildlife Service, Portland, Oregon. 113+ pp.

Web Soil Surveys. 2022, October 28. *Web Soil Survey*. Retrieved from Web Soil Survey: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

[1] Taylor_Curtis@fws.gov

Letter B – U.S. Fish and Wildlife Service (November 2, 2022)

B-1 This introductory language is in regards to the content of this comment letter. The language does not raise an issue related to the adequacy of the analysis contained within the Draft IS/MND.

B-2 During the general biological survey, the project site was evaluated for sensitive biological resources, including sensitive plant species such as thread-leaved brodiaea and vernal pools. No vernal pools or depressions containing wetland or vernal pool plant species characteristic of vernal habitat were observed during the survey. Thread-leaved brodiaea was not observed during the biological survey, which was conducted during the species blooming period (March-June) when vegetative stems/stalks or blooming individuals would have been visible. Furthermore, the project site lacks suitable vernal pool and grassland habitat to support this species, and consists of predominantly non-native species and heavily disturbed areas from frequent off-roading activity. Additional information regarding this species potential based on the biological survey has been included in Attachment 4 of the Biological Resources Report. Additional information regarding the lack of vernal pools and/or depressions containing vernal indicators has been included in Attachment 5 of the Biological Resources Report under fairy shrimp.

B-3 Comment noted. This comment does not raise an issue related to the adequacy of the analysis contained within the Draft IS/MND.

Santa Fe Flores, LP Project Final IS/MND

Mitigation Monitoring and Reporting Program

The following Mitigation Monitoring and Reporting Program (MMRP) identifies measures that specifically apply to this project. The table below includes the mitigation number, description, timeframe of mitigation, monitoring, enforcement, and reporting responsibility.

Mitigation Monitoring and Reporting Program for the Santa Fe Flores, LP Project			
Mitigation Measure	Description	Timeframe of Mitigation	Monitoring, Enforcement, and Reporting Responsibility
Biological Resources			
BIO-1	If construction initiation occurs between March and September, a pre-construction nesting bird and raptor survey of the project impact area shall be completed by a qualified biologist prior to vegetation removal. The pre-construction survey shall be conducted within 10 calendar days prior to the start of construction activities (including removal of vegetation). If any active nests are detected, the area will be flagged and mapped along with a buffer as recommended by the qualified biologist. The buffer area(s) established by the qualified biologist will be avoided until the nesting cycle is complete or it is determined that the nest is no longer active. The qualified biologist shall be a person familiar with bird breeding behavior and capable of identifying the bird species of San Diego County by sight and sound and determining alterations of behavior as a result of human interaction. Buffers will be based on species-appropriate buffers and/or local topography and line of sight, species behavior and tolerance to disturbance, and existing disturbance levels, as determined appropriate by the qualified biologist.	If construction initiation occurs between March and September.	Qualified Biologist
Cultural Resources			
CR-1: Pre-Excavation Agreement	Prior to the issuance of a Grading Permit, or ground disturbing activities, the Applicant/Owner shall enter into a Tribal Cultural Resources Treatment and Repatriation Agreement (Pre-Excavation Agreement) with a Traditionally and Culturally Affiliated Native American Tribe (TCA Tribe), identified in consultation with the City. The purpose of the Pre-Excavation Agreement shall be to formalize protocols and procedures between the Applicant/Owner and the TCA Tribe for the protection, treatment, and repatriation of Native American human remains, funerary objects, cultural and/or religious landscapes, ceremonial items, traditional gathering areas, and other tribal cultural resources. Such resources may be located within and/or discovered during ground disturbing and/or construction activities for the proposed project, including any additional culturally appropriate archaeological studies, excavations, geotechnical investigations, grading, preparation for wet and dry	Prior to the issuance of a Grading Permit, or ground disturbing activities.	Applicant/Owner and City of San Marcos

Mitigation Monitoring and Reporting Program for the Santa Fe Flores, LP Project			
Mitigation Measure	Description	Timeframe of Mitigation	Monitoring, Enforcement, and Reporting Responsibility
	infrastructure, and other ground disturbing activities. Any project-specific monitoring plans and/or excavation plans prepared by the project archaeologist shall include the TCA Tribe requirements for protocols and protection of tribal cultural resources that were agreed to during the tribal consultation. The landowner shall relinquish ownership of all non-burial related tribal cultural resources collected during construction monitoring and from any previous archaeological studies or excavations on the project site to the TCA Tribe for proper treatment and disposition per the Pre-Excavation Agreement, unless ordered to do otherwise by responsible agency or court of competent jurisdiction. The requirement and timing of such release of ownership, and the recipient thereof, shall be reflected in the Pre-Excavation Agreement. If the TCA Tribe does not accept the return of the cultural resources, then the cultural resources will be subject to curation.		
CR-2: Construction Monitoring	Prior to the issuance of a Grading Permit or ground disturbing activities, the Applicant/Owner or Grading Contractor shall provide written documentation (either as signed letters, contracts, or emails) to the City's Planning Division stating that a Qualified Archaeologist and Traditionally and Culturally Affiliated Native American monitor (TCA Native American monitor) have been retained at the Applicant/Owner or Grading Contractor's expense to implement the construction monitoring program, as described in the Pre-Excavation Agreement. The Qualified Archaeologist and TCA Native American monitor shall be invited to attend all applicable pre-construction meetings with the General Contractor and/or associated subcontractors to present the construction monitoring program. The Qualified Archaeologist and TCA Native American monitor shall be present on-site during grubbing, grading, trenching, and/or other ground disturbing activities that occur in areas of native soil or other permeable natural surfaces that have the potential to unearth any evidence of potential	Prior to the issuance of a Grading Permit or ground disturbing activities.	Applicant/Owner, Grading Contractor

Mitigation Measure	Description	Timeframe of Mitigation	Monitoring, Enforcement, and Reporting Responsibility
	archaeological resources or tribal cultural resources. In areas of artificial paving, the Qualified Archaeologist and TCA Native American monitor shall be present on-site during grubbing, grading, trenching, and/or other ground disturbing activities that have the potential to disturb more than six inches below the original pre-project ground surface to identify any evidence of potential archaeological or tribal cultural resources. No monitoring of fill material, existing or imported, will be required if the General Contractor or developer can provide documentation to the satisfaction of the City that all fill materials being utilized at the site are either: (1) from existing commercial (previously permitted) sources of materials; or (2) are from private or other non-commercial sources that have been determined to be absent of tribal cultural resources by the Qualified Archaeologist and TCA Native American monitor. The Qualified Archaeologist and TCA Native American monitor shall maintain ongoing collaborative coordination with one another during all ground disturbing activities. The requirement for the construction monitoring program shall be noted on all applicable construction documents, including demolition plans, grading plans, etc. The Applicant/Owner or Grading Contractor shall provide written notice to the Planning Division and the TCA Tribe, preferably through e-mail, of the start and end of all ground disturbing activities. Prior to the release of any grading bonds, or prior to the issuance of any project Certificate of Occupancy, an archaeological monitoring report, which describes the results, analysis, and conclusions of the construction monitoring shall be submitted by the Qualified Archaeologist, along with any TCA Native American monitor's notes and comments received by the Qualified Archaeologist, to the Planning Division Manager for approval. Once approved, a final copy of the archaeological monitoring report shall be retained in a confidential City project file and may be released, as a formal condition of AB 52 consultation, to the San Luis Rey Band of Mission Indians and the Rincon Band of Luiseño Indians or any parties involved in the project specific		

Mitigation Monitoring and Reporting Program for the Santa Fe Flores, LP Project			
Mitigation Measure	Description	Timeframe of Mitigation	Monitoring, Enforcement, and Reporting Responsibility
	monitoring or consultation process. A final copy of the report, with all confidential site records and appendices, will also be submitted to the South Coastal Information Center after approval by the City.		
CR-3: Unanticipated Discovery Procedures	Both the Qualified Archaeologist and the TCA Native American monitor may temporarily halt or divert ground disturbing activities if potential archaeological resources or tribal cultural resources are discovered during construction activities. Ground disturbing activities shall be temporarily directed away from the area of discovery for a reasonable amount of time to allow a determination of the resource's potential significance. Isolates and clearly non-significant archaeological resources (as determined by the Qualified Archaeologist, in consultation with the TCA Native American monitor) will be minimally documented in the field. All unearthed archaeological resources or tribal cultural resources will be collected, temporarily stored in a secure location (or as otherwise agreed upon by the Qualified Archaeologist and the TCA Tribe), and repatriated according to the terms of the Pre-Excavation Agreement, unless ordered to do otherwise by responsible agency or court of competent jurisdiction. If a determination is made that the archaeological resources or tribal cultural resources are considered potentially significant by the Qualified Archaeologist, the TCA Tribe, and the TCA Native American monitor, then the City and the TCA Tribe shall determine, in consultation with the Applicant/Owner and the Qualified Archaeologist, the culturally appropriate treatment of those resources. If the Qualified Archaeologist, the TCA Tribe, and the TCA Native American monitor cannot agree on the significance or mitigation for such resources, these issues will be presented to the Planning Division Manager for decision. The Planning Division Manager shall make a determination based upon the provisions of CEQA and California Public Resources Code Section 21083.2(b) with respect to archaeological resources and California Public Resources	During ground disturbing activities.	Qualified Archaeologist and the TCA Native American monitor

Mitigation Monitoring and Reporting Program for the Santa Fe Flores, LP Project			
Mitigation Measure	Description	Timeframe of Mitigation	Monitoring, Enforcement, and Reporting Responsibility
	Section 21704 and 21084.3 with respect to tribal cultural resources, and shall take into account the religious beliefs, cultural beliefs, customs, and practices of the TCA Tribe. All sacred sites, significant tribal cultural resources, and/or unique archaeological resources encountered within the project area shall be avoided and preserved as the preferred mitigation. If avoidance of the resource is determined to be infeasible by the City as the Lead Agency, then the City shall require additional culturally appropriate mitigation to address the negative impact to the resource, such as, but not limited to, the funding of an ethnographic study and/or a data recovery plan, as determined by the City in consultation with the Qualified Archaeologist and the TCA Tribe. The TCA Tribe shall be notified and consulted regarding the determination and implementation of culturally appropriate mitigation and the drafting and finalization of any ethnographic study and/or data recovery plan, and/or other culturally appropriate mitigation. Any archaeological isolates or other cultural materials that cannot be avoided or preserved in place as the preferred mitigation shall be temporarily stored in a secure location on-site (or as otherwise agreed upon by the Qualified Archaeologist and TCA Tribe) and repatriated according to the terms of the Pre-Excavation Agreement, unless ordered to do otherwise by responsible agency or court of competent jurisdiction. The removal of any artifacts from the project site will be inventoried with oversight by the TCA Native American monitor. If a data recovery plan is authorized as indicated above and the TCA Tribe does not object, then an adequate artifact sample to address research avenues previously identified for sites in the area will be collected using professional archaeological collection methods. If the Qualified Archaeologist collects such resources, the TCA Native American monitor must be present during any testing or cataloging of those resources. Moreover, if the Qualified Archaeologist does not collect the cultural resources that are unearthed during		

Mitigation Monitoring and Reporting Program for the Santa Fe Flores, LP Project			
Mitigation Measure	Description	Timeframe of Mitigation	Monitoring, Enforcement, and Reporting Responsibility
	the ground disturbing activities, the TCA Native American monitor may, at their discretion, collect said resources for later reburial or storage at a local curation facility, as described in the Pre-Excavation Agreement. In the event that curation of archaeological resources or tribal cultural resources is required by a superseding regulatory agency, curation shall be conducted by an approved local facility within San Diego County and the curation shall be guided by California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections. The City shall provide the Applicant/Owner final curation language and guidance on the project grading plans prior to issuance of the grading permit, if applicable, during project construction. The Applicant/Owner shall be responsible for all repatriation and curation costs and provide to the City written documentation from the TCA Tribe or the curation facility, whichever is most applicable, that the repatriation and/or curation have been completed.		
CR-4: Human Remains	As specified by California Health and Safety Code Section 7050.5, if human remains, or remains that are potentially human, are found on the project site during ground disturbing activities or during archaeological work, the person responsible for the excavation, or his or her authorized representative, shall immediately notify the San Diego County Medical Examiner's Office by telephone. No further excavation or disturbance of the discovery or any nearby area reasonably suspected to overlie adjacent remains (as determined by the Qualified Archaeologist and/or the TCA Native American monitor) shall occur until the Medical Examiner has made the necessary findings as to origin and disposition pursuant to Public Resources Code 5097.98. If such a discovery occurs, a temporary construction exclusion zone shall be established surrounding the area of the discovery so that the area would be protected (as determined by the Qualified Archaeologist and/or the TCA Native American monitor), and consultation and treatment could occur as prescribed by law. As further defined by State law, the Medical Examiner will	During ground disturbing activities.	Applicant/Owner, Grading Contractor

Mitigation Measure	Description	Timeframe of Mitigation	Monitoring, Enforcement, and Reporting Responsibility
	determine within two working days of being notified if the remains are subject to his or her authority. If the Medical Examiner recognizes the remains to be Native American, and not under his or her jurisdiction, then he or she shall contact the Native American Heritage Commission by telephone within 24 hours. The Native American Heritage Commission will make a determination as to the Most Likely Descendent, who shall be afforded 48 hours from the time access is granted to the discovery site to make recommendations regarding culturally appropriate treatment. If suspected Native American remains are discovered, the remains shall be kept in situ (in place) until after the Medical Examiner makes its determination and notifications, and until after the Most Likely Descendent is identified, at which time the archaeological examination of the remains shall only occur on site in the presence of the Most Likely Descendent. The specific locations of Native American burials and reburials will be proprietary and not disclosed to the general public. According to California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). In the event that the Applicant/Owner and the Most Likely Descendant are in disagreement regarding the disposition of the remains, state law will apply, and the mediation process will occur with the NAHC. In the event that mediation is not successful, the landowner shall rebury the remains at a location free from future disturbance (see Public Resources Code Section 5097.98(e) and 5097.94(k)).		

Mitigation Monitoring and Reporting Program for the Santa Fe Flores, LP Project			
Mitigation Measure	Description	Timeframe of Mitigation	Monitoring, Enforcement, and Reporting Responsibility
Public Services			
PS-1	Prior to the issuance of a grading permit, the applicant/developer/property owner shall submit an executed version of petition to annex into and establish, with respect to the property, the special taxes levied by the following Community Facility District: CFD 2001-01 (Fire and Paramedic). Participation in the CFD will offset the cost of increases in necessary fire services resulting from implementation of the proposed project and impacts would be reduced to below a level of significance.	Prior to the issuance of a grading permit.	Applicant/Owner
PS-2	Prior to the issuance of a grading permit, the applicant/developer/property owner shall submit an executed version of petition to annex into and establish, with respect to the property, the special taxes levied by the CFD 98-01 Improvement Area No. 1 (Police). Participation in the CFD would offset the cost of increases in necessary police protection services resulting from implementation of the proposed project and impacts would be reduced to below a level of significance.	Prior to the issuance of a grading permit.	Applicant/Owner
Tribal Cultural Resources			
See Mitigation Measures CR-1, CR-2, and CR-3	See above.	See above.	See above

TABLE OF CONTENTS

Letters of Comment and Responses RTC-1
Mitigation Monitoring and Reporting Program MMRP-1
1.0 Introduction 1
2.0 Draft Mitigated Negative Declaration 2
3.0 Project Description 3
4.0 Initial Study Checklist 13
4.1 Aesthetics 14
4.2 Agriculture and Forestry Resources 16
4.3 Air Quality 18
4.4 Biological Resources 24
4.5 Cultural Resources 27
4.6 Energy 32
4.7 Geology and Soils 34
4.8 Greenhouse Gas Emissions 37
4.9 Hazards and Hazardous Materials 39
4.10 Hydrology and Water Quality 42
4.11 Land Use and Planning 45
4.12 Mineral Resources 46
4.13 Noise 47
4.14 Population and Housing 52
4.15 Public Services 53
4.16 Recreation 55
4.17 Transportation 56
4.18 Tribal Cultural Resources 65
4.19 Utilities and Service Systems 66
4.20 Wildfire 69
4.21 Mandatory Findings of Significance 71
5.0 Determination and Preparers 73
6.0 Sources Consulted 73

TABLE OF CONTENTS (cont.)

FIGURES

1: Regional Location 7
2: Project Location on USGS Map 8
3: Project Location on Aerial Photograph 9
4: Architectural Elevations 10
5: Grading Plan 11
6: Landscape Plan 12

TABLES

1: Commercial and Industrial Land Use Operational Emissions 20
2: Summary of Maximum Construction Emissions 20
3: Summary of Project Operational Emissions 21
4: CARB Land Use Siting Constraints 24
5: Construction Noise Levels 48
6: Future Vehicle and Rail Traffic Noise Levels 49
7: Traffic Noise Level with and without Project and Ambient Noise Increases 50
8: HVAC Noise Levels at Adjacent Properties 51
9: Existing Intersection Operations 58
10: Existing Street Segment Operations 58
11: Project Trip Generation 59
12: Near-Term Intersection Operations 60
13: Near-Term Street Segment Operations 61
14: Long-Term Intersection Operations 62
15: Long-Term Street Segment Operations 63

APPENDICES

A: Air Quality Analysis
B: Biological Resources Report
C: Cultural Resources Survey
D: Geotechnical Report
E: CAP Checklist
F: Storm Water Quality Management Plan (SWQMP)
G: Hydrology Study
H: Water Supply Study
I: Noise Analysis
J: Local Transportation Analysis
K: Vehicle Miles Traveled Analysis

1.0 Introduction

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared in accordance with relevant provisions of the California Environmental Quality Act (CEQA) of 1970, as amended, and the CEQA Guidelines, as revised. This IS/MND evaluates the environmental effects of the Santa Fe Flores, LP Project (project).

The IS/MND includes the following components:

- A Draft MND and the formal findings made by the City of San Marcos (City) that the project would not result in any significant effects on the environment, as identified in the CEQA IS Checklist.
- A detailed project description.
- The CEQA IS Checklist, which provides standards to evaluate the potential for significant environmental impacts from the project, is adapted from Appendix G of the CEQA Guidelines. The project is evaluated in 19 environmental issue categories to determine whether the project's environmental impacts would be significant in any category. Brief discussions are provided that further substantiate the project's anticipated environmental impacts in each category.

Because the project fits into the definition of a "project" under Public Resources Code Section 21065 requiring discretionary approvals by the City, and because it could result in a significant effect on the environment, the project is subject to CEQA review. The IS Checklist was prepared to determine the appropriate environmental document to satisfy CEQA requirements: an Environmental Impact Report (EIR), a Mitigated Negative Declaration (MND), or a Negative Declaration (ND). The analysis in this IS Checklist supports the conclusion that the project would not result in significant environmental impacts.

This IS/MND will be circulated for 30 days for public and agency review, during which time individuals and agencies may submit comments on the adequacy of the environmental review. Following the public review period, the City Council will consider any comments received on the IS/MND when deciding whether to adopt the IS/MND.

2.0 Draft Mitigated Negative Declaration

Project Name: Santa Fe Flores, LP

Project Location: 2972 and 2982 South Santa Fe Avenue, San Marcos, California. Assessor Parcel Numbers 217-161-18-00 and 217-161-19-00.

Project Description: The Santa Fe Flores, LP Project proposes a General Plan Amendment and Rezone from Commercial (C) and Light Industrial (L-I) to Multi-Family Residential (R-3-10) to allow 50 dwelling units, in conjunction with a Density Bonus, on a 2.5-acre site consisting of two parcels. The project will develop a 58,693-square-foot building with three stories on a previously graded project site. Out of the 50 dwelling units, 5 will be dedicated affordable units.

Findings: Pursuant to the provisions of CEQA (Public Resources Code, Section 21000 et seq.) and based on information contained in the attached IS Checklist, the City of San Marcos has determined that the project will not have a significant effect on the environment.

Signature of Lead Agency Representative

9/20/22
Date

3.0 Project Description

1. Project:

Santa Fe Flores, LP

2. Lead Agency:

City of San Marcos
Development Services Department, Planning Division
1 Civic Center Drive
San Marcos, California 92069-2918

3. Contact Person and Phone Number:

Norm Pedersen, Associate Planner
City of San Marcos, Planning Division
760-744-1050 ext. 3236
npedersen@san-marcos.net

4. Project Location:

The Santa Fe Flores, LP project (project) is located in the city of San Marcos, California, at 2972 and 2982 South Santa Fe Avenue on Assessor Parcel Numbers 217-161-18-00 and 217-161-19-00. The project site is bounded by existing development to the north and west, North Las Flores Drive to the east, and South Santa Fe Avenue to the south. The Sprinter railroad tracks and single-family residential homes off North Las Flores Drive are north and northeast of the project site. The regional location of the project site is shown on Figure 1 and an aerial photograph of the project site is shown on Figure 2.

5. Project Applicant/Sponsor:

RJ Realty Investors LLC/Santa Fe Flores, LP
Contact: Paul Mayer

6. General Plan Designation:
   - Existing Land Use Designation: Commercial (217-161-19-00) and Light Industrial (217-161-18-00)
   - Proposed Land Use Designation: Medium Density Residential 2 (MDR2) (217-161-18-00 and 217-161-19-00)

7. Zoning:
   - Existing Zoning: Commercial (C) (217-161-19-00) and Light Industrial (L-I) (217-161-18-00)
   - Proposed Zoning: Multi-family Residential (R-3-10) (217-161-18-00 and 217-161-19-00)

8. Description of Project:

The proposed project would request a Density Bonus and develop the approximately 2.5-acre (2.2-acre net) previously graded project site with 50 multi-family dwelling units (22.4 dwelling units/acre), a 1,000-square-foot roof deck, a 1,170-square-foot ground floor leasing and amenity center, an 800-square-foot tot lot, and 120-square-foot ground floor fire command center. Total project square footage would equate to 58,693 square feet. Out of the 50 dwelling units, 5 units would be dedicated affordable units. The units would include a mix of studios, 1 bed/1 bath, and 2 bed/2 bath. The project would include 250 square feet of private open space for each ground floor unit and 55-63 square feet of private open space for upper floor units. In addition, 125 cubic feet of storage located in each of the 45 carports and locker storage are proposed as part of the project. The discretionary approvals necessary for the project include a Multi-Family Site Development Plan (Figure 3). As shown in the architectural elevations (Figure 4), the apartment building would reach a maximum height of 62 feet.

In conjunction with the Density Bonus, and due to the site topography, the project requests a concession to allow for the proposed building to exceed the three-story, 45-foot height limit of the R-3-10 Zone. The project also proposes a General Plan Amendment (GPA) to amend the existing land use designation of Commercial (217-161-19-00) and Light Industrial (217-161-18-00) to Medium Density Residential 2 (MDR2) (217-161-18-00 and 217-161-19-00) and a Rezone from Commercial (C) (217-161-19-00) and Light Industrial (L-I) (217-161-18-00) to Multi-Family Residential (R-3-10) (217-161-18-00 and 217-161-19-00).

Parking and Site Access

Access to the project site would be located along South Santa Fe Avenue, and internal driveways would be constructed to allow for vehicular access throughout the apartment complex. Access to the project site would be restricted to right-in/right-out movements via South Santa Fe Avenue.

On-site parking would be configured in order to accommodate the proposed buildings, resulting in a total of 107 parking spaces for a ratio of 2.14 spaces per unit which would be consistent with the requirements set forth in the San Marcos Code Section 20.340.040. This requirement would be met with the inclusion of 45 carports. Consistent with San Marcos Code Section 20.340.090, bicycle parking would include a total of 11 lockers or bike storage rooms located on the upper and lower levels.

Grading

The project site is currently two levels, the southern portion of the site is relatively flat while the central portion slopes up to an elevated pad at the north end of the site. Elevation of the project area ranges between approximately 495 feet above mean sea level in the south and 550 above mean sea level to the north. The project would require 17,500 cubic yards of cut and 250 cubic yards of fill for a net export of 17,250 cubic yards. The grading plan is shown in Figure 5. The project would construct eight retaining walls. The longest and tallest retaining wall would be approximately 150 feet long and 11.7 feet tall. This retaining wall would be located along the internal access road proposed on the west site of the property.

Landscaping

As shown in Figure 6, the project proposes to plant 71 trees and landscape 24,968 square feet or 25.7 percent of the total 97,057-square-foot project site.

Drainage and Sewer

Once developed, storm water runoff would be collected in a proposed storm drain system and conveyed to the proposed proprietary biofiltration system and subsequently the proposed underground storage facilities. Two storm drain systems, each with their own best management practice (BMP)s, are proposed to maintain the site's historical points of discharge. When developed, the project site would consist of five drainage basins. The project would require a sewer study with approval by the Buena Sanitation District (BSD) and would be subject to all applicable improvement fees as determined by the BSD.

Surrounding Land Use(s) and Project Setting:

The project site is bounded by an existing multi-family residential development located east of North Las Flores Drive, and by South Santa Fe Avenue to the south, existing industrial to the north and west, an existing liquor store and parking lot to the southwest, and South Santa Fe Avenue to the south. The Sprinter railroad tracks and single-family residential homes off North Las Flores Drive are north and northeast of the project site, and the Vista Meadows mobile home community is south of South Santa Fe Avenue across from the project site.

9. Other Required Agency Approvals or Permits Required:

Vista Irrigation District and Buena Sanitation District

10. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, has consultation begun?

The City of San Marcos, as lead agency, formally notified California Native American tribes of the opportunity to consult via letter in accordance with Senate Bill (SB) 18 and Assembly Bill (AB) 52 consultation processes in January and June of 2022, respectively. The formal SB 18 notification letters were sent to California Native American tribes as identified on the Native American Heritage Commission (NAHC) list while the AB 52 letters were sent to the Mesa Grande Band of Diegueno Mission Indians, San Luis Rey Band of Mission Indians, Rincon Band of Luiseño Indians, and Pechanga Band of Luiseño Indians who have formally requested the AB 52 notification as of the date of the City notification letter. Formal consultation was requested by the San Luis Rey Band of Mission Indians and Rincon Band of Luiseño Indians. To be completed upon receipt of AB 52 consultation from the City.

11. Summary of Environmental Factors Potentially Affected:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Energy
☐ Geology/Soils	☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials
☐ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☐ Noise	☐ Population/Housing	☒ Public Services
☐ Recreation	☐ Transportation	☒ Tribal Cultural Resources
☐ Utilities/Service Systems	☐ Wildfire	☒ Mandatory Findings of Significance

DETERMINATION: (To be completed by Lead Agency)

On the basis of this initial evaluation:

☐ The proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ Although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ The proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ The proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (a) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (b) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required.

☐ Although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier Environmental Impact Report (EIR) or (MITIGATED) NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or (MITIGATED) NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

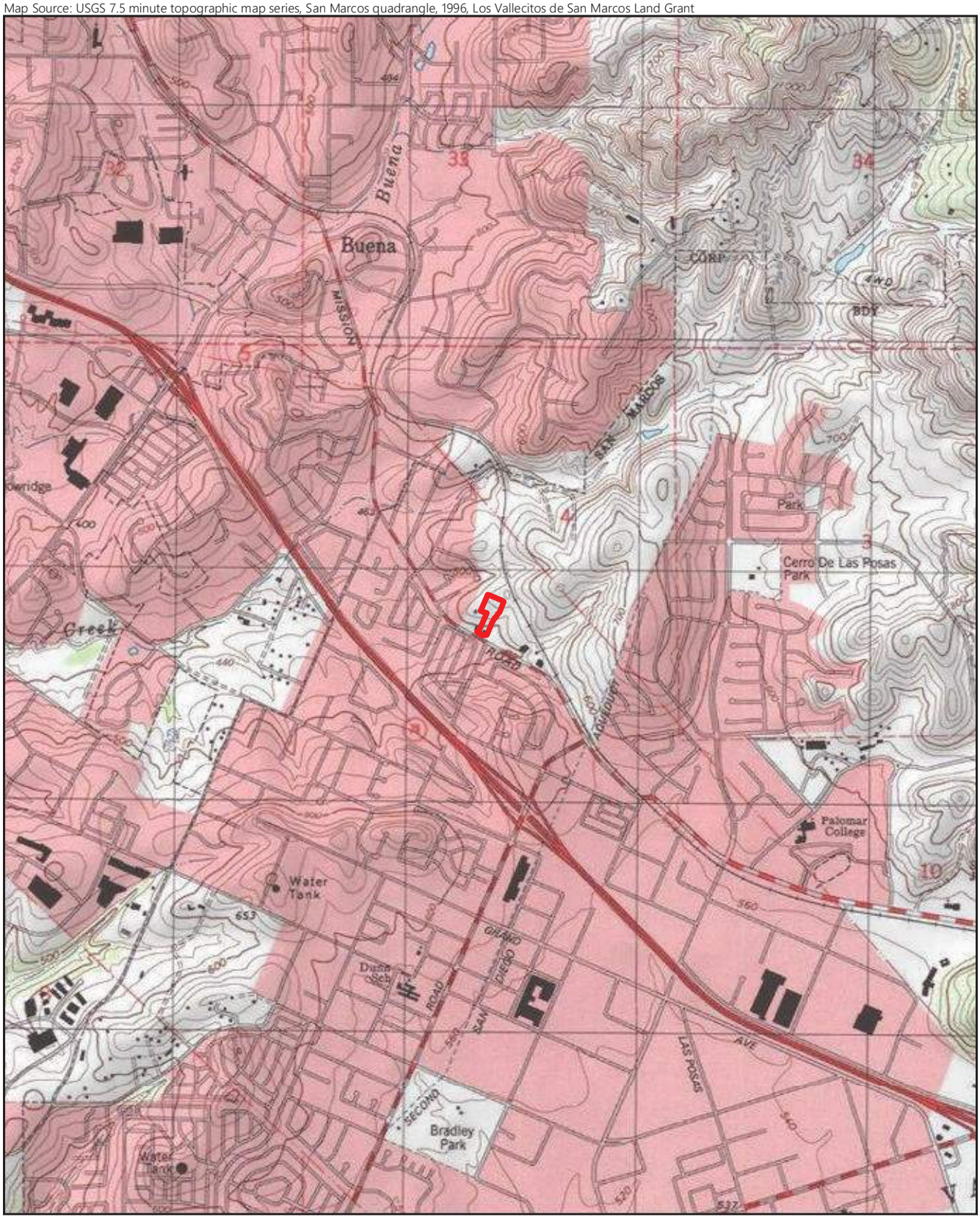
Project Location

RECON

M:\JOBS5\9865\common_gis\fig1.mxd 03/08/2022 bma

FIGURE 1
Regional Location

Map Source: USGS 7.5 minute topographic map series, San Marcos quadrangle, 1996, Los Vallecitos de San Marcos Land Grant



Project Boundary

RECON

M:\JOBS5\9865\common_gis\fig2_USGS.mxd 03/21/2022 bma

FIGURE 2
Project Location on USGS Map

Image Source: NearMap (flown January 2022)

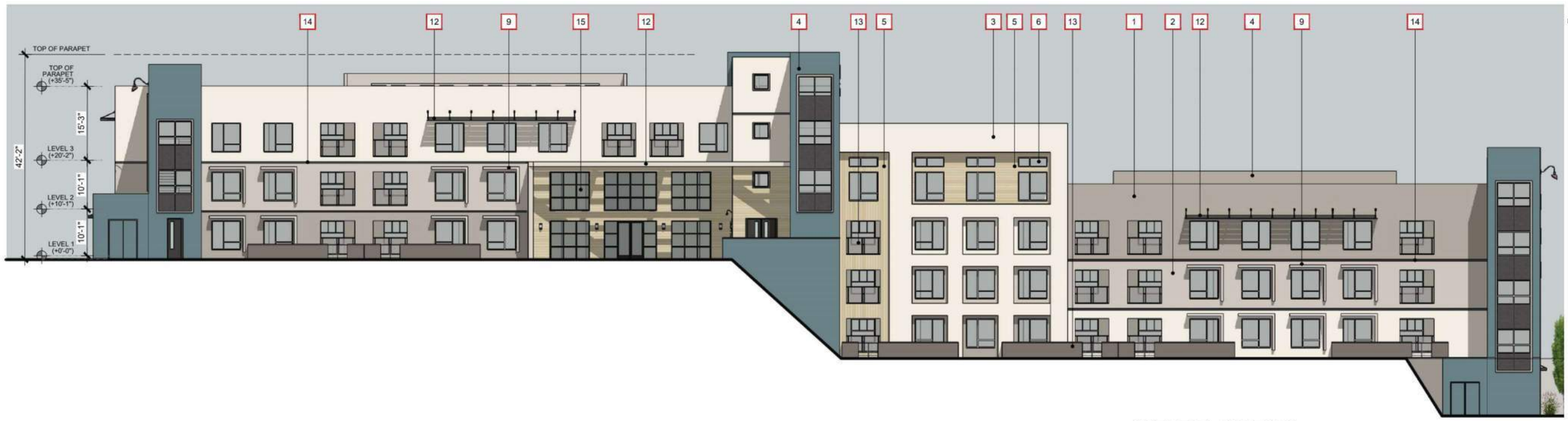
Project Boundary

RECON

M:\JOBS5\9865\common_gis\fig3_aerial.mxd 03/21/2022 bma

FIGURE 3
Project Location on Aerial Photograph

Map Source: Architects Orange



WEST ELEVATION

LEGEND

1	20/30 SAND FIN. STUCCO - C1
2	20/30 SAND FIN. STUCCO - C2
3	20/30 SAND FIN. STUCCO - C3
4	20/30 SAND FIN. STUCCO - C4
5	CEMENTITOUS SIDING
6	INSULATED VINYL WINDOWS
7	CORNICE (SMOOTH STUCCO OVER FOAM)
8	MURAL / SIGNAGE
9	SHADE SCREENS
10	DECORATIVE TRIM
11	METAL GATE w/ PATIO WALL
12	METAL AWNING
13	PATIO WALLS / METAL RAILING
14	4" RECESSED METAL REGLET
	STOREFRONT WINDOWS

EAST ELEVATION

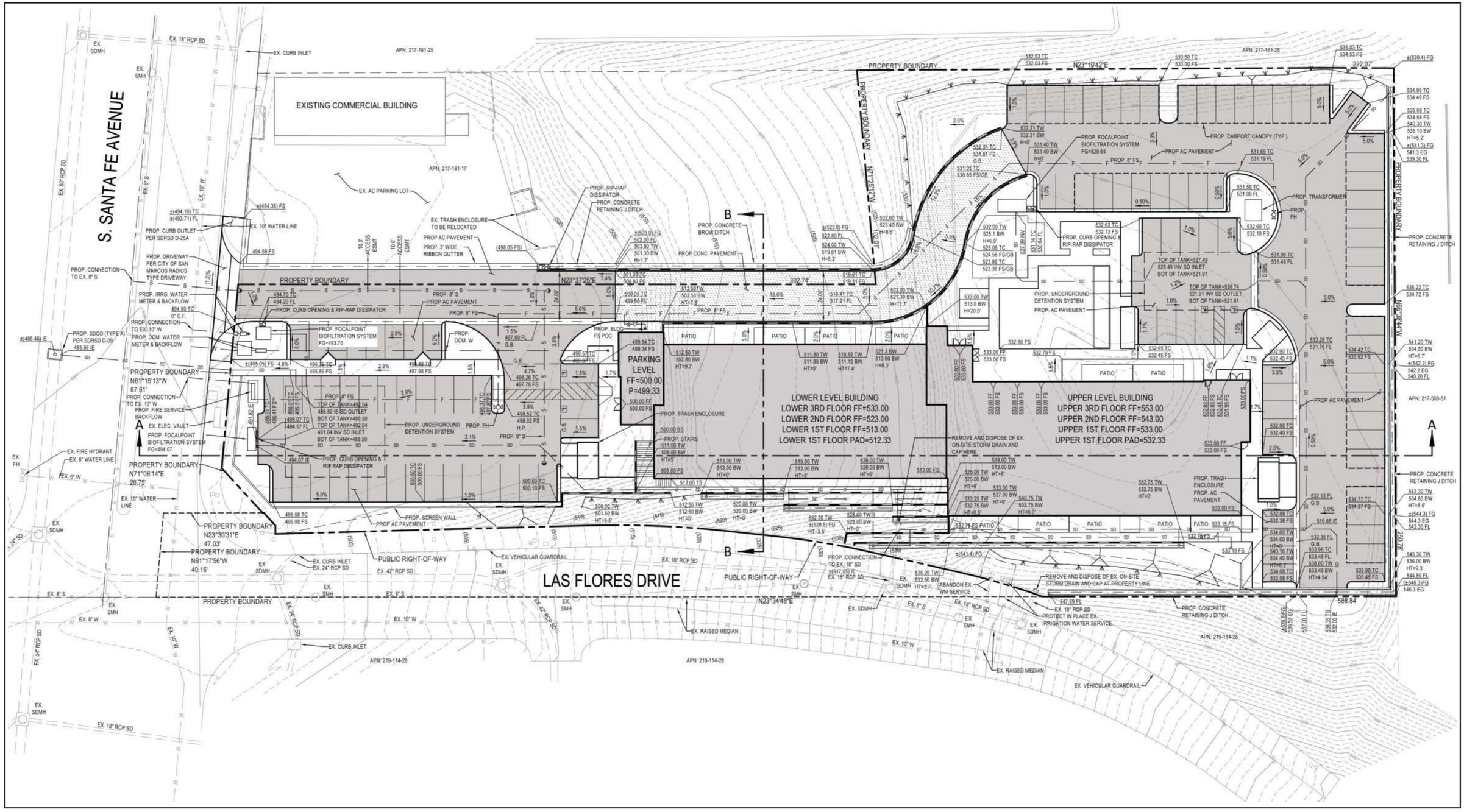
0 Feet 16

RECON

M:\JOBS5\9865\env\graphics\Fig4.afdesign 05/03/22 bma

FIGURE 4
Architectural Elevations

Map Source: Pasco Laret Suiter & Associates



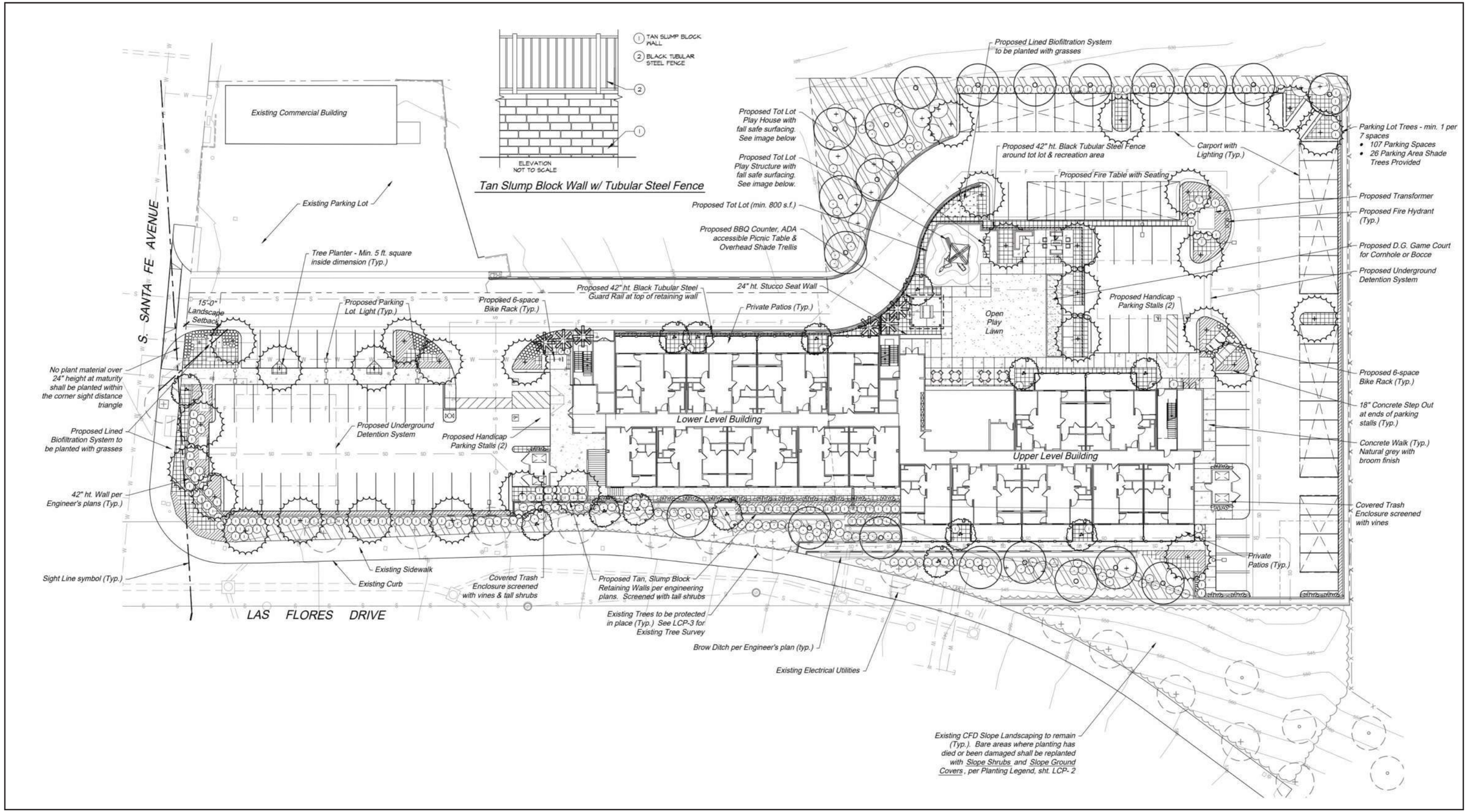
0 Feet 40

RECON

M:\JOBS5\9865\env\graphics\Fig5.afdesign 05/03/22 bma

FIGURE 5
Grading Plan

Map Source: Howard Associates



RECON

M:\JOBS5\9865\env\graphics\Fig6.afdesign 05/03/22 bma

FIGURE 6
Landscape Plan

4.0 Initial Study Checklist

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved. A "No Impact answer should be explained where it is based on project specific factors as well as general standards.
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level.
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or (mitigated) negative declaration. Section 15063(c)(3)(D).
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:

    a. The significance criteria or threshold, if any, used to evaluate each question; and
    b. The mitigation measure identified, if any, to reduce the impact to less than significant.

4.1 Aesthetics

Would the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

EXPLANATIONS:

a: Less than Significant Impact

The project site is bounded by an existing multi-family residential development located east of North Las Flores Drive, existing industrial to the north and west, an existing liquor store and parking lot to the southwest, and South Santa Fe Avenue to the south. The Sprinter railroad tracks and single-family residential homes off North Las Flores Drive are north and northeast of the project site, and the Vista Meadows mobile home community is south of South Santa Fe Avenue across from the project site.

Scenic vistas within the city are primarily associated with primary and secondary ridgelines, which are identified by the City's Ridgeline Protection and Management Overlay Zone, outlined within Chapter 20.260 of the City's Zoning Ordinance. The City's Ridgeline Protection and Management Overlay Zone aims to preserve Primary Ridgelines in their natural state, and to minimize visual impacts to Secondary Ridgelines through a "Ridgeline Overlay Zone" that protects natural view sheds, unique natural resources, minimizes the physical impacts to ridgelines, and establishes

innovative site and architectural design standards. The project site is not located in the Ridgeline Protection and Management Overlay Zone. Further, the project site does not include any primary or secondary ridgelines, as identified on Figure 4-5 of the Conservation and Open Space Element of the General Plan. The project site is not identified as a viewing platform location, or a scenic vista under the City's General Plan. Therefore, no impact would occur.

b. Less than Significant Impact

Scenic resources within the City include, but are not limited to, undeveloped hillsides; prominent landforms such as the San Marcos Mountains, Merriam Mountains, Mount Whitney, Cerro de La Posas, Double Peak, Owens Peak, and Franks Peak. Views from Twin Oaks Valley Road include the San Marcos Mountains and Merriam Mountains on the north; and Double Peak and Mount Whitney on the south. There are no designated state scenic highways or eligible state scenic highways within the city. State Route 78 (SR-78) is designated by the City as a view corridor and eligible as a state scenic highway. This highway corridor provides views of the Merriam Mountains, Mount Whitney, Double Peak, California State University San Marcos (CSUSM), and Palomar Community College. Other scenic resources within the city include, but are not limited to, creek corridors, eucalyptus stands, rock outcroppings, landmark or historic buildings, and ocean views. The project site is located approximately 0.25 mile north of SR-78; however, none of these identified undeveloped hillsides, prominent landforms, or other scenic resources are visible from or contained within the project site.

At a local level, SR-78 is designated by the City as a view corridor. The highway corridor provides views of the Merriam Mountains, Mount Whitney, and Double Peak. The project would not impact views to these peaks from SR-78, as these peaks would not be visible by passengers in cars travelling along SR-78 adjacent to the project site. The City also has a Ridgeline Protection and Management Overlay Zone, which is designed to protect natural viewsheds and unique natural resources and minimize physical impacts to select primary and secondary ridgelines. These protected ridgelines are shown on Figure 4-5 of the Conservation and Open Space Element of the City's General Plan. Development of the proposed project is not proposed on any area identified as a primary or secondary ridgeline. Additionally, the project site does not support any significant trees, rock outcroppings, or historic buildings as identified in or protected by the City's General Plan. In summary, the project would not result in significant damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within the City or a State Scenic Highway. Therefore, impacts would be less than significant.

c. Less than Significant Impact

The existing visual character in the project vicinity is a mix of residential, industrial, and commercial development. The project site is surrounded by industrial development to the north and west, North Las Flores Drive and adjacent three-story multi-family dwelling units to the east, and South Santa Fe Avenue and the Vista Meadows mobile home community to the south. The project includes a Density Bonus to provide five affordable housing units. Under state law, density bonus projects are permitted to exceed the standard building heights of the local jurisdiction. Due to the site topography, the project requests a concession to allow for the proposed building to exceed the three-story, 45-foot height limit of the R-3-10 Zone. The project would not result in a visual impact to the surrounding area since the southern portion of the site sits at the lowest elevation of the road along South Santa Avenue. Due to the topography of the site, the southern portion of the building has a height of 55 feet and the building is set back from South Santa Fe Avenue by more than 100 feet. Therefore,

the building would not loom over the street or adjacent properties and would not impact views from properties along South Santa Fe Avenue, Las Flores Drive or the Rancho Santalina subdivision.

The proposed project is designed to naturally blend into the topography of the hillside as it progresses up the slope and would be substantially screened by Las Flores Drive. Based on the way the building follows the topography of the site, the first floor of the upper portion of the building sits at an elevation of 533 feet, 20 feet above the first floor of the lower portion of the building. While the elevator core at the connection between the lower portion of the building and upper portion of the building is the highest point of the building at 62 feet, 9 inches, it then levels out in relation to the natural topography at the north end to a height of 42 feet, 2 inches, which is almost 3 feet less than the allowable 45 feet for a 3-story apartment building. As shown in Figure 4, it is estimated that less than 4 percent of the building is higher than the typical 45 foot, 3 story apartment building. As such, development of the project site would not result in the substantial degradation of the project site and its surroundings, and impacts would be less than significant.

d. Less than Significant Impact

The project is surrounded by existing development that emits light. Lighting proposed under the project would be guided by standards set by the City, which requires downward directed light emitting diode (LED) lighting, except for specialized streetscape lighting or architectural detail lighting. These requirements aid in the preservation of dark-sky conditions, which are needed by the local observatories. Development of the project would be required to comply with the City's lighting standards, and the location, type, and direction of the lighting would be reviewed during Improvement Plan review to ensure compliance. Therefore, the project would not create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area. Impacts would be less than significant

4.2 Agriculture and Forestry Resources

Would the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act Contract?	☐	☐	☐	☒

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 1220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104[g])?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

EXPLANATIONS:

a. No Impact

The project site is not in agricultural use and is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance based on both the California Department of Conservation's (DOC's) Farmland Mapping and Monitoring Program (DOC 2016) and Figure 4-4 of the General Plan (City of San Marcos 2013). Thus, no impact would occur.

b. No Impact

The project site is not zoned for agricultural use and does not have a history of agricultural use. Therefore, the project is not located within a Williamson Act Contract area and no impact would occur.

c. No Impact

The project site is zoned as Commercial (C) and Light Industrial (L-I). As such, the project site is not zoned as forest land, timberland, or timberland zoned for timberland production. Thus, no impact would occur.

d. No Impact

There is no forest land that exists within the project site. Thus, the project would not result in the loss of forest land or the conversion of forest land to non-forest use, resulting in no impact.

e. No Impact

The project site does not support any agricultural or forest land. Therefore, the project would not involve other changes in the existing environment that, due to their location or nature, could result in conversion of farmland to nonagricultural use or conversion of forest land to non-forest use, resulting in no impact.

4.3 Air Quality

Would the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

EXPLANATIONS:

a. Less than Significant Impact

An air quality report was prepared for the project by RECON Environmental, Inc. and is included as Appendix A to this IS/MND. The RAQS is the applicable regional air quality plan that sets forth the San Diego Air Pollution Control District's (SDAPCD's) strategies for achieving the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). The San Diego Air Basin (SDAB) is designated non-attainment for the federal and state ozone standard. Accordingly, the Regional Water Quality Control Standards (RAQS) was developed to identify feasible emission control measures and provide expeditious progress toward attaining the standards for ozone. The two pollutants addressed in the RAQS are reactive organic gases (ROG) and nitrogen

oxide (NO_X), which are precursors to the formation of ozone. Projected increases in motor vehicle usage, population, and growth create challenges in controlling emissions and by extension to maintaining and improving air quality. The RAQS, in conjunction with the transportation control measures (TCMs), were most recently adopted in 2016 as the air quality plan for the region.

The growth projections used by the SDAPCD to develop the RAQS emissions budgets are based on the population, vehicle trends, and land use plans developed in general plans and used by the San Diego Association of Governments (SANDAG) in the development of the regional transportation plans and sustainable communities strategy. As such, projects that propose development that is consistent with the growth anticipated by SANDAG's growth projections and/or the general plan would not conflict with the RAQS. In the event that a project would propose development that is less dense than anticipated by the growth projections, the project would likewise be consistent with the RAQS. In the event a project proposes development that is greater than anticipated in the growth projections, further analysis would be warranted to determine if the project would exceed the growth projections used in the RAQS for the specific subregional area.

The northern 1.5-acre portion of the project site is designated Light Industrial in the City's General Plan and is zoned Light Industrial (L-I). The southern 0.8-acre portion of the project site is designated Commercial in the City's General Plan and is zoned Commercial (C). The project would require a General Plan Amendment and Rezone to Multi-Family Residential (R-3-10). The project would not be consistent with the existing land use and zoning designations for the project site; however, this does not imply that the project would be inconsistent with the growth projections assumed in the RAQS. In order to determine if emissions associated with the project are accounted for in the growth projections assumed in the RAQS, emissions due to operation of a project consistent with the existing land use and zoning designations were calculated and compared to emissions associated with operation of the project. Title 20 – Zoning of the City's Municipal Code establishes allowable floor area ratios (FAR) for each zone. Light Industrial zones have a FAR of 0.6 and Commercial zones have a FAR of 0.7. Under these requirements, should the site be developed with commercial and industrial land uses as allowed under the existing land use and zoning designations, approximately 38,000 square feet of light industrial development and 24,000 square feet of commercial development could be constructed. Table 1 summarizes the emissions associated with an industrial and commercial land use along with the emissions associated with the project.

Table 1 Commercial and Industrial Land Use Operational Emissions (pounds per day)						
Source	Pollutant					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
PROJECT EMISSIONS						
Area Sources	1	<1	4	<1	<1	<1
Energy Sources	<1	<1	<1	<1	<1	<1
Mobile Sources	1	1	8	<1	2	<1
Total	**2**	**1**	**12**	**<1**	**2**	**1**
INDUSTRIAL AND COMMERCIAL PROJECT EMISSIONS						
Area Sources	2	<1	<1	<1	<1	<1
Energy Sources	<1	<1	<1	<1	<1	<1
Mobile Sources	3	3	25	<1	5	1
Total	**4**	**3**	**25**	**<1**	**5**	**1**
NOTE: Totals may vary due to independent rounding.						

As shown, project emissions would be less than operational emissions associated with an industrial and commercial project that is consistent with the existing land use and zoning designations. Therefore, the project would not result in an increase in emissions that are not already accounted for in the RAQS.

Additionally, shown in Tables 2 and 3, project emissions would not exceed the screening level significance thresholds.

Table 2 Summary of Maximum Construction Emissions (pounds per day)						
Construction	Pollutant					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Site Preparation	1	14	10	<1	2	1
Grading	2	63	22	<1	15	6
Building Construction	2	15	16	<1	1	1
Paving	1	9	12	<1	1	<1
Architectural Coatings	73	1	2	<1	<1	<1
Maximum Daily Emissions	**73**	**63**	**22**	**<1**	**15**	**6**
Significance Threshold	*250*	*250*	*550*	*250*	*100*	*67*

Table 3 Summary of Project Operational Emissions (pounds per day)						
Source	Pollutant					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area Sources	1	<1	4	<1	<1	<1
Energy Sources	<1	<1	<1	<1	<1	<1
Mobile Sources	1	1	8	<1	2	<1
Total	**2**	**1**	**12**	**<1**	**2**	**1**
Significance Threshold	*250*	*250*	*550*	*250*	*100*	*67*
NOTE: Totals may vary due to independent rounding.						

Therefore, the project would not result in an increase in emissions that are not already accounted for in the RAQS. The project would not obstruct or conflict with implementation of the RAQS, and impacts would be less than significant.

b. Less than Significant Impact

The region is classified as an attainment area for all criterion pollutants except ozone, 10-micron particulate matter (PM_{10}), and 2.5-micron particulate matter ($PM_{2.5}$). The SDAB is a non-attainment area for the 8-hour federal and state ozone standards. Ozone is not emitted directly but is a result of atmospheric activity on precursors. NO_X and ROG are known as the chief "precursors" of ozone. These compounds react in the presence of sunlight to produce ozone. $PM_{2.5}$ includes fine particles that are found in smoke and haze and are emitted from all types of combustion activities (motor vehicles, power plants, wood burning, etc.) and certain industrial processes. PM_{10} includes both fine and coarse dust particles, and sources include crushing or grinding operations and dust from paved or unpaved roads.

As shown in Table 2, project construction would not exceed the applicable regional emissions thresholds. These thresholds are designed to provide limits below which project emissions would not significantly change regional air quality. Therefore, as project construction emissions would be below these limits, project construction would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant.

Long-term emissions of regional air pollutants occur from operational sources. As shown in Table 3, project operation would not exceed the applicable regional emissions thresholds. Therefore, as operational emissions would be below these limits, the project would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant.

c. Less than Significant Impact

Sensitive land uses include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities. The nearest sensitive receptors are the residential uses located 300 feet to the northeast, 100 feet to the southeast, 160 feet to the south, and 115 feet to the southwest.

Carbon Monoxide Hot Spots

Localized carbon monoxide (CO) concentration is a direct function of motor vehicle activity at signalized intersections (e.g., idling time and traffic flow conditions), particularly during peak commute hours and meteorological conditions. The SDAB is a CO maintenance area under the federal Clean Air Act (CAA). This means that SDAB was previously a non-attainment area and is currently implementing a 10-year plan for continuing to meet and maintain air quality standards.

Due to increased requirements for cleaner vehicles, equipment, and fuels, CO levels in the state have dropped substantially. All air basins are attainment or maintenance areas for CO. Therefore, more recent screening procedures based on more current methodologies have been developed. The Sacramento Metropolitan Air Quality Management District developed a screening threshold in 2011, which states that any project involving an intersection experiencing 31,600 vehicles per hour or more will require detailed analysis. In addition, the Bay Area Air Quality Management District developed a screening threshold in 2010 which states that any project involving an intersection experiencing 44,000 vehicles per hour would require detailed analysis. This analysis conservatively assesses potential CO hot spots using the South Coast Air Quality Management District screening threshold of 31,600 vehicles per hour.

As discussed, the project would generate 300 daily trips. Based on the project daily traffic volumes on roadways in the vicinity of the project site (SANDAG 2021), the hourly turning volumes at nearby intersections are projected to be well less than 31,600 vehicles per hour. Therefore, the project is not anticipated to result in a CO hot spot.

Diesel Particulate Matter – Construction

Construction of the project and associated infrastructure would result in short-term diesel exhaust emissions from on-site heavy-duty equipment. Construction of the project would result in the generation of diesel-exhaust diesel particulate matter (DPM) emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities and on-road diesel equipment used to bring materials to and from the project site.

Generation of DPM from construction projects typically occurs in a single area for a short period. Construction is anticipated to last for approximately 14 months. The dose to which the receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the Maximally Exposed Individual. The risks estimated for a Maximally Exposed Individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2015). Thus, if the duration of proposed construction activities near any specific sensitive receptor were one year, the exposure would be 3 percent of the total 30-year exposure period used for health risk calculation. Further, the project would implement construction best management practices and would be conducted in

accordance with California Air Resources Board (CARB) regulations. Specifically, the project would implement the following Best Available Control Technology for Toxics measures during construction:

- The construction fleet shall use any combination of diesel catalytic converters, diesel oxidation catalysts, diesel particulate filters and/or utilize CARB/United States Environmental Protection Agency (U.S. EPA) Engine Certification Tier 3 or better, or other equivalent methods approved by the CARB.
- The engine size of construction equipment shall be the minimum size suitable for the required job.
- Construction equipment shall be properly tuned and maintained in accordance with the manufacturer's specifications.
- Per CARB's Airborne Toxic Control Measures 13 (California Code of Regulations Chapter 10 Section 2485), the applicant shall not allow idling time to exceed 5 minutes unless more time is required per engine manufacturers' specifications or for safety reasons.

Therefore, DPM generated by project construction is not expected to create conditions where the probability is greater than 10 in 1 million of contracting cancer for the Maximally Exposed Individual or to generate ground-level concentrations of noncarcinogenic toxic air contaminants (TACs) that exceed a Hazard Index greater than 1 for the Maximally Exposed Individual. Additionally, with ongoing implementation of U.S. EPA and CARB requirements for cleaner fuels; off-road diesel engine retrofits; and new, low-emission diesel engine types, the DPM emissions of individual equipment would be substantially reduced. Therefore, project construction would not expose sensitive receptors to substantial pollutant concentration.

Stationary Sources

CARB provides guidance on siting land uses near major emitters or facilities of concern. These facilities include distribution centers, chrome platers, dry cleaners using perchloroethylene, and large gas stations. CARB siting constraints are summarized in Table 4.

The project would not include any of the sources included in Table 4. The project would not construct a stationary source of toxic emissions.

Table 4 CARB Land Use Siting Constraints	
Source Category	Recommended Buffer Distances (feet)
Distribution centers (that accommodate more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units per day, or where transport refrigeration unit operations exceed 300 hours per week)	1,000
Chrome platers	1,000
Dry cleaners using perchloroethylene (1 machine)	300
Dry cleaners using perchloroethylene (2 machines)	500
Dry cleaners using perchloroethylene (3 or more machines)	Requires consultation with SDAPCD
Large gas station (3.6 million gallons or more per year)	300
Other gas stations	50
SOURCE: CARB 2005.	

d. Less than Significant Impact

The project does not include heavy industrial or agricultural uses that are typically associated with odor complaints. During construction, diesel equipment may generate some nuisance odors. However, exposure to odors associated with project construction would be short term and temporary in nature. Impacts associated with odors would be less than significant.

4.4 Biological Resources

Would the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have substantial adverse effects, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS)?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS?	☐	☐	☐	☒

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e. Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance?	☐	☐	☐	☒
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

EXPLANATIONS:

a. Potentially Significant Unless Mitigation Incorporated

A biological resources report was prepared for the project by RECON Environmental, Inc. and is included as Appendix B to this IS/MND. Two land cover types were identified within the biological study area: disturbed land and urban/developed. Direct impacts to migratory and nesting birds, including Cooper's hawk, could result from the accidental destruction of nests through removal of disturbed land, if construction were to occur during the general bird breeding season (between March and September; SANDAG 2003). Pursuant to California Department of Fish and Wildlife (CDFW) Code 3503, which protects nesting birds, implementation of mitigation measure BIO-1 would be required as a condition of project approval and would reduce this potential impact to a less than significant level.

b. No Impact

The project site consists of disturbed land and urban/developed land. Native vegetation communities do not exist on the project site. The project site does not support any riparian habitat nor does it support any sensitive natural communities identified in local or regional plans, policies, and

regulations by the CDFW or the United States Fish and Wildlife Service (USFWS). No impact would occur.

c. No Impact

No potential jurisdictional wetlands or waters were observed on-site. Therefore, there are no anticipated impacts to any jurisdictional wetlands or waterways and no impact would occur.

d. No Impact

Though it is reasonable to assume that urban-adapted species may occur locally within the impact footprint, the site as a whole does not function as a wildlife movement corridor and there is no indication that the site supports any wildlife nursery sites. Therefore, the project would not result in any impact to wildlife movement or nursery sites and no impact would occur.

e. No Impact

The proposed project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. No impact would occur.

f. No Impact

The project site is not located within a Focused Planning Area of the City's Draft Subarea Plan for the Multiple Habitat Conservation Program nor is the project subject to a Natural Community Conservation Plan (NCCP) (Figure 4, Draft NCCP for the City of San Marcos). Therefore, the project would not conflict with the provisions of an adopted Habitat Conservation Plan, NCCP, or other approved local, regional, or state habitat conservation plan. No impact would occur.

Mitigation Measure BIO-1

If construction initiation occurs between March and September, a pre-construction nesting bird and raptor survey of the project impact area shall be completed by a qualified biologist prior to vegetation removal. The pre-construction survey shall be conducted within 10 calendar days prior to the start of construction activities (including removal of vegetation). If any active nests are detected, the area will be flagged and mapped along with a buffer as recommended by the qualified biologist. The buffer area(s) established by the qualified biologist will be avoided until the nesting cycle is complete or it is determined that the nest is no longer active. The qualified biologist shall be a person familiar with bird breeding behavior and capable of identifying the bird species of San Diego County by sight and sound and determining alterations of behavior as a result of human interaction. Buffers will be based on species-appropriate buffers and/or local topography and line of sight, species behavior and tolerance to disturbance, and existing disturbance levels, as determined appropriate by the qualified biologist.

4.5 Cultural Resources

Would the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of an historical resource pursuant to §15064.5?	☐	☐	☐	☒
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c. Disturb human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

EXPLANATIONS:

a. No Impact

A cultural resources survey was prepared for the project by RECON Environmental, Inc. and is included as Appendix C to this IS/MND. RECON conducted a self search of the records at the South Coastal Information Center, San Diego State University, which is a member of the California Historical Resources Information System. The search radius was one mile. No prehistoric or historic cultural resources are recorded on or adjacent to the project area. A total of 31 cultural resources have been documented within one mile of the project boundary, including 9 prehistoric period resources and 22 historic period resources. In addition, there are 19 historic addresses listed within the one-mile search radius.

As there are no identified historical resources within the project site and the project would not affect properties outside of the project site, the project would not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5. Therefore, no impact would occur.

b. Potentially Significant Unless Mitigation Incorporated

The cultural resources survey took place on March 10, 2022, using a survey interval of approximately seven meters across the property. The RECON archaeologist was accompanied by a Luiseño representative from Saving Sacred Sites. As a result of this survey, it appears probable that soil has been dumped on a significant portion of the parcel, obscuring the original ground. Also, the project is in an area of alluvial deposition adjacent to San Marcos Creek. Because of these factors, the possibility exists for buried prehistoric archaeological deposits on-site. Implementation of mitigation measure CUL-1 would require a qualified archaeological monitor and a Native American monitor representing the Luiseño community be on-site during all ground-disturbing activities. If

archaeological materials are identified during construction activities, work in the immediate area shall cease and an archaeologist meeting the City of San Marcos Qualifications Standards for Archaeology must evaluate the find. If the discovery proves to be significant under CEQA, a data recovery program shall be implemented. If human remains are found, construction shall halt in the immediate area and procedures set forth in California Public Resources Code Section 5097.98 and State Health and Safety Code Section 7050.5 shall be followed. After completion of monitoring, a final report with the monitoring methods and results shall be prepared and submitted to the City. Thus, implementation of mitigation measure CUL-1 would reduce impacts involving archaeological resources to a less than significant level.

The City of San Marcos, as lead agency, formally notified California Native American tribes of the opportunity to consult via letter in accordance with SB 18 and AB 52 consultation processes in January and June of 2022, respectively. The formal SB 18 notification letters were sent to California Native American tribes as identified on the NAHC list while the AB 52 letters were sent to the Mesa Grande Band of Diegueno Mission Indians, San Luis Rey Band of Mission Indians, Rincon Band of Luiseño Indians, and Pechanga Band of Luiseño Indians. Formal consultation was requested by the Pechanga Band of Luiseño Indians, San Luis Rey Band of Mission Indians, and Rincon Band of Luiseño Indians.

The City of San Marcos has developed standard mitigation measures CR-1 through CR-4 via the tribal consultation process to reduce potential impacts to tribal cultural resources. Implementation of mitigation measures CR-1 through CR-3 would require an archaeological monitor and a Traditionally and Culturally Affiliated (TCA) Native American Tribe monitor be present during earth moving and grading activities to assure that any resources found during project grading be protected. These measures are described below. Therefore, impacts to archaeological resources would be less than significant with the incorporation of mitigation.

c. Potentially Significant Unless Mitigation Incorporated

The cultural resource study prepared for the project did not indicate the likelihood of human remains on the site. However, according to the state Health and Safety Code Section 7050.5, in the event that human remains (or remains that may be human) are discovered at the implementing development project site during grading or earthmoving, the construction contractors shall immediately stop all activities in the immediate area of the find. The project proponent shall then inform the San Diego County Coroner and the City of San Marcos Planning Division, and the coroner would be permitted to examine the remains. If the coroner determines that the remains are of Native American origin, the coroner would notify the NAHC and the Commission would identify the "Most Likely Descendent." In the event human remains are discovered during project construction, the project would comply with applicable regulations, thereby ensuring impacts would be less than significant.

Furthermore, while there is no evidence of human remains on the project site, as provided by mitigation measure CR-1 through CR-4, an archaeological monitor and a Native American monitor (or TCA Native American Tribe monitor) shall be present during earth moving and grading activities to assure that any resources found during project grading be protected. In addition, as specified by California Health and Safety Code Section 7050.5, if human remains are found on the project site during construction or during archaeological work, the person responsible for the excavation, or his or her authorized representative, shall immediately notify the San Diego County Medical Examiner's Office. With mitigation and adherence to the state Health and Safety Code, the project would not

cause a significant impact to human remains. Impacts would be less than significant with the incorporation of mitigation.

Mitigation Measure CR-1: Pre-Excavation Agreement

Prior to the issuance of a Grading Permit, or ground disturbing activities, the Applicant/Owner shall enter into a Tribal Cultural Resources Treatment and Repatriation Agreement (Pre-Excavation Agreement) with a Traditionally and Culturally Affiliated Native American Tribe (TCA Tribe), identified in consultation with the City. The purpose of the Pre-Excavation Agreement shall be to formalize protocols and procedures between the Applicant/Owner and the TCA Tribe for the protection, treatment, and repatriation of Native American human remains, funerary objects, cultural and/or religious landscapes, ceremonial items, traditional gathering areas, and other tribal cultural resources. Such resources may be located within and/or discovered during ground disturbing and/or construction activities for the proposed project, including any additional culturally appropriate archaeological studies, excavations, geotechnical investigations, grading, preparation for wet and dry infrastructure, and other ground disturbing activities. Any project-specific monitoring plans and/or excavation plans prepared by the project archaeologist shall include the TCA Tribe requirements for protocols and protection of tribal cultural resources that were agreed to during the tribal consultation.

The landowner shall relinquish ownership of all non-burial related tribal cultural resources collected during construction monitoring and from any previous archaeological studies or excavations on the project site to the TCA Tribe for proper treatment and disposition per the Pre-Excavation Agreement, unless ordered to do otherwise by responsible agency or court of competent jurisdiction. The requirement and timing of such release of ownership, and the recipient thereof, shall be reflected in the Pre-Excavation Agreement. If the TCA Tribe does not accept the return of the cultural resources, then the cultural resources will be subject to curation.

Mitigation Measure CR-2: Construction Monitoring

Prior to the issuance of a Grading Permit or ground disturbing activities, the Applicant/Owner or Grading Contractor shall provide written documentation (either as signed letters, contracts, or emails) to the City's Planning Division stating that a Qualified Archaeologist and Traditionally and Culturally Affiliated Native American monitor (TCA Native American monitor) have been retained at the Applicant/Owner or Grading Contractor's expense to implement the construction monitoring program, as described in the Pre-Excavation Agreement.

The Qualified Archaeologist and TCA Native American monitor shall be invited to attend all applicable pre-construction meetings with the General Contractor and/or associated subcontractors to present the construction monitoring program. The Qualified Archaeologist and TCA Native American monitor shall be present on-site during grubbing, grading, trenching, and/or other ground disturbing activities that occur in areas of native soil or other permeable natural surfaces that have the potential to unearth any evidence of potential archaeological resources or tribal cultural resources. In areas of artificial paving, the Qualified Archaeologist and TCA Native American monitor shall be present on-site during grubbing, grading, trenching, and/or other ground disturbing activities that have the potential to disturb more than six inches below the original pre-project ground surface to identify any evidence of potential archaeological or tribal cultural resources. No

monitoring of fill material, existing or imported, will be required if the General Contractor or developer can provide documentation to the satisfaction of the City that all fill materials being utilized at the site are either: (1) from existing commercial (previously permitted) sources of materials; or (2) are from private or other non-commercial sources that have been determined to be absent of tribal cultural resources by the Qualified Archaeologist and TCA Native American monitor.

The Qualified Archaeologist and TCA Native American monitor shall maintain ongoing collaborative coordination with one another during all ground disturbing activities. The requirement for the construction monitoring program shall be noted on all applicable construction documents, including demolition plans, grading plans, etc. The Applicant/Owner or Grading Contractor shall provide written notice to the Planning Division and the TCA Tribe, preferably through e-mail, of the start and end of all ground disturbing activities.

Prior to the release of any grading bonds, or prior to the issuance of any project Certificate of Occupancy, an archaeological monitoring report, which describes the results, analysis, and conclusions of the construction monitoring shall be submitted by the Qualified Archaeologist, along with any TCA Native American monitor's notes and comments received by the Qualified Archaeologist, to the Planning Division Manager for approval. Once approved, a final copy of the archaeological monitoring report shall be retained in a confidential City project file and may be released, as a formal condition of AB 52 consultation, to the Pechanga Band of Luiseño Indians, San Luis Rey Band of Mission Indians, and the Rincon Band of Luiseño Indians or any parties involved in the project specific monitoring or consultation process. A final copy of the report, with all confidential site records and appendices, will also be submitted to the South Coastal Information Center after approval by the City.

Mitigation Measure CR-3: Unanticipated Discovery Procedures

Both the Qualified Archaeologist and the TCA Native American monitor may temporarily halt or divert ground disturbing activities if potential archaeological resources or tribal cultural resources are discovered during construction activities. Ground disturbing activities shall be temporarily directed away from the area of discovery for a reasonable amount of time to allow a determination of the resource's potential significance. Isolates and clearly non-significant archaeological resources (as determined by the Qualified Archaeologist, in consultation with the TCA Native American monitor) will be minimally documented in the field. All unearthed archaeological resources or tribal cultural resources will be collected, temporarily stored in a secure location (or as otherwise agreed upon by the Qualified Archaeologist and the TCA Tribe), and repatriated according to the terms of the Pre-Excavation Agreement, unless ordered to do otherwise by responsible agency or court of competent jurisdiction.

If a determination is made that the archaeological resources or tribal cultural resources are considered potentially significant by the Qualified Archaeologist, the TCA Tribe, and the TCA Native American monitor, then the City and the TCA Tribe shall determine, in consultation with the Applicant/Owner and the Qualified Archaeologist, the culturally appropriate treatment of those resources.

If the Qualified Archaeologist, the TCA Tribe, and the TCA Native American monitor cannot agree on the significance or mitigation for such resources, these issues will be presented to the Planning

Division Manager for decision. The Planning Division Manager shall make a determination based upon the provisions of CEQA and California Public Resources Code Section 21083.2(b) with respect to archaeological resources and California Public Resources Section 21704 and 21084.3 with respect to tribal cultural resources, and shall take into account the religious beliefs, cultural beliefs, customs, and practices of the TCA Tribe.

All sacred sites, significant tribal cultural resources, and/or unique archaeological resources encountered within the project area shall be avoided and preserved as the preferred mitigation. If avoidance of the resource is determined to be infeasible by the City as the Lead Agency, then the City shall require additional culturally appropriate mitigation to address the negative impact to the resource, such as, but not limited to, the funding of an ethnographic study and/or a data recovery plan, as determined by the City in consultation with the Qualified Archaeologist and the TCA Tribe. The TCA Tribe shall be notified and consulted regarding the determination and implementation of culturally appropriate mitigation and the drafting and finalization of any ethnographic study and/or data recovery plan, and/or other culturally appropriate mitigation. Any archaeological isolates or other cultural materials that cannot be avoided or preserved in place as the preferred mitigation shall be temporarily stored in a secure location on-site (or as otherwise agreed upon by the Qualified Archaeologist and TCA Tribe) and repatriated according to the terms of the Pre-Excavation Agreement, unless ordered to do otherwise by responsible agency or court of competent jurisdiction. The removal of any artifacts from the project site will be inventoried with oversight by the TCA Native American monitor.

If a data recovery plan is authorized as indicated above and the TCA Tribe does not object, then an adequate artifact sample to address research avenues previously identified for sites in the area will be collected using professional archaeological collection methods. If the Qualified Archaeologist collects such resources, the TCA Native American monitor must be present during any testing or cataloging of those resources. Moreover, if the Qualified Archaeologist does not collect the cultural resources that are unearthed during the ground disturbing activities, the TCA Native American monitor may, at their discretion, collect said resources for later reburial or storage at a local curation facility, as described in the Pre-Excavation Agreement.

In the event that curation of archaeological resources or tribal cultural resources is required by a superseding regulatory agency, curation shall be conducted by an approved local facility within San Diego County and the curation shall be guided by California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections. The City shall provide the Applicant/Owner final curation language and guidance on the project grading plans prior to issuance of the grading permit, if applicable, during project construction. The Applicant/Owner shall be responsible for all repatriation and curation costs and provide to the City written documentation from the TCA Tribe or the curation facility, whichever is most applicable, that the repatriation and/or curation have been completed.

Mitigation Measure CR-4: Human Remains

As specified by California Health and Safety Code Section 7050.5, if human remains, or remains that are potentially human, are found on the project site during ground disturbing activities or during archaeological work, the person responsible for the excavation, or his or her authorized

representative, shall immediately notify the San Diego County Medical Examiner's Office by telephone. No further excavation or disturbance of the discovery or any nearby area reasonably suspected to overlie adjacent remains (as determined by the Qualified Archaeologist and/or the TCA Native American monitor) shall occur until the Medical Examiner has made the necessary findings as to origin and disposition pursuant to Public Resources Code 5097.98.

If such a discovery occurs, a temporary construction exclusion zone shall be established surrounding the area of the discovery so that the area would be protected (as determined by the Qualified Archaeologist and/or the TCA Native American monitor), and consultation and treatment could occur as prescribed by law. As further defined by State law, the Medical Examiner will determine within two working days of being notified if the remains are subject to his or her authority. If the Medical Examiner recognizes the remains to be Native American, and not under his or her jurisdiction, then he or she shall contact the Native American Heritage Commission by telephone within 24 hours. The Native American Heritage Commission will make a determination as to the Most Likely Descendent, who shall be afforded 48 hours from the time access is granted to the discovery site to make recommendations regarding culturally appropriate treatment.

If suspected Native American remains are discovered, the remains shall be kept in situ (in place) until after the Medical Examiner makes its determination and notifications, and until after the Most Likely Descendent is identified, at which time the archaeological examination of the remains shall only occur on site in the presence of the Most Likely Descendent. The specific locations of Native American burials and reburials will be proprietary and not disclosed to the general public. According to California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). In the event that the Applicant/Owner and the Most Likely Descendant are in disagreement regarding the disposition of the remains, state law will apply, and the mediation process will occur with the NAHC. In the event that mediation is not successful, the landowner shall rebury the remains at a location free from future disturbance (see Public Resources Code Section 5097.98(e) and 5097.94(k)).

4.6 Energy

Would the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

EXPLANATIONS:

a. Less than Significant Impact

Construction

During construction, the project would consume energy in two general forms: (1) the fuel energy consumed by construction vehicles and equipment and (2) energy used in the manufacturing of construction materials, such as asphalt and pipes.

Construction of the project would require the use of construction equipment for hauling and building activities. Equipment for these types of activities is discussed in Section 4.3, Air Quality. Construction equipment requires electricity would be gas powered or diesel powered. Construction also includes the vehicles of construction workers traveling to and from the project site.

Furthermore, there are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction projects. Therefore, the proposed short-term construction activities would not result in inefficient, wasteful, or unnecessary fuel consumption.

Transportation

Transportation energy use depends on the type and number of trips, vehicle miles traveled, fuel efficiency of vehicles, and travel mode. Transportation energy use during construction would come from the transport and use of construction equipment and construction employee vehicles that would use diesel fuel and/or gasoline. The use of energy resources by these vehicles would be temporary. Impacts related to transportation energy use during construction would be temporary and would not require expanded energy supplies or the construction of new infrastructure. Impacts would be less than significant.

Operation

Operational impacts of the proposed project would be comparable to similar uses in the City. Therefore, impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during operation would be less than significant.

b. No Impact

Development of the proposed project would be required to adhere to Section 3.3, Energy Measures within the City's Climate Action Plan (CAP) and Title 24 of the California Building Code. Therefore, the project would not obstruct a state or local plan for renewable energy or energy efficiency and no impacts would occur.

4.7 Geology and Soils

Would the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

EXPLANATIONS:

a.i. Less than Significant Impact

According to the geotechnical investigation (Appendix D) prepared for the project by Ghostrider, Inc., the project site, as with most of southern California, is situated in an area of active and potentially active faults. However, the project site does not lie within an Alquist-Priolo Special Studies zone and there are no known active fault traces that underlie or project toward the project site. Therefore, the potential for direct surface fault rupture is considered to be low. As such, the project site could be subjected to significant shaking in the event of a major earthquake on any of the faults noted above or other faults in the southern California or northern Baja California area. However, potential impacts to the project would be reduced through adherence to requirements specified in the Uniform Building Code and Title 24 of the California Building Code. Impacts would be less than significant.

a.ii. Less than Significant Impact

The project site is located in seismically active southern California and the site could be subject to strong seismic ground shaking from regional seismic activity. According to the geotechnical investigation (see Appendix D), the project site could be subject to ground shaking in the event of an earthquake. All structures on the site would be designed in accordance with seismic parameters of the current Uniform Building Code and Title 24 of the California Building Code. Impacts would be less than significant. Therefore, the project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. Impacts would be less than significant.

a.iii. Less than Significant Impact

Soil liquefaction occurs when saturated fine-grained sands or silts lose their physical strengths during earthquake-induced shaking and behave like a liquid. This is due to loss of point-to-point grain contact and transfer of normal stress to the pore water. Liquefaction potential varies with water level, soil type, material gradation, relative density, and probable intensity and duration of ground shaking. Seismic settlement can occur with or without liquefaction; it results from densification of loose soils.

According to the geotechnical investigation (see Appendix D), the project site is not mapped within a potential liquefaction zone. Based on the type of soil, mapped shallow depth to bedrock, and

groundwater depth of greater than 50 feet, liquefaction in not considered a geologic constraint. Impacts would be less than significant.

a.iv. Less than Significant Impact

Landslides are mass movements of the ground that include rock falls, relatively shallow slumping and sliding of soil, and deeper rotational or transitional movement of soil or rock. According to the geotechnical investigation (see Appendix D), there was no visual evidence of landslides on or near the project site noted during the field investigation. In addition, the project site is not mapped within a potential landslide zone. Impacts would be less than significant.

b. Less than Significant Impact

As required by City regulations, the project would include BMPs during grading and construction. The construction phase of the project would displace soils and temporarily increase the potential for soil erosion. The project site is currently two levels, the southern portion of the site is relatively flat while the central portion slopes up to an elevated pad at the north end of the site. The project would require 17,500 cubic yards of cut and 250 cubic yards of fill for a net export of 17,250 cubic yards. Construction-phase BMPs may include, but are not limited to, soil stabilizers, sandbag berms, stabilized construction entrances, and other runoff controls. Operational BMPs would include landscaping and a storm drain system, which would reduce the potential for erosion (see Appendix D). With implementation of construction and operational BMPs, impacts would be less than significant.

c. Less than Significant Impact

As discussed in the geotechnical investigation (see Appendix D), the project site does not lie within an area zoned for liquefaction. In addition, based on the type of soil, mapped shallow depth to bedrock, and groundwater depth of greater than 50 feet, liquefaction is not considered to be a geologic constraint.

As previously discussed, landslides are not considered to be a geologic constraint. Temporary excavations are anticipated to adhere to standard engineering practices which would result in less than significant impacts related to subsidence of the land. Furthermore, the project is not located on an unstable geologic unit. Thus, the project would have a less than significant impact related to on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

d. Less than Significant Impact

As discussed in the geotechnical investigation (see Appendix D), a test of surface soils indicated an expansion index of 155 which indicated a very high expansion potential. Expansive soils are generally not anticipated to present significant adverse impacts to site development. During preparation of the final geotechnical evaluation for the grading operations, the project applicant would work with the project geotechnical engineer to further define the soil expansion potential and, if necessary, include standard geotechnical requirements to ensure the grading complies with all required geotechnical conditions. Thus, impacts associated with expansive soils would be less than significant.

e. No Impact

The proposed project would be connected to a public sewer system and does not include the installation of septic tanks or alternative wastewater disposal systems; therefore, there would be no impact.

f. Less than Significant Impact

The site has a low to no potential to produce paleontological resources during construction. No mitigation is proposed as a result of the project. However, in the event that fossils are uncovered during construction, a qualified paleontologist should be retained to evaluate the find, in accordance with city, county, and state guidelines. Potential impacts to paleontological resources are determined to be less than significant.

4.8 Greenhouse Gas Emissions

Would the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

EXPLANATIONS:

a. Less than Significant Impact

The City adopted a Climate Action Plan (CAP) in 2020 to demonstrate how the City will achieve the state's greenhouse gas (GHG) reduction targets codified by AB 32 (2006) and SB 32 (2016) and outlined in the 2017 Scoping Plan. The City CAP addresses major sources of GHG emissions in the City and sets forth a detailed and long-term strategy that the City and community can implement to achieve GHG emissions reduction targets. The CAP fulfills General Plan Goal COS-4 and Implementation Program COS-4.2. The CAP builds on the efforts and strategies identified in the City's 2013 CAP, and establishes GHG emission targets and identifies achievable, locally based actions to reduce GHG emissions from municipal and community activities. Consistent with CARB's recommendations for community-wide targets, the CAP identifies GHG emission reduction targets of 4 percent below baseline 2012 emission levels by 2020 and 42 percent below 2012 levels by 2030 (City of San Marcos 2020).

This CAP has been prepared consistent with CEQA Guidelines Section 15183.5, which establishes standards for the content and approval process of plans to reduce GHGs. Pursuant to these standards, the CAP, as a "qualified" CAP, affords development applicants the opportunity to use CEQA streamlining tools for analysis of GHG emissions and related impacts for projects that are consistent with the CAP. In addition, the qualified CAP helps the City streamline the application and enforcement of GHG reduction measures applicable to development projects.

Along with the CAP, the City adopted a CAP Consistency Review Checklist (Checklist). The purpose of the Checklist is to implement GHG reduction measures from the CAP that apply to new discretionary development projects. New development would demonstrate consistency with relevant CAP strategies and would not conflict with the City's ability to achieve the identified GHG reduction targets through implementation of applicable measures. Projects that are consistent with the CAP, as determined through the use of the Checklist, may rely on the CAP for the cumulative impact analysis of GHG emissions. Projects that are not consistent with the CAP must prepare a comprehensive project-specific analysis of GHG emissions, including quantification of existing and projected GHG emissions and incorporation of the measures in the Checklist to the extent feasible. Cumulative GHG impacts would be significant for any project that is not consistent with the CAP.

The Checklist includes a GHG screening threshold of 500 metric tons of carbon dioxide equivalent (MT CO_2E) per year for new development projects in order to determine if a project would need to demonstrate consistency with the CAP through the Checklist. Projects that are projected to emit fewer than 500 MT CO_2E annually would not make a considerable contribution to the cumulative impact of climate change and would not need to provide additional analysis to demonstrate consistency with the CAP. The Checklist also includes project types and sizes that correspond to the 500 MT CO_2E screening threshold. For multi-family housing uses, the screening size is 55 dwelling units. The proposed project would develop 50 multi-family units. Thus, it is anticipated that the project would emit less than 500 MT CO_2E per year, and as stated in the Checklist, the project's GHG impact would be less than significant and is not subject to the measures of the CAP. The CAP Checklist is provided in Appendix E.

b. Less than Significant Impact

As discussed above, the project would not make a considerable contribution to the cumulative impact of climate change because it would emit less than 500 MT CO_2E per year; therefore, the project would not conflict with the CAP. Since the CAP is a "qualified" CAP that demonstrates how the City will achieve GHG reductions consistent with state reduction targets codified by AB 32 (2006) and Senate Bill 32 (2016), the project would not conflict with the 2017 Scoping Plan. Therefore, impacts would be less than significant.

4.9 Hazards and Hazardous Materials

Would the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

EXPLANATIONS:

a: Less than Significant Impact

Hazardous materials include solids, liquids, or gaseous materials that, because of their quantity, concentration, or physical, chemical, or infectious characteristics could pose a threat to human health or the environment. Hazards include the risks associated with potential explosions, fires, or release of hazardous substances in the event of an accident or natural disaster, which may cause or contribute to an increase in mortality or serious illness or pose substantial harm to human health or the environment.

Construction of the project would involve the transport of fuels, lubricants, and various other liquids needed for operation of construction equipment at the site on an as-needed basis by equipment service trucks. Materials hazardous to humans, wildlife, and sensitive environments, including diesel fuel, gasoline, equipment fluids, concrete, cleaning solutions and solvents, lubricant oils, adhesives, human waste, and chemical toilets, would be present during project construction. The potential exists for direct impacts to human health and biological resources from accidental spills of small amounts of hazardous materials from construction equipment; however, the proposed project would be required to comply with federal, state, and city Municipal Code restrictions which regulate and control those materials handled on-site. Compliance with these restrictions and laws would ensure that potentially significant impacts would not occur during project construction.

In addition, as a residential development, hazardous materials anticipated to be used during site operations are those routinely used by residential uses such as paint and garden maintenance products. It is anticipated that the use, handling, and disposal of these products would be addressed by hazardous waste programs that are part of the Integrated Waste Management Plan of the County of San Diego and other federal, state, and city Municipal Code regulations. Additionally, there are numerous regulations in place that regulate proper disposal of hazardous materials and protect public safety including the Clean Air Act, Clean Water Act, Comprehensive Environmental Response, Compensation and Liability Act, and the Toxic Substances Control Act. Therefore, impacts would be less than significant.

b. Less than Significant Impact

As discussed above under Section 4.9(a), construction equipment accessing the site would use hazardous and/or flammable materials, including diesel fuel, gasoline, and other oils and lubricants. During construction of the project, there is the potential for the short-term use of hazardous materials/fuels; however, the use, storage, transport, and disposal of these materials would be required to comply with all existing local, state, and federal regulations governing construction activities. In addition, the project does not involve a use that would result in foreseeable upset and accident conditions from the release of hazardous materials into the environment.

As a multi-family residential development, hazardous materials anticipated to be used during site operations are those routinely used by residential uses such as cleaners, paint, solvents, batteries, and garden maintenance products. It is anticipated that the use, handling, and disposal of these products would be addressed by hazardous waste programs that are part of the Integrated Waste Management Plan of the County of San Diego and other federal, state, and city Municipal Code regulations. Additionally, there are numerous regulations in place that regulate proper disposal of

hazardous materials and protect public safety including the Clean Air Act, Clean Water Act, Comprehensive Environmental Response, Compensation and Liability Act, and the Toxic Substances Control Act. The project would result in a less than significant risk to the public related to hazardous materials. Therefore, impacts would be less than significant.

c. Less than Significant Impact

No schools are within 0.25 mile of the project site; La Mirada Academy is located 1.2 miles southwest of the project site and Palomar College is located 1 mile southeast of the project site. In addition, the project does not propose uses that would emit hazardous emissions or handle hazardous or acutely hazardous materials or substances. Therefore, the project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school, resulting in a less than significant impact.

d. No Impact

The project site is not located on any hazardous materials sites pursuant to Government Code Section 65962.5. According to the Department of Toxic Substances Control Envirostor (Envirostor 2022) database, there are no hazardous materials sites located on the project site or within the surrounding area. Therefore, no impact would occur.

e. Less than Significant Impact

There are no public or private airports located within City boundaries; however, the McClellan-Palomar Airport is located approximately 2.5 miles west of the City within the city of Carlsbad. As described in the McClellan-Palomar Airport Land Use Compatibility Plan (ALUCP) and Figure 6-5 of the City's General Plan, the project site is located within the McClellan-Palomar Airport Influence Area (AIA). The AIA is defined in California Business and Professional Code 11010(b)(13)(b) as "the area in which current or future airport-related noise, overflight, safety, or airspace protection factors may significantly affect land uses or necessitate restrictions on those uses." The McClellan-Palomar AIA is divided into Review Area 1 and Review Area 2. The project site is located within Review Area 2. The only restriction on land uses within Review Area 2 are limitations on the heights of structures. Within Review Area 2, any structure which has a height greater than 35 feet above ground level requires Airport Land Use Commission (ALUC) review. As shown in Figure 4, the proposed project would be 62.9 feet above ground level. Thus, the project would require ALUC review prior to approval.

f. Less than Significant Impact

The project does not involve the development of structures that could potentially impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. All proposed internal roadways and project access points would comply with City standards for emergency and fire protection vehicles and distances. The project would comply with all design recommendations and requirements provided by the San Marcos Fire Department to ensure that emergency access meets City standards. Therefore, impacts would be less than significant.

g. No Impact

According to Figure 6-4 in the City's General Plan (City of San Marcos 2013), the project site is not located within a local, state, or federal fire hazard severity zone. Thus, impacts involving wildland fires would not occur.

4.10 Hydrology and Water Quality

Would the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner, which would:				
i. result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☒	☐
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☐	☒
iv. impede or redirect flood flows?	☐	☐	☒	☐

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

EXPLANATIONS:

a. Less than Significant Impact

Implementation of the proposed project would involve ground-disturbing activities, including grading and excavation, and could cause soil erosion and contamination of nearby surface water. The storm water quality management plan (SWQMP; Appendix F) identifies specific project design features to control and treat surface water, including drainage basins. Further, the proposed project is required to comply with the City's Municipal Code Chapter 17.32, which contains design standards and performance requirements to avoid or reduce excessive erosion. Construction and post-construction activities would be required to adhere to various federal, state, and regional water quality standards, such as the Municipal Permit and Construction General Permit. As such, runoff volumes and pollutants leaving the project site during construction and postconstruction operations would be substantially reduced through source control, site design, and/or treatment-control BMPs mandated by these permits. Erosion and sediment controls identified in the storm water pollution prevention plan (SWPPP) would substantially reduce the amount of soil disturbance, erosion, and sediment transport into receiving waters, and pollutants in site runoff during construction. For all of the foregoing reasons, implementation of the proposed project would not result in substantial soil erosion that could degrade surface or groundwater quality.

A hydrology study was prepared for the project by Pasco Laret Suiter & Associates, Inc. and is included as Appendix G to this IS/MND. As described in Section 3.0, the project design includes an on-site storm water runoff system that would collect runoff in a storm drain system and then convey it to proprietary biofiltration system (BMPs) and subsequently into underground storage facilities (BMPs). Two storm drain systems, each with their own BMPs, are proposed to maintain the site's historical points of discharge. The proposed project would then flow into five drainage basins as outlined in Section 3.0 above.

The BMPs would provide hydromodification management flow control and storm water pollutant control to meet the requirements of the California Regional Water Quality Control Board (RWQCB) San Diego Region municipal separate storm sewer system permit (Order No. R9-2013-0001, referred to as MS4 Permit). Further, the project has been designed to comply with the land development requirements of Regional MS4 Permit and the 2016 City of San Marcos Best Management Practices Design Manual (BMP Design Manual). Adherence with the City's BMP Design Manual and the National Pollutant Discharge Elimination System (NPDES) permit that is in place at the time of development would be required. Impacts would be less than significant.

b. No Impact

As identified above, project adherence with the BMP Design Manual and the NPDES permit that is in place at the time of development would be required. The project would not use any groundwater. All water for the project will be provided by Vista Irrigation District (VID). Therefore, the project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. No impact would occur.

c(i). Less than Significant Impact

The project site is not located within a Federal Emergency Management Agency (FEMA) floodplain, as designated on Figure 6-3 in the City's General Plan (City of San Marcos 2013). Implementation of the proposed project would involve ground-disturbing activities, including grading and excavation, and could cause soil erosion. The project is required to comply with the City's Municipal Code Chapter 17.32, which contains design standards and performance requirements to avoid or reduce excessive erosion. In addition, the proposed project would maintain the site's historical points of discharge and no change in the local drainage patterns of the project site area would occur. Therefore, impacts would be less than significant.

c(ii) Less than Significant Impact

Project implementation would involve construction activities that would increase the amount of impervious surface that could result in an increase of surface runoff. Further, the project is required to comply with General Plan Policy COS-8.4, which directs the City to require development to protect natural drainage systems through site design, runoff reduction measures, and BMPs consistent with the San Diego Regional Water Quality Control Board Municipal Stormwater NPDES Permit. Construction and post-construction activities would be required to adhere to various federal, state, and regional water quality standards, such as the MS4 Permit and Construction General Permit. As such, runoff volumes and pollutants leaving the site during construction and post-construction operations would be substantially reduced through source control, site design, and/or treatment-control BMPs mandated by these permits. Erosion and sediment controls identified in the project specific SWPPP would substantially reduce the amount of soil disturbance, erosion, and sediment transport into receiving waters, and pollutants in site runoff during construction. For all of the foregoing reasons, implementation of the proposed project would not increase the rate or amount of surface runoff. Therefore, impacts would be less than significant.

c(iii) No Impact

Implementation of the proposed project would result in ground-disturbing activities, including grading and excavation, and could require the use of water for dust abatement as needed via a water truck. These activities would be temporary and intermittent and would not generate permanent water drainage flows. Therefore, implementation of the proposed project would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. No impact would occur.

c(iv) Less than Significant Impact

As previously stated, the project site is not located within a Federal Emergency Management Agency (FEMA) floodplain, as designated on Figure 6-3 in the City's General Plan (City of San Marcos 2013). The project is required to comply with the City's Municipal Code Section 17.32.150, which directs the

City to deny grading permits in flood hazard areas. Therefore, implementation of the proposed project would not impede or redirect flood flows. No impact would occur.

d. No Impact

The project site is not located within a FEMA floodplain, as designated on the FEMA Flood Insurance Rates Map (FIRM) panel. The project site is located approximately 10.5 miles east of the Pacific Ocean and, therefore, impacts as a result of a tsunami would not occur. In addition, seiches are considered unlikely due to the absence of large nearby confined bodies of water. No impact would occur.

e. Less than Significant Impact

The project site is located within the Carlsbad Management Area Water Quality Improvement Plan. The General Construction Permit requires preparation and implementation of a storm water pollution prevention plan (SWPPP), which must include erosion and sediment control BMPs that would meet or exceed measures required by the NPDES General Permit, as well as BMPs that control hydrocarbons, trash and debris, and other potential construction-related pollutants. Per the SWQMP (see Appendix F), the project would be required to implement proprietary biofiltration BMPs (BF-3) to meet pollutant control requirements. Furthermore, the project would not utilize groundwater. Therefore, impacts related to implementation of a water quality control plan or sustainable groundwater management plan would be less than significant.

4.11 Land Use and Planning

Would the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

EXPLANATIONS:

a. No Impact

The project site is bounded by an existing multi-family residential development located east of North Las Flores Drive, by South Santa Fe Avenue followed by the Vista Meadows mobile home park to the south, existing industrial to the north and west, commercial uses to the west, an existing liquor store and parking lot to the southwest, and South Santa Fe Avenue to the south. The Sprinter railroad tracks and single-family residential homes off North Las Flores Drive are north and northeast of the project site.

The proposed use of the site for multi-family dwelling units would be similar to the adjacent multi-family dwelling units to the east and would not physically divide an established community. Thus, no impact would occur.

b. Less than Significant Impact

The project would require a Multi-Family Site Development Plan (MFSDP), a General Plan Amendment to change the land use from Commercial (C) and Light Industrial (L-I) to Medium Density Residential 2 (MDR2) and a zone change from Commercial (C) and Light Industrial (L-I) to Multi-Family Residential (R-3-10). The project is also receiving a Density Bonus per Section 20.305 of the City Municipal Code. In conjunction with the Density Bonus, and due to the site topography, the project requests a concession to allow for the proposed building height of 74.7 feet to exceed the three-story, 45-foot height limit of the R-3-10 Zone. While the project would require physical and regulatory changes, the project would be consistent with planned growth under the adopted 2021-2029 Housing Element Update. Therefore, impacts would be less than significant.

4.12 Mineral Resources

Would the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

EXPLANATIONS:

a. No Impact

The City currently does not have active mines or quarries, although two historical mining/quarry locations do exist within the corporate City limits; Meadowlark Ranch Quarry located in the Questhaven/La Costa Meadows Neighborhood and the former mine near Village Drive at Twin Oaks Valley Road (General Plan; City of San Marcos 2013). The areas around the project are not being used for the recovery of mineral resources and are not designated by the City's General Plan or other local, state, or federal land use plan for mineral resources recovery; therefore, the project would not result in the loss of mineral resources.

b. No Impact

The project site is not designated as a locally important mineral resource recovery site in the City's General Plan, or any other specific plan or other land use plan (City of San Marcos 2013). Thus, no impact would result.

4.13 Noise

Would the project result in:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b. Generation of excessive ground borne vibration or ground borne noise levels?	☐	☐	☒	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	☐	☐	☒	☐

EXPLANATIONS:

A noise analysis was prepared for the project by RECON Environmental, Inc. and is included as Appendix I.

a. Less than Significant Impact

Construction Noise

As shown in Table 5, construction noise levels would range from 57 to 74 A-weighted decibels one-hour equivalent noise level (dB(A) L_{eq}) at the adjacent property lines. The City's Municipal Code does not place noise limit restrictions on construction activities; however, the County noise level limit of

75 dB(A) L_{eq} is used by the City at residential uses. Construction activities would generally occur over the period between 7:00 a.m. and 6:00 p.m. on weekdays. Although the existing adjacent uses would be exposed to construction noise levels that may be heard above ambient conditions, the exposure would be temporary and would not exceed 75 dB(A) L_{eq}. As construction activities associated with the project would comply with the time limits established in Section 10.24.020 (b)(9) of the City's Municipal Code, temporary increases in noise levels from construction activities would be less than significant.

Table 5
Construction Noise Levels

Receiver	Land Use	Noise Level [dB(A) L_{eq}]
1	Single-Family Residential	59
2	Single-Family Residential	61
3	Single-Family Residential	61
4	Single-Family Residential	61
5	Single-Family Residential	59
6	Multi-Family Residential	57
7	Multi-Family Residential	58
8	Multi-Family Residential	68
9	Multi-Family Residential	70
10	Single-Family Residential	63
11	Mobile Home Park	66
12	Mobile Home Park	65
13	Mobile Home Park	61
14	Mobile Home Park	59
15	Commercial	72
16	Industrial	65
17	Industrial	66
18	Industrial	74

dB(A) L_{eq} = A-weighted decibels equivalent noise level.

On-site Traffic Noise

The main source of noise at the project site is vehicle traffic on South Santa Fe Avenue and Las Flores Drive as well as Sprinters on the adjacent rail line. The exterior noise level standard for multi-family uses is 65 community noise equivalent level (CNEL). This standard is applicable at exterior use areas which include the patios, balconies, and the open play lawn, tot lot, and seating areas on the western side of the proposed buildings. As shown in Table 6, exterior noise levels are projected to range from 45 to 63 CNEL at the outdoor use areas and building façade. Noise levels would be compatible with the City's exterior multi-family noise level standard of 65 CNEL. Exterior noise impacts would be less than significant.

Table 6 Future Vehicle and Rail Traffic Noise Levels				
	Exterior Noise Level (CNEL)			
Receiver	First-Floor	Second-Floor	Third-Floor	Fourth-Floor
1	54	56	57	58
2	51	54	56	57
3	54	56	57	58
4	52	55	56	57
5	47	53	55	56
6	48	53	55	56
7	45	51	57	58
8	47	55	57	58
9	50	56	58	59
10	55	57	58	60
11	58	62	63	63
12	57	60	61	62
13	51	57	60	61
14	55	60	61	61
15	53	59	60	61
16	52	56	60	60
17	51	55	59	60
18	51	54	57	59
19	49	54	55	56
20	50	54	55	56
CNEL = community noise equivalent level.				

The interior noise level standard is 45 CNEL. Interior noise levels can be reduced through standard construction techniques. When windows are closed, standard construction techniques provide various exterior-to-interior noise level reductions depending on the type of structure and window. Standard light-frame construction would reduce exterior to interior noise levels by at least 20 dB (Federal Highway Administration [FHWA] 2011). Therefore, interior noise levels would be 43 CNEL or less, and are not projected to exceed the interior noise level standard of 45 CNEL. Interior noise impacts would be less than significant.

Off-site Traffic Noise

The additional vehicle trips associated with the project would increase noise levels on nearby roadways. A noise increase of 3 dB or more would be considered significant because 3 dB is the level at which an increase in noise is perceptible to a person. As shown in Table 7, the project would not result in a direct or cumulative noise increase of more than 3 dB. Therefore, the project would result in less than significant direct and cumulative impact related to traffic noise.

Table 7 Traffic Noise Level with and without Project and Ambient Noise Increases (CNEL)										
	Year 2022			Year 2025			Year 2050			Cumulative Increase Over Existing
Roadway Segment	No Project	Project	Increase	No Project	Project	Increase	No Project	Project	Increase	
South Santa Fe Avenue										
Smilax Road to Bosstick Boulevard	71.3	71.3	0.0	71.5	71.5	0.0	73.0	73.1	0.1	1.8
Bosstick Boulevard to Vern Road	71.8	71.8	0.0	72.0	72.0	0.0	73.0	73.1	0.1	1.3
Vern Road to Las Flores Drive	71.8	71.9	0.1	72.0	72.1	0.1	73.0	73.1	0.1	1.3
Las Flores Drive to North Rancho Santa Fe Road	71.2	71.3	0.1	71.4	71.5	0.1	72.9	72.9	0.0	1.7
North Rancho Santa Fe Road to North Pacific Street	69.8	69.8	0.0	70.0	70.0	0.0	72.3	72.3	0.0	2.5
Hollencrest Road										
De Leone Road to Hollenbeck Road	52.7	53.0	0.3	53.0	53.2	0.2	54.4	54.6	0.2	1.9
North Rancho Santa Fe Avenue										
South Santa Fe Avenue to Capalina Road	69.1	69.2	0.1	69.4	69.4	0.0	70.7	70.7	0.0	1.6
NOTE: Increase calculations may vary due to independent rounding.										

On-site Generated Noise

The noise sources on the project site after completion of construction are anticipated to be those that would be typical of any residential use, such as vehicles arriving and leaving, children at play, and landscape maintenance machinery. None of these noise sources are anticipated to violate the City's Municipal Code. Rooftop heating, ventilation, and air conditioning (HVAC) noise levels were modeled at the adjacent properties. As shown in Table 8, HVAC noise levels would range from 33 to 44 dB(A) L_{eq}. Noise levels would not exceed the applicable Noise Ordinance limits at the property lines and impacts would be less than significant.

Table 8 HVAC Noise Levels at Adjacent Properties			
Receiver	Land Use	Noise Level [dB(A) L_{eq}]	Noise Ordinance Limit Daytime/Nighttime [dB(A) L_{eq}]
1	Single Family Residential	34	60/50
2	Single Family Residential	36	60/50
3	Single Family Residential	36	60/50
4	Single-Family Residential	35	60/50
5	Single-Family Residential	34	60/50
6	Multi-Family Residential	33	65/55
7	Multi-Family Residential	33	65/55
8	Multi-Family Residential	38	65/55
9	Multi-Family Residential	37	65/55
10	Single-Family Residential	35	60/50
11	Mobile Home Park	37	65/55
12	Mobile Home Park	39	65/55
13	Mobile Home Park	38	65/55
14	Mobile Home Park	37	65/55
15	Commercial	41	60/55
16	Industrial	43	65/60
17	Industrial	43	65/60
18	Industrial	44	65/60
dB(A) L_{eq} = A-weighted decibels equivalent noise level.			

b. Less than Significant Impact

As shown in Table 5, construction noise levels would range from 57 to 74 dB(A) L_{eq} at the adjacent property lines. The City's Municipal Code does not place noise limit restrictions on construction activities; however, other jurisdictions commonly apply a noise level limit of 75 dB(A) L_{eq} at residential uses and the City uses the County of San Diego's 75 dB(A) L_{eq} limit at the adjacent property lines. Construction activities would generally occur over the period between 7:00 a.m. and 6:00 p.m. on weekdays.

Although the existing adjacent uses would be exposed to construction noise levels that may be heard above ambient conditions, the exposure would be temporary and would not exceed 75 dB(A) L_{eq}. As construction activities associated with the project would comply with the time limits established in Section 10.24.020 (b)(9) of the City's Municipal Code, temporary increases in noise levels from construction activities causing ground borne vibration or ground borne noise levels would be less than significant.

c. Less than Significant Impact

The closest airport to the project site is the McClellan-Palomar Airport which is located 4.3 miles to the southwest. The project site is located well outside the 60 CNEL noise contour for aircraft operations at McClellan-Palomar Airport. Thus, the project would not expose people residing or

working in the project area to excessive noise levels resulting from proximity to a private airstrip and impacts would be less than significant.

4.14 Population and Housing

Would the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

EXPLANATIONS:

a. Less than Significant Impact

The project would receive a Density Bonus per Section 20.305 of the City Municipal Code. In conjunction with the Density Bonus, 5 of the proposed 50 multi-family dwelling units would be dedicated as affordable. The project would require a General Plan Amendment to change the land use from Commercial (C) and Light Industrial (L-I) Medium Density Residential 2 (MDR2) and a zone change from Commercial (C) and Light Industrial (L-I) to Multi-Family Residential (R-3-10). While the project would present additional housing, the housing would be consistent with planned growth under the adopted 2021-2029 Housing Element Update. Additionally, the project site has access to existing water, sewer, and storm water infrastructure within Las Flores Drive and South Santa Fe Avenue. Impacts related to population growth would be less than significant.

b. No Impact

The project site is currently vacant. As such, the project would not displace any persons and no impact would occur.

4.15 Public Services

Would the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire protection?	☐	☒	☐	☐
ii. Police protection?	☐	☒	☐	☐
iii. Schools?	☐	☐	☒	☐
iv. Parks?	☐	☐	☒	☐
v. Other public facilities?	☐	☐	☒	☐

EXPLANATIONS:

a.i. Potentially Significant Unless Mitigation Incorporated

The San Marcos Fire Department (SMFD) would service the project. SMFD provides service to the City and the San Marcos Fire Protection District, which covers an area of 33 square miles and a population of approximately 95,000 residents (City of San Marcos 2018). Current SMFD facilities include four fire stations and a regional emergency services training facility. SMFD operates four fire stations, four paramedic assessment engine companies, one paramedic assessment truck company, five paramedic transport ambulances (24-hour units), one shift battalion chief, and one on-call duty chief on a daily basis. With an Insurance Services Office (ISO) Rating 2, SMFD provides a variety of first-responder services to the community including fire suppression, rescue, emergency medical services, fire prevention services, vegetation management, public education, emergency preparedness, and trauma support (City of San Marcos 2018).

The station closest to the proposed project site is Fire Station No. 1, located approximately 2.6 miles southeast of the project site at 180 West Mission Road. The project site is within the existing service area of SMFD, and on-site construction would comply with applicable Fire Code requirements. New

fire protection facilities are not anticipated at this time. However, development of the project would contribute to the incremental increase in demand for fire protection services city-wide. This represents a significant impact and mitigation is required. Participation in the Community Facilities District (CFD 2001-01) (Fire and Paramedic) as outlined in mitigation measure PS-1 would offset the cost of increases in necessary services resulting from implementation of the proposed project.

Mitigation Measure PS-1

Prior to the issuance of a grading permit, the applicant/developer/property owner shall submit an executed version of petition to annex into and establish, with respect to the property, the special taxes levied by the following Community Facility District: CFD 2001-01 (Fire and Paramedic).

Participation in the CFD will offset the cost of increases in necessary fire services resulting from implementation of the proposed project and impacts would be reduced to below a level of significance.

a.ii. Potentially Significant Unless Mitigation Incorporated

The San Diego County Sheriff's Department San Marcos Station employs over 100 sheriff deputies, volunteers, and professional staff members (County of San Diego 2018). The San Diego County Sheriff's Department San Marcos Station is located at 182 Santar Place, San Marcos, California 92069, approximately 4.6 miles east of the project site.

The station has a total service area of over 100 square miles, which encompasses the City and the surrounding unincorporated areas of San Marcos and Escondido. The station is currently providing safety services to a population of more than 111,000 residents (County of San Diego 2018). The project site is within the San Diego County Sheriff's Department's service area and surrounded by land uses that are currently served by the department. However, development of the project would contribute to the incremental increase in demand for police protection services City-wide. This represents a significant impact and mitigation is required. Mitigation measure PS-2 requires the project applicant to annex the site into the preexisting CFD for Police Services (CFD 98-01, Improvement Area No. 1). Participation in the CFD will offset the cost of increases in necessary services resulting from implementation of the proposed project.

Mitigation Measure PS-2

Prior to the issuance of a grading permit, the applicant/developer/property owner shall submit an executed version of petition to annex into and establish, with respect to the property, the special taxes levied by the CFD 98-01 Improvement Area No. 1 (Police). Participation in the CFD would offset the cost of increases in necessary police protection services resulting from implementation of the proposed project and impacts would be reduced to below a level of significance.

a.iii. Less than Significant Impact

According to the San Marcos Unified School District (SMUSD) attendance area maps, Joli Ann Leichtag Elementary School, San Marcos Middle School, and San Marcos High School would serve the proposed project (SMUSD 2022a). As a multi-family residential development, the applicant would be required to pay required fees that would help fund ongoing school service and new facilities. Pursuant to SB 50 (Government Code Sections 65995(h), 65996(b) and 65996(h)), fees imposed by

school districts shall constitute the exclusive method of considering and mitigating impacts on school facilities caused by a development project. The payment of statutorily capped fee amounts provides "full and complete mitigation of the impacts of any legislative or adjudicative act . . . on the provision of adequate school facilities" (SB 50). SMUSD collects residential and commercial developer fees for projects within its service area to support costs of construction and expansion of school facilities. Current developer fees are $4.38 per square foot for residential dwelling unit projects (SMUSD 2022b). The project applicant shall pay school mitigation fees pursuant to California Education Code Section 17620 et seq. and Government Code Sections 65995(h), 65996(b), and 65996(h) in effect at the time of building permit issuance, thereby ensuring impacts would be less than significant.

a.iv. Less than Significant Impact

The project applicant would be required to pay the City's Public Facilities Fee (PFF), a portion of which is designated for parks. The PFF money would go towards the acquisition and development of local and community park facilities throughout the City. Payment of the PFF will be required prior to issuance of a building permit. Because the project is not anticipated to increase demand on existing parks and through the contribution of funds for the acquisition and development of local and community park facilities throughout the City, impacts would be less than significant.

a.v. Less than Significant Impact

The analysis within Sections 4.14 (a) through 4.14(d) concluded that the project would have a less than significant impact with mitigation incorporated related to fire protection, police protection, and schools and a less than significant impact to parks. The project would not result in an impact to any other public facilities. Impacts would be less than significant.

4.16 Recreation

Would the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b. Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☒	☐

EXPLANATIONS:

a and b. Less than Significant Impact

The closest community parks to the project site are Valley View Park, located approximately 1.9 miles east of the project site at 1399 Camino Del Sol, and Cerro de las Posas Park, located approximately 2.2 miles east of the project site at 1387 West Borden Road. The project would construct outdoor amenities including a playground and picnic tables. The project would not involve the provision or alteration of a new or existing park facility and the project does not require the construction or expansion of recreational facilities. The project applicant would be required to pay the City's PFF, a portion of which is designated for parks. The PFF money would go towards the acquisition and development of local and community park facilities throughout the City. Payment of the PFF would be required prior to issuance of a building permit. As such, the project would not have an adverse physical effect on the environment due to the construction of recreational facilities. Impacts would be less than significant.

4.17 Transportation

Would the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with the applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b. Conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d. Result in inadequate emergency access?	☐	☐	☒	☐

EXPLANATIONS:

a. Less than Significant Impact

A local transportation analysis (LTA) was prepared by Linscott, Law & Greenspan, Engineers (LLG) to determine and evaluate the potential effects to the local roadway system due to the proposed project (Appendix J). Although not required by CEQA, a summary of the intersection and street segment operational characteristics are included here for informational purposes. The City of San Marcos strives to maintain intersection and roadway segment operations based on level of service (LOS) standards outlined in the General Plan Mobility Element.

In addition to the LOS analysis, a CEQA transportation analysis was conducted using the SANDAG ABM2+ Base Year 2016 regional travel demand model to calculate the Project's Vehicle Miles Traveled (VMT) per Resident. Based on the results, the project's VMT per resident is less than 85 percent (i.e., 80.3 percent) of the regional average and therefore results in no significant CEQA transportation impact.

Methodology and Significance Criteria

LOS is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. LOS provides an index to the operational qualities of a roadway segment or an intersection. LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. LOS designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments.

Signalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 19 of the Highway Capacity Manual 6th Edition (HCM 6), with the assistance of the Synchro 10 computer software. The delay values (represented in seconds) were qualified with a corresponding intersection LOS. Unsignalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay and LOS was determined based upon the procedures found in Chapter 20 and Chapter 21 of the HCM 6 with the assistance of the Synchro 10 computer software.

Street segment analysis is based upon the comparison of average daily traffic (ADT) volumes to the City's Roadway Classification, Level of Service, and ADT Table. This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics

Analysis of Existing Conditions

Table 9 summarizes the peak hour intersection operations under existing conditions. As seen in Table 9, the study intersections are calculated to operate acceptably at LOS D or better with the exception of South Santa Fe Avenue/Smilax Road, where the minor-street left-turn movement calculated to operate at LOS F.

Table 9
Existing Intersection Operations

Intersection	Control Type	Peak Hour	Existing Delay[a]	Existing LOS[b]
South Santa Fe Avenue/Smilax Road	MSSC[c]	AM	>100	F
		PM	>100	F
South Santa Fe Avenue/Bosstick Boulevard	Signal	AM	16.7	B
		PM	17.3	B
South Santa Fe Avenue/Vern Road	MSSC	AM	17.3	C
		PM	32.6	D
South Santa Fe Avenue/Las Flores Drive	Signal	AM	18.6	B
		PM	19.9	B
Las Flores Drive/Hollencrest Road	MSSC	AM	8.9	A
		PM	8.9	A
South Santa Fe Avenue (W. Mission Road)/North Rancho Santa Fe Road	Signal	AM	12.7	B
		PM	14.5	B
Capalina Road/Hollencrest Road	MSSC	AM	11.7	B
		PM	10.9	B
North Rancho Santa Fe Rd/Capalina Road	Signal	AM	29.3	C
		PM	28.6	C

[a]Average delay expressed in seconds per vehicle.
[b]Level of service.
[c]MSSC = Minor-Street Stop Controlled intersection. Worst-case movement level of service reported.

SIGNALIZED DELAY/LOS THRESHOLDS		UNSIGNALIZED DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

Table 10 summarizes the street segment operations under existing conditions. As seen in Table 10, the study street segments are calculated to operate acceptably at LOS D or better with the exception of South Santa Fe Avenue between Smilax Road and Bosstick Boulevard, which is calculated to operate at LOS F.

Table 10
Existing Street Segment Operations

Street Segment	Classification	Capacity (LOS E)[a]	ADT[b]	LOS[c]	V/C[d]
South Santa Fe Avenue					
Smilax Road to Bosstick Boulevard	2-Lane Collector	8,000	14,850	F	1.856
Bosstick Boulevard to Vern Road	4-Lane Arterial with Class II or Class III Bike Lanes	40,000	16,660	B	0.417
Vern Road to Las Flores Drive	4-Lane Arterial with Class II or Class III Bike Lanes	40,000	16,660	B	0.417
Las Flores Drive to North Rancho Santa Fe Road	4-Lane Arterial with Class II or Class III Bike Lanes	40,000	14,600	A	0.365

Table 10
Existing Street Segment Operations

Street Segment	Classification	Capacity (LOS E)[a]	ADT[b]	LOS[c]	V/C[d]
North Rancho Santa Fe Road to North Pacific Street	4-Lane Arterial with Class II or Class III Bike Lanes	40,000	13,500	A	0.338
Hollencrest Road					
De Leone Road to Hollenbeck Road	2-Lane Sub-Collector	2,200e	560	+C	0.070
North Rancho Santa Fe Road					
South Santa Fe Avenue to Capalina Road	4-Lane Arterial with Class II or Class III Bike Lanes	40,000	11,730	A	0.293

[a]Capacities based on based on the City's Roadway Classifications, Capacity, and LOS (see Appendix J).
[b]Average daily traffic volumes.
[c]Level of service.
[d]Volume to capacity.
NOTE: Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Per the City's Roadway Classifications, Capacity, and LOS, the LOS C capacity of a Sub-Collector is 2,200 ADT.

Project Trip Generation

Table 11 tabulates the total project traffic generation. The project is calculated to generate a total of 300 ADT with 24 AM peak hour trips (5 inbound/19 outbound) and 27 PM peak hour trips (19 inbound and 8 outbound).

Table 11
Project Trip Generation

		Daily Trip Ends (ADT)[b]		AM Peak Hour					PM Peak Hour				
						Volume					Volume		
Land Use	Size	Rate[a]	Volume	% of ADT	In:Out Split	In	Out	Total	% of ADT	In:Out Split	In	Out	Total
Apartments	50 DU	6/DU	300	8%	20:80	5	19	24	9%	70:30	19	8	27
Total			**300**			**5**	**19**	**24**			**19**	**8**	**27**

[a]Trip rates from SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (see Appendix J).
[b]Average daily trips.

Near Term Scenario Analysis

Intersection Analysis

Table 12 summarizes the intersection operations under near-term without project conditions. As seen in Table 12, the study intersections are calculated to operate acceptably at LOS D or better with the exception of South Santa Fe Avenue/Smilax Road, where the minor-street left-turn movement is calculated to continue to operate at LOS F. As seen in Table 12, with the addition of project traffic, the study intersections are calculated to continue to operate acceptably at LOS D or better with the exception of South Santa Fe Avenue/Smilax Road, where the minor-street left-turn movement is calculated to continue to operate at LOS F.

Based on the established LOS Standards, the project would add a small amount of traffic to the intersection of South Santa Fe Avenue/Smilax Road, which operates below City standards. However, the project contributes only 0.45 percent (15 trips) of the total combined AM and PM peak hour traffic to this intersection under near term conditions. The existing traffic conditions at this location are already substandard. The provision of a traffic signal would result in acceptable LOS D or better operations. A traffic signal is planned at the South Santa Fe Avenue/Smilax Road intersection as part of the City's Capital Improvement Project (CIP) 881479 (IP 4750).

Table 12
Near-Term Intersection Operations

Intersection	Control Type	Peak Hour	Near-Term Without Project		Near-Term + Project		Δ[c]	Substantial Effect?
			Delay[a]	LOS[b]	Delay	LOS		
South Santa Fe Avenue/ Smilax Road	MSSC[d]	AM	>100	F	>100	F	>10	Yes
		PM	>100	F	>100	F	>10	Yes
South Santa Fe Avenue/ Bosstick Boulevard	Signal	AM	17.4	B	17.5	B	0.1	No
		PM	18.0	B	18.0	B	0.0	No
South Santa Fe Avenue/ Vern Road	MSSC	AM	17.7	C	18.3	C	0.6	No
		PM	32.0	D	33.3	D	1.3	No
South Santa Fe Avenue/ Las Flores Drive	Signal	AM	18.8	B	18.8	B	0.0	No
		PM	20.7	C	21.2	C	0.5	No
Las Flores Drive/ Hollencrest Road	MSSC	AM	8.9	A	9.0	A	0.1	No
		PM	9.0	A	9.0	A	0.0	No
South Santa Fe Avenue (W. Mission Road)/North Rancho Santa Fe Rd	Signal	AM	12.8	B	12.9	B	0.1	No
		PM	14.9	B	14.9	B	0.0	No
Capalina Road/ Hollencrest Road	MSSC	AM	11.7	B	11.8	B	0.1	No
		PM	10.9	B	11.0	B	0.1	No
North Rancho Santa Fe Road/Capalina Road	Signal	AM	29.8	C	30.1	C	0.3	No
		PM	29.7	C	30.6	C	0.9	No

[a]Average delay expressed in seconds per vehicle.
[b]Level of service.
[c]Δ denotes the increase in delay due to Project.
[d]MSSC = Minor-Street Stop Controlled intersection. Worst-case level of service reported.

SIGNALIZED DELAY/LOS THRESHOLDS		UNSIGNALIZED DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

Segment Operations

Table 13 summarizes the street segment operations under near-term without project conditions. As seen in Table 13, the study street segments are calculated to operate acceptably at LOS D or better with the exception of South Santa Fe Avenue between Smilax Road and Bosstick Boulevard, which is calculated to continue to operate at LOS F. As seen in Table 13, with the addition of project traffic, the study street segments are calculated to continue to operate acceptably at LOS D or better with the exception of South Santa Fe Avenue between Smilax Road and Bosstick Boulevard, which is calculated to continue to operate at LOS F.

The project-related increase in the volume to capacity (V/C) ratio for the above-listed street segment already operating at an unacceptable LOS is less than the threshold of 0.02. Thus, the project is not calculated to result in a substantial effect to the study segment and no improvements are required.

Table 13
Near-Term Street Segment Operations

Street Segment	Capacity (LOS E)[a]	Near-Term Without Project			Near-Term With Project			Δ[e]	Substantial Effect?
		ADT[b]	LOS[c]	V/C[d]	ADT	LOS	V/C		
South Santa Fe Avenue									
Smilax Road to Bosstick Boulevard	8,000	**15,610**	**F**	**1.951**	**15,700**	**F**	**1.963**	**0.012**	**No**
Bosstick Boulevard to Vern Road	40,000	17,510	B	0.438	17,600	B	0.440	0.002	No
Vern Road to Las Flores Drive	40,000	17,510	B	0.438	17,810	B	0.445	0.007	No
Las Flores Drive to North Rancho Santa Fe Road	40,000	15,340	B	0.384	15,490	B	0.387	0.003	No
North Rancho Santa Fe Road to North Pacific Street	40,000	14,190	A	0.355	14,250	A	0.356	0.001	No
Hollencrest Road									
De Leone Road to Hollenbeck Road	2,200[f]	590	+C	0.074	620	+C	0.078	0.004	No
North Rancho Santa Fe Road									
South Santa Fe Avenue to Capalina Road	40,000	12,330	A	0.308	12,420	A	0.311	0.003	No

[a]Capacities based on based on the City of San Marcos' Roadway Classifications, Capacity, and LOS (see Appendix J).
[b]Average daily traffic volumes.
[c]Level of service.
[d]Volume to capacity.
[e]Δ denotes a project-induced increase in the V/C ratio.
NOTE: Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Per the City's Roadway Classifications, Capacity, and LOS, the LOS C capacity of a Sub-Collector is 2,200 ADT.

Year 2050 Analysis

The long-term (Year 2050) street network in the SANDAG Series 14 forecast model includes changes to the roadway system in the vicinity of the study area including the planned widening of South Santa Fe Avenue between Smilax Road and Bosstick Boulevard to 4-lane Arterial standards per the City of San Marcos' Mobility Element.

Intersection Analysis

Table 14 summarizes the intersection operations for the Year 2050 + project scenario. As seen in Table 14, with the addition of project traffic, the study intersections are calculated to continue to operate acceptably at LOS D or better with the exception of:

- Intersection #1. South Santa Fe Avenue/Smilax Road (minor-street left-turn movement calculated to operate at LOS F during the AM and PM peak hours)
- Intersection #3. South Santa Fe Avenue/Vern Road (LOS E during the PM peak hour)

The project-related increase in delay at the intersection of South Santa Fe Avenue/Vern Road is less than the threshold of 2.0 seconds. The project is not calculated to result in a substantial effect to this study intersection and no improvements are required.

Table 14
Long-Term Intersection Operations

Intersection	Control Type	Peak Hour	Long-Term Without Project		Long-Term + Project		Δ[c]	Substantial Effect?
			Delay[a]	LOS[b]	Delay	LOS		
South Santa Fe Avenue/ Smilax Road	MSSC[d]	AM	>100	F	>100	F	>10	Yes
		PM	>100	F	>100	F	>10	Yes
South Santa Fe Avenue/ Bosstick Boulevard	Signal	AM	26.7	C	27.1	C	0.4	No
		PM	40.4	D	40.6	D	0.2	No
South Santa Fe Avenue/ Vern Road	MSSC	AM	19.8	C	20.7	C	0.9	No
		PM	45.9	E	47.3	E	1.4	No
South Santa Fe Avenue/ Las Flores Drive	Signal	AM	20.0	B	20.2	C	0.2	No
		PM	31.1	C	32.3	C	1.2	No
Las Flores Drive/ Hollencrest Road	MSSC	AM	9.2	A	9.2	A	0.0	No
		PM	9.6	A	9.6	A	0.0	No
South Santa Fe Avenue (W. Mission Road)/ North Rancho Santa Fe Road	Signal	AM	13.9	B	14.0	B	0.1	No
		PM	22.1	C	22.2	C	0.1	No
Capalina Road/ Hollencrest Road	MSSC	AM	12.0	B	12.0	B	0.0	No
		PM	11.2	B	11.3	B	0.1	No
North Rancho Santa Fe Road/ Capalina Road	Signal	AM	36.5	D	37.1	D	0.6	No
		PM	41.8	D	43.3	D	1.5	No

[a]Average delay expressed in seconds per vehicle.
[b]Level of service.
[c]Δ denotes the increase in delay due to project.
[d]MSSC = Minor-Street Stop Controlled intersection. Worst-case level of service reported.

SIGNALIZED DELAY/LOS THRESHOLDS		UNSIGNALIZED DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

Segment Analysis

As seen in Table 15, with the addition of project traffic, the study street segments are calculated to continue to operate acceptably at LOS D or better with the exception of South Santa Fe Avenue between Smilax Road and Bosstick Boulevard, which is calculated to continue to operate at LOS F.

The project-related increase in the V/C ratio for the above-listed street segment already operating at an unacceptable LOS is less than the threshold of 0.02. The project is not calculated to result in a substantial effect to the study segment and no improvements are required.

Table 15
Long-Term Street Segment Operations

Street Segment	Capacity (LOS E)[a]	Long-Term Without Project			Long-Term With Project			Δ[e]	Substantial Effect?
		ADT[b]	LOS[c]	V/C[d]	ADT	LOS	V/C		
South Santa Fe Avenue									
Smilax Road to Bosstick Boulevard	8,000	**22,200**	**F**	**2.775**	**22,290**	**F**	**2.786**	**0.011**	**No**
Bosstick Boulevard to Vern Road	40,000	22,200	C	0.555	22,290	C	0.557	0.002	No
Vern Road to Las Flores Drive	40,000	22,200	C	0.555	22,500	C	0.563	0.008	No
Las Flores Drive to North Rancho Santa Fe Road	40,000	21,300	C	0.533	21,450	C	0.536	0.003	No
North Rancho Santa Fe Road to N. Pacific Street	40,000	24,400	C	0.610	24,460	C	0.612	0.002	No
Hollencrest Road									
De Leone Road to Hollenbeck Road	2,200	830	+C	0.104	860	+C	0.108	0.004	No
North Rancho Santa Fe Road									
South Santa Fe Avenue to Capalina Road	40,000	16,800	B	0.420	16,890	B	0.422	0.002	No

[a]Capacities based on based on the City of San Marcos' Roadway Classifications, Capacity, and LOS (see Appendix J).
[b]Average daily traffic volumes.
[c]Level of service.
[d]Volume to capacity.
[e]Δ denotes a Project-induced increase in the Volume to Capacity (V/C) ratio.
NOTE: Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Per the City's Roadway Classifications, Capacity, and LOS, the LOS C capacity of a Sub-Collector is 2,200 ADT.

Transit service is provided to the project area via North County Transit District (NCTD) bus routes 304 and 305. The project site is located within one-half mile walking distance, depending on ultimate pedestrian site access, from stop pairs serving both Route 304 and Route 305 located along South Santa Fe Avenue. The closest bus stops to the project site are located near the intersection of South Santa Fe Avenue/Las Flores Drive and the intersection of South Santa Fe Avenue (Mission Road) and Rancho Santa Fe Road on both sides of the street. The project site is also approximately 1.25-mile walking or biking distance from Palomar College Station. Currently, Class II bike lanes are provided on South Santa Fe Avenue, from Bosstick Boulevard to slightly south of North Rancho Santa Fe Road (both sides); and North Rancho Santa Fe Road, along its entire length (both sides). In the City's *Bicycle and Pedestrian Master Plan*, no additional bike facilities are recommended along the study street segments. The project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or otherwise decrease the performance or safety of such facilities.

Based on the established LOS Standards, the project would add a small amount of traffic to the intersection of South Santa Fe Avenue/Smilax Road, which operates below City standards. However, the project contributes only 0.45 percent (15 trips) of the total combined AM and PM peak hour traffic to this intersection under Near Term conditions. The existing traffic conditions at this location are already substandard. The provision of a traffic signal would result in acceptable LOS D or better operations. A traffic signal is planned at the S. Santa Fe Avenue/Smilax Road intersection as part of the City's CIP 881479 (IP 4750). Since the existing traffic conditions at the intersection of South Santa Fe Avenue/Smilax Road are already substandard and the project would only contribute 15 trips of the total combined AM and PM peak hour traffic, traffic impacts from the proposed project would be less than significant.

b. Less than Significant Impact

A VMT analysis was prepared by LLG to determine and evaluate the potential effects to the local roadway system due to the proposed project (Appendix K). Based on the City's Transportation Impact Analysis Guidelines, the requirement to prepare a detailed transportation VMT analysis applies to all land development projects except for those that meet at least one of the provided screening criteria. A project that meets at least one of the screening criteria listed below would be considered to have a less-than-significant impact due to the project or location characteristics.

Per SANDAG's online residential VMT map, the project site is located within Census Tract 200.18. The VMT per capita of this Census Tract is 15.4 VMT, which is 81.2 percent of the SANDAG regional average of 19.0 VMT per capita. Based on the SANDAG's online residential VMT map, the project's VMT per resident is less than 15 percent below the regionwide average. Therefore, the project would meet the criteria for residential projects proposed in census tracts with residential VMT per capita below the City's threshold of exceeding 85 percent of the SANDAG regional average and impacts would be less than significant.

c. Less than Significant Impact

Access is proposed via the existing driveway to South Santa Fe Avenue, which the Gourmet Liquor store currently utilizes. This driveway is limited to right turns in and out only by the raised median within South Santa Fe Avenue. The project would not contain driveway access from Las Flores Drive. All proposed roadway improvements would be required to comply with the City's Street Design Standards, which require streets to be designed to current City standards and final pavement approval by the Public Works Director before installation (City of San Marcos 2020). Therefore, implementation of the proposed project would not substantially increase hazards due to a geometric design feature. Implementation of the proposed project would not result in alterations to the public roadway. Therefore, impacts would be less than significant.

d. Less than Significant Impact

Access to the project site would be restricted to right-in/right-out movements via South Santa Fe Avenue. All future roadway improvements would be required to comply with the California Fire Code, adopted by reference in the City's Municipal Code Chapter 17.64 and Section 17.64.120, which requires the width of an unobstructed roadway to measure no less than 24 feet to provide adequate access for fire and emergency responders. Therefore, the proposed project would not result in inadequate emergency access. Therefore, impacts would be less than significant.

4.18 Tribal Cultural Resources

Would the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	☐	☒	☐	☐
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☐	☒	☐	☐

EXPLANATIONS:

a.i and a.ii: Potentially Significant Unless Mitigation Incorporated

In accordance with SB 18, the Native American Heritage Commission was contacted to obtain a list of tribes that may have cultural association with the project site and its local vicinity. AB 52 requires that prior to release of a negative declaration, mitigated negative declaration, or environmental impact report for a project, the lead agency shall begin consultation with California Native American tribes that request, in writing, to be informed by the lead agency through formal notification of proposed projects in the geographic area that is traditionally or culturally affiliated with the tribe. Tribes who receive a formal project notification have 30 days to respond and request consultation.

The City of San Marcos, as lead agency, formally notified California Native American tribes of the opportunity to consult via letter in accordance with SB 18 and AB 52 consultation processes in January and June of 2022, respectively. The formal SB 18 notification letters were sent to California Native American tribes as identified on the NAHC list while the AB 52 letters were sent to the Mesa Grande Band of Diegueno Mission Indians, San Luis Rey Band of Mission Indians, Rincon Band of Luiseño Indians, and Pechanga Band of Luiseño Indians. Formal consultation was requested by the Pechanga Band of Luiseño Indians, San Luis Rey Band of Mission Indians, and Rincon Band of Luiseño Indians.

The City of San Marcos has developed standard mitigation measures CR-1 through CR-4 via the tribal consultation process to reduce potential impacts to tribal cultural resources. Implementation of mitigation measures CR-1 through CR-3 would require an archaeological monitor and a TCA Native American Tribe monitor be present during earth-moving and grading activities to assure that any resources found during project grading be protected. These measures are described below. Therefore, impacts to archaeological resources would be less than significant with the incorporation of mitigation.

4.19 Utilities and Service Systems

Would the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or tele-communications facilities, the construction or relocation of which could cause significant environ-mental effects?	☐	☐	☒	☐

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐
c. Result in a determination by the wastewater treatment provided which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infra-structure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e. Comply with federal, state, and local management and reduction statutes and regulation related to solid waste?	☐	☐	☒	☐

EXPLANATIONS:

a. Less than Significant Impact

A Water Supply Study was prepared for the project by the VID and is included as Appendix H to this IS/MND. The VID is responsible for disposal of treated wastewater. The RWQCB regulates the treatment of wastewater at treatment plants and the discharge of the treated wastewater into receiving waters. The VID is responsible for adhering to RWQCB regulations as they apply to wastewater generated by the any project. The VID facilities have been designed to treat typical wastewater flows from different land uses within their service area and complies with all permits and state and federal water quality based standards.

The project would require a sewer study and approval by the BSD and would be subject to all applicable improvement fees as determined by the BSD. Any improvements required by the sewer study would be in an existing public street right-of-way and no new significant environmental impacts would occur. The project would not require the construction of new water ~~or wastewater~~ treatment facilities that could cause significant environmental effects. All private water facilities on-site would be designed and constructed in accordance with the requirements of the California

Uniform Plumbing Code and would connect to existing water lines in adjacent roadways. All public water facilities including services and meters would be designed and constructed in accordance with current City Water Facility Design Guidelines and regulations. Thus, impacts would be less than significant.

b. Less than Significant Impact

The project would require a General Plan Amendment to change the land use from Commercial (C) and Light Industrial (L-I) to Medium Density Residential 2 (MDR2). The project would also require a zone change from Commercial (C) and Light Industrial (L-I) to Multi-Family Residential (R-3-10). The VID's 2018 Potable Water Master Plan (Master Plan) based its water demand planning on the approved land uses.

Based on the unit demand factor of 3,650 gallons per day (gpd)/acre developed in the Master Plan for multi-family residential land use and site size of 2.23 acres, the projected average annual water demand for the project is 8,140 gpd (see Appendix H). The Water Supply Study concluded that the required fire flow demand of 1,500 gallons per minute can be met at both of the proposed private fire hydrants within the development and no existing system deficiencies were identified in any pipe segments in the vicinity of the development. Furthermore, the project would install a water service and master meter sized to accommodate the development and connect to VID's 10-inch main in South Santa Fe Avenue, install a reduced pressure detector assembly and fire service connected to VID's main in South Santa Fe Avenue, and install an 8-inch minimum private fire system sized to serve the project. Therefore, the project would not require new or expanded entitlements. Impacts would be less than significant.

c. Less than Significant Impact

The ~~Buena Sanitation District (~~BSD~~)~~ is located primarily in the Agua Hedionda Drainage Area. The first sewer pipelines were installed in 1964. The Buena Sewer Collection System comprises approximately 101 miles of sanitary sewers and force mains ranging in size from 4 to 30 inches in diameter. Sewer flows generated from the BSD drain to the Buena Pump Station and are conveyed to Encina Wastewater Treatment Plant via the Buena Force Main and the Buena Interceptor.

The project would increase the demand for wastewater treatment as well as land outfall capacity. The project would require a sewer study and approval by the BSD and would be subject to all applicable improvement fees as determined by the BSD. The project would be required to pay the Capital Expansion and Capital Facility Funds (Fund 505 and Fund 510, respectively) which are used for revenues and expenses related to capacity expansion and development. BSD considers payment of these fees as mitigation for the increase in treatment need. Therefore, the project would not result in a determination by the wastewater treatment provider which serves the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments. Impacts would be less than significant.

d. Less than Significant Impact

The project would generate solid waste from operational uses. Solid waste service in the City is provided by a private franchise hauler, EDCO Waste and Recycling (EDCO), which handles all residential, commercial, and industrial collections within the city. Waste collected by EDCO is hauled to the Escondido Resources Recovery Transfer Station where it is then transported to the Sycamore

Sanitary Landfill in Santee. According to CalRecycle, the Escondido Resources Recovery Transfer Station has a permitted throughput of 3,223 tons per day, with a permitted capacity of 8,743 tons/day (CalRecycle 2019a). According to CalRecycle, the Sycamore Sanitary Landfill has a daily permitted capacity of 5,000 tons/day of solid waste, with a remaining capacity of 113,972,637 cubic yards with an anticipated closure date of 2042 (CalRecycle 2019b).

CalRecycle provides solid waste generation rates for various types of land uses. Construction debris would be generated by the project. Construction debris recycling is available through EDCO. Negligible solid waste generation is anticipated during project construction. Based on the most current solid waste generation rate for multi-family land uses from CalRecycle of 4 pounds/dwelling unit/day, the project is expected to generate approximately 200 pounds/day of solid waste during operation (CalRecycle 2019c). This does not consider any waste diversion through recycling. The City is currently exceeding their waste reduction targets. According to CalRecycle, the City has a disposal rate target of 8.9 pounds/person/day. If the City meets this target, the City is considered in compliance with the 50 percent diversion requirement of AB 939. The most recent data from CalRecycle identifies the annual per capita disposal rate is 4.9 pounds/person/day (CalRecycle 2022). Thus, the City is meeting their current targets for diversion. Assuming a 50 percent diversion rate, to be conservative, the anticipated solid waste generated by the proposed project during operation would be reduced to approximately 100 pounds/day. With consideration of the diversion rate, the proposed project's solid waste generation during operation can be accommodated at the landfill based upon the available daily permitted capacity. Impacts would be less than significant.

e. Less than Significant Impact

All solid waste facilities, including landfills, require solid waste facility permits to operate in San Diego County. Public Resources Code (Sections 44001-44018) and California Code of Regulations Title 27, Division 2, Subdivision 1, Chapter 4 (Section 21440 et seq.) authorizes the County Department of Environmental Health, Local Enforcement Agency to issue solid waste facility permits. Sycamore Sanitary Landfill is a permitted facility and EDCO is a licensed hauler. Waste associated with construction and operation of the proposed project would be disposed of properly via the Escondido Transfer Station managed by EDCO and the Sycamore Sanitary Landfill. The project would comply with existing regulations related to solid waste disposal. Additionally, the project would comply with the City's General Plan policies designed to reduce impacts to solid waste facilities, including Policy COS-10.1, Policy COS-10.2, and Policy COS-10.3. As the project would comply with all federal, state, and City statutes and regulations related to solid waste, including proper handling of construction debris, impacts would be less than significant.

4.20 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

EXPLANATIONS:

a. Less than Significant Impact

Refer to Section 4.9(f). Impacts would be less than significant.

b, c, d. Less than Significant Impact

As discussed in Section 4.9, Figure 6-4 in the City's General Plan (City of San Marcos 2013) shows that the project site is not located within a local, state, or federal fire hazard severity zone. Thus, impacts involving wildfire would not occur.

4.21 Mandatory Findings of Significance

Does the project:

Issue	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b. Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable futures projects)?	☐	☒	☐	☐
c. Have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

EXPLANATIONS:

a. Potentially Significant Unless Mitigation Incorporated

Implementation of the project has the potential to result in significant impacts to biological resources and cultural resources. Given the implementation of the recommended mitigation measures, potential impacts would be mitigated to a less than significant level. The project does not include a

component with the potential to otherwise degrade the quality of the environment or eliminate important examples of the major periods of California history or prehistory.

b. Potentially Significant Unless Mitigation

Implementation of the project has the potential to result in cumulatively significant impacts to fire and police protection. Development of the project would contribute to the incremental increase in demand for fire and police protection services city-wide. Given the implementation of the recommended mitigation measures, cumulatively considerable impacts would be mitigated to a less than significant level.

c. Less than Significant Impact

The project would be required to adhere to all applicable codes and regulations. Therefore, direct or indirect impacts on humans resulting from the proposed project would be less than significant.

5.0 Determination and Preparers

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE FEE DETERMINATION

(Fish and Game Code Section 711.4, Statutes of 2006 – SB 1535)

[ ] It is hereby found that this project involves no potential for any adverse effect, either individual or cumulatively, on wildlife resources and that a "Certificate of Fee Exemption" shall be prepared for this project.

[X] It is hereby found that this project could potentially impact wildlife, individually or cumulatively, and therefore, fees in accordance with Section 711.4(d) of the Fish and Game Code shall be paid to the County Clerk.

Report Preparers

RECON Environmental, Inc., 3111 Camino del Rio North, Suite 600, San Diego, CA 92108

Michael Page, AICP, QA/QC, Principal
Lee Sherwood, Report Reviewer, Principal
Morgan Weintraub, Primary Report Author
Jessica Fleming, Air Quality, Noise, and GHG Specialist
Stacey Higgins, Senior Production Specialist
Benjamin Arp, GIS Analyst

6.0 Sources Consulted

California Air Resources Board (CARB)
2005 Air Quality and Land Use Handbook: A Community Health Perspective. California Air Resources Board. April.

California Department of Conservation (DOC)
2014 San Diego County Williamson Act 2013/2014.

2016 Farmland Mapping and Monitoring Program. DLRP Important Farmland Finder (ca.gov).

CalRecycle
2022 California's 2016 Per Capita Disposal Rate Estimate. Accessed April 21, 2022. https://www.calrecycle.ca.gov/LGCentral/GoalMeasure/DisposalRate/MostRecent/.

2019a SWIS Facility Detail Escondido Resource Recovery (37-AA-0906). Accessed April 20, 2022. https://www2.calrecycle.ca.gov/swfacilities/Directory/37-AA-0906.

2019b SWIS Facility Detail Sycamore Landfill (37-AA-0023). Accessed April 20, 2022. https://www2.calrecycle.ca.gov/swfacilities/Directory/37-AA-0023.

2019c Estimated Solid Waste Generation Rates. Accessed April 20, 2022. https://www2.calrecycle.ca.gov/wastecharacterization/general/rates.

Office of Environmental Health Hazard Assessment (OEHHA)
2015 Air Toxics Hot Spots Program Guidance Manual for the Preparation of Risk Assessments (Guidance Manual).

Department of Toxic Substances Control (DTSC)
2022 Envirostor Database. Available at https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=south+santa+fe+avenue%2C+san+marcos.

Federal Highway Administration (FHWA)
2011 Highway Traffic Noise: Analysis and Abatement Guidance. FHWA-HEP-10-025. December 2011.

San Diego Association of Governments (SANDAG)
2003 Final MHCP Plan. Prepared for the Multiple Habitat Conservation Program for the Cities of Carlsbad, Encinitas, Escondido, San Marcos, Solana Beach, and Vista. Volumes I, II, and III. March.

2021 Transportation Forecast Information Center. Years 2025, 2035, and 2050 Series 14 traffic volumes. Accessed at https://tfic.sandag.org/map.html. November 1, 2021.

San Diego, County of
2018 San Diego County Sheriff's Department, San Marcos Station. Accessed April 18, 2022 at: https://www.sdsheriff.net/patrolstations/sanmarcos.html.

San Marcos, City of
2013 City of San Marcos General Plan. http://www.san-marcos.net/work/economic-development/general-plan.

2018 San Marcos Fire Department Overview. Accessed April 18, 2022 at: http://www.san-marcos.net/departments/public-safety/fire-department/ department-overview.

2020 Final Climate Action Plan. December.

San Marcos Unified School District
2022a Attendance Area Maps. Accessed July 28, 2022. https://www.smusd.org/departments/facilities_planning_and_development/attendance_area_maps.

2022b Residential and Commercial Development Fee Summary. Accessed April 20, 2022. https://www.smusd.org/cms/One.aspx?portalId=157433&pageId=394313.

Vallecitos Water District (VWD)
2021 Urban Water Management Plan. Accessed April 20, 2022. http://www.vwd.org/departments/engineering/capital-facilities/urban-water-management-plan-uwmp-copy.

ATTACHMENT D.1b

APPENDICES TO THE FINAL INITIAL STUDY/MITIGATED NEGATIVE DECLARATION (ND22-008)

APPENDICES

APPENDIX A

Air Quality Analysis

Air Quality Analysis for the Santa Fe Flores Project San Marcos, California

Prepared for
Santa Fe Flores, LP
P.O. Box 903
Rancho Santa Fe, CA 92067
Contact: Paul Mayer

Prepared by
RECON Environmental, Inc.
3111 Camino del Rio North, Suite 600
San Diego, CA 92108
P 619.308.9333

RECON Number 9865
July 28, 2022

Jessica Fleming
Environmental Specialist
Noise, Air Quality, Greenhouse Gas

TABLE OF CONTENTS

Acronyms and Abbreviations iii
Executive Summary 1
1.0 Introduction 2
2.0 Project Description 2
3.0 Regulatory Framework 5
3.1 Federal Regulations 5
3.2 State Regulations 9
3.3 San Diego Air Pollution Control District 11
4.0 Environmental Setting 12
4.1 Geographic Setting 12
4.2 Climate 12
4.3 Existing Air Quality 13
5.0 Thresholds of Significance 17
6.0 Air Quality Assessment 18
6.1 Construction Emissions 18
6.2 Operation Emissions 20
6.3 Impact Analysis 21
7.0 Conclusions 25
8.0 References Cited 26

FIGURES

1: Regional Location 3
2: Project Location on Aerial Photograph 4
3: Site Plan 6

TABLES

1: Ambient Air Quality Standards 7
2: Summary of Air Quality Measurements Recorded at the Camp Pendleton and Kearny Villa Road Monitoring Stations 13
3: Air Quality Impact Screening Levels 18
4: Summary of Worst-case Construction Emissions 19

TABLE OF CONTENTS (cont.)

TABLES (cont.)

5: Summary of Project Operational Emissions 21
6: CARB Land Use Siting Constraints 25

ATTACHMENTS

1: CalEEMod Output – Project Emissions
2: CalEEMod Output – Indistrial and Commercial Project Emissions

Acronyms and Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
AAQS	Ambient Air Quality Standards
AB	Assembly Bill
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
City	City of San Marcos
CO	carbon monoxide
DPM	diesel particulate matter
FAR	floor area ratio
General Plan	City of San Marcos General Plan
NAAQS	National Ambient Air Quality Standards
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
O_3	oxygen
OEHHA	Office of Environmental Health Hazard Assessment
PM_{10}	particulate matter with an aerodynamic diameter of 10 microns or less
$PM_{2.5}$	particulate matter with an aerodynamic diameter of 2.5 microns or less
ppb	parts per billion
ppm	parts per million
project	Santa Fe Flores Project
RAQS	Regional Air Quality Standards
ROG	reactive organic gases
SANDAG	San Diego Association of Governments
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Pollution Control District
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_X	oxides of sulfur
TAC	toxic air contaminants
TCM	Transportation Control Measures
U.S. EPA	U.S. Environmental Protection Agency

Executive Summary

This report evaluates potential local and regional air quality impacts associated with the proposed Santa Fe Flores Project (project), located in the city of San Marcos at 2972 and 2982 South Santa Fe Avenue adjacent to Las Flores Drive. The project would require a General Plan Amendment and Rezone to multi-family residential to allow the development of 50 multi-family residential units.

The primary goal of the San Diego Air Pollution Control District's Regional Air Quality Strategy (RAQS) is to reduce ozone precursor emissions. The northern portion of the project site is designated Light Industrial in the City of San Marcos (City) General Plan and is zoned L-I Light Industrial. The southern portion of the project site is designated Commercial in the City's General Plan and is zoned C Commercial. The project would require a General Plan Amendment and Rezone to multi-family residential. However, project emissions would be less than operational emissions associated with an industrial and commercial project that is consistent with the existing land use and zoning designations. Therefore, the project would not result in an increase in emissions that are not already accounted for in the RAQS. Thus, it can be concluded that the project would not obstruct or conflict with the implementation of the RAQS.

Additionally, as calculated in this analysis, project construction emissions would not exceed the applicable screening level emissions thresholds. These thresholds are designed to provide limits below which project emissions would not significantly change regional air quality. Therefore, as project emissions would be well below these limits, project construction would not result in a cumulatively considerable net increase in emissions of ozone (O_3), particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}), or particulate matter with an aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$), and impacts would be less than significant. Additionally, construction emissions would be temporary, intermittent, and would cease at the end of project construction.

Long-term emissions of regional air pollutants occur from operational sources. Based on emissions estimates, project operational emissions would not exceed the applicable regional emissions thresholds. Therefore, as project operational emissions would be below these limits, project operation would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant.

Sensitive land uses include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities. The nearest sensitive receptors are the residential uses located 300 feet to the northeast, 100 feet to the southeast, 160 feet to the south, and 115 feet to the southwest. The project is not anticipated to result in a carbon monoxide (CO) hot spot at project area intersections. Construction of the project and associated infrastructure would result in short-term diesel exhaust emissions from on-site, heavy duty equipment. However, given the temporary nature of construction activities and implementation of Best Available Control Technology for Toxics measures, the project would not result in the exposure of sensitive receptors to substantial pollutant concentrations during construction.

The project does not include heavy industrial or agricultural uses that are typically associated with objectionable odors. The project would involve the use of diesel-powered equipment during

construction. Diesel exhaust may occasionally be noticeable at adjacent properties; however, construction activities would be temporary, and the odors would dissipate quickly in an outdoor environment. Therefore, this impact would be less than significant.

1.0 Introduction

The purpose of this report is to assess potential short-term and long-term local and regional air quality impacts resulting from development of the proposed Santa Fe Flores Project (project).

Air pollution affects all southern Californians. Effects can include increased respiratory infections, increased discomfort, missed days from work and school, and increased mortality. Polluted air also damages agriculture and our natural environment.

The state of California is divided geographically into 15 air basins for managing the air resources of the state on a regional basis. Areas within each air basin are considered to share the same air masses and, therefore, are expected to have similar ambient air quality. The project site is located within the San Diego Air Basin (SDAB). The SDAB is currently classified as a federal non-attainment area for ozone, and a state non-attainment area for particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}), particulate matter with an aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$), and ozone.

Air quality impacts can result from the construction and operation of the project. Construction impacts are short term and result from fugitive dust, equipment exhaust, and indirect effects associated with construction workers and deliveries. Operational impacts can occur on two levels: regional impacts resulting from growth-inducing development, or local hot-spot effects stemming from sensitive receivers being placed close to highly congested roadways. In the case of this project, operational impacts would be primarily due to emissions to the basin from mobile sources associated with vehicular travel along the roadways within the project area.

The analysis of impacts is based on federal and state Ambient Air Quality Standards and is assessed in accordance with the guidelines, policies, and standards established by the City of San Marcos (City) and the San Diego Air Pollution Control District (SDAPCD). Project compatibility with the adopted air quality plan for the area is also assessed. Measures are recommended, as required, to reduce potentially significant impacts.

2.0 Project Description

The project is located in the city of San Marcos at 2972 and 2982 South Santa Fe Avenue adjacent to Las Flores Drive on assessor parcel numbers 217-161-1800 and 217-161-1900. Figure 1 shows the regional location. The 2.5-acre project site has been previously graded and is undeveloped, and is currently designated Commercial and Light Industrial in the City General Plan and zoned as Commercial and Light Industrial. Figure 2 shows an aerial photograph of the project site and vicinity.

Project Location

RECON

M:\JOBS5\9865\common_gis\fig1.mxd 03/08/2022 bma

FIGURE 1
Regional Location

Image Source: NearMap (flown January 2022)

FIGURE 2
Project Location on Aerial Photograph

RECON

M:\JOBS5\9865\common_gis\fig2_air.mxd 03/23/2022 bma

The project would require a General Plan amendment and Rezone to Multifamily Residential to allow the development of 50 multi-family residential units in one building that would be three to four stories in height. The project would also include a 1,000 square-foot roof deck for fitness and leisure, a 1,170 square-foot ground floor leasing and amenity center, and 120 square-foot ground floor fire command center. Vehicle parking would include a total of 107 surface parking spaces and bicycle parking would include a total of 11 lockers or bike storage rooms located on the upper and lower levels. Figure 3 shows the proposed site plan.

3.0 Regulatory Framework

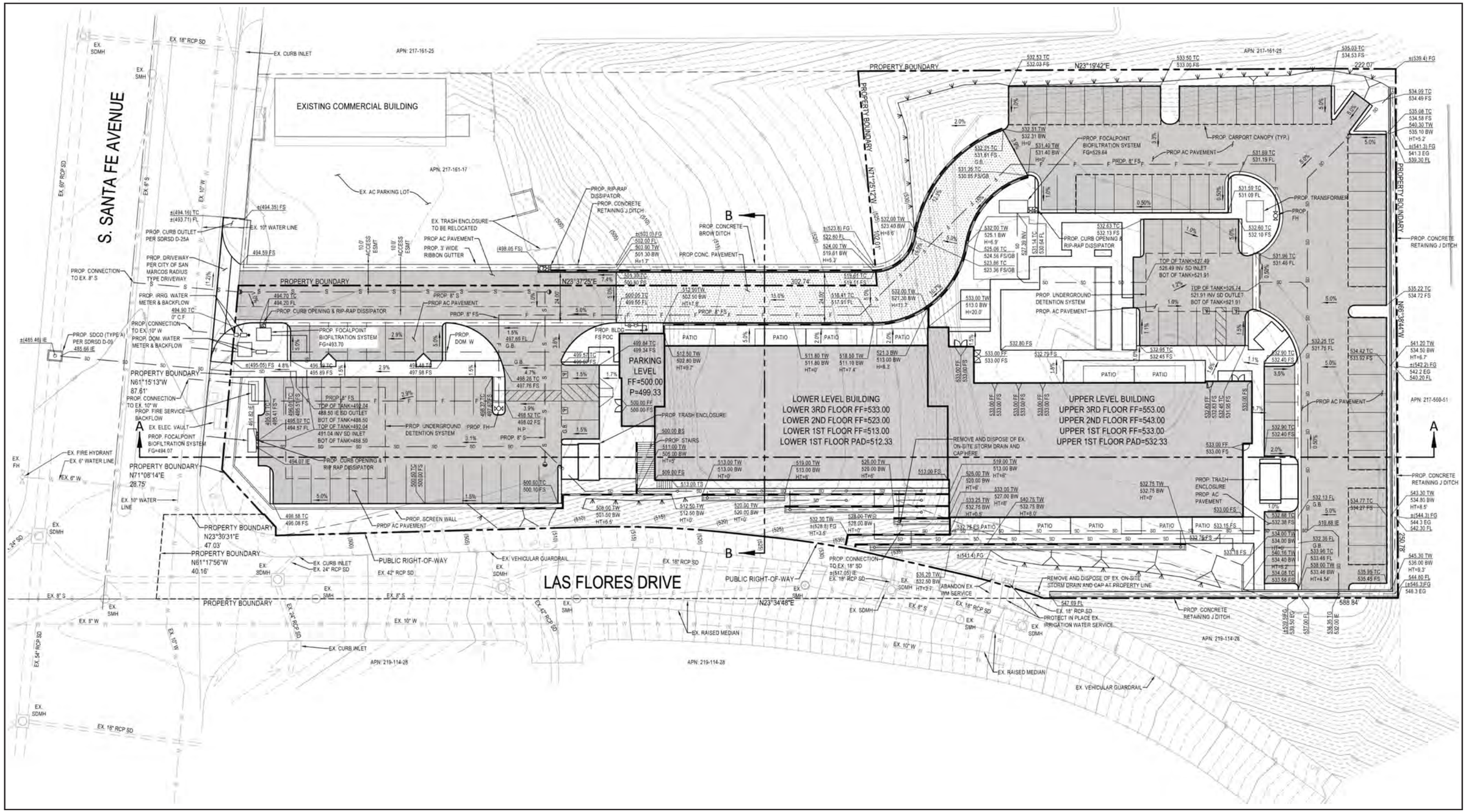
3.1 Federal Regulations

Ambient Air Quality Standards (AAQS) represent the maximum levels of background pollution considered safe, with an adequate margin of safety, to protect the public health and welfare. The federal Clean Air Act (CAA) was enacted in 1970 and amended in 1977 and 1990 (42 United States Code [USC] 7401) for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. In 1971, in order to achieve the purposes of Section 109 of the CAA [42 USC 7409], the U.S. Environmental Protection Agency (U.S. EPA) developed primary and secondary National Ambient Air Quality Standards (NAAQS).

Six criteria pollutants of primary concern have been designated: ozone, carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), lead (Pb), and respirable particulate matter (PM_{10} and $PM_{2.5}$). The primary NAAQS ". . . in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health . . ." and the secondary standards ". . . protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air" (42 USC 7409[b][2]). The primary NAAQS were established, with a margin of safety, considering long-term exposure for the most sensitive groups in the general population (i.e., children, senior citizens, and people with breathing difficulties). The NAAQS are presented in Table 1 (California Air Resources Board [CARB] 2016).

An air basin is designated as either attainment or non-attainment for a particular pollutant. Once a non-attainment area has achieved the AAQS for a particular pollutant, it is re-designated as an attainment area for that pollutant. To be redesignated, the area must meet air quality standards for three consecutive years. After re-designation to attainment, the area is known as a maintenance area and must develop a 10-year plan for continuing to meet and maintain air quality standards, as well as satisfy other requirements of the federal CAA. The SDAB is a non-attainment area for the federal ozone standard.

Map Source: Pasco Laret Suiter & Associates



RECON

M:\JOBS5\9865\air\graphics\fig3.afdesign 03/23/22 bma

FIGURE 3
Site Plan

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone[8]	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.07 ppm (137 µg/m³)		0.070 ppm (137 µg/m³)		
Respirable Particulate Matter (PM_{10})[9]	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		–		
Fine Particulate Matter ($PM_{2.5}$)[9]	24 Hour	No Separate State Standard		35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12 µg/m³	15 µg/m³	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m³)	Non-dispersive Infrared Photometry	35 ppm (40 mg/m³)	–	Non-dispersive Infrared Photometry
	8 Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	–	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		–	–	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemi-luminescence	100 ppb (188 µg/m³)	–	Gas Phase Chemi-luminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	–	Ultraviolet Fluorescence; Spectro-photometry (Pararosaniline Method)
	3 Hour	–		–	0.5 ppm (1,300 µg/m³)	
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas)[11]	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas)[11]	–	
Lead[12,13]	30 Day Average	1.5 µg/m³	Atomic Absorption	–	–	High Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 µg/m³ (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	–		0.15 µg/m³		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m³	Ion Chroma-tography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chroma-tography			

See footnotes on next page.

Table 1
Ambient Air Quality Standards

ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter; – = not applicable.

[1] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Any equivalent measurement method which can be shown to the satisfaction of the Air Resources Board to give equivalent results at or near the level of the air quality standard may be used.

[5] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[6] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[7] Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

[8] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[9] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standards of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[10] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of ppb. California standards are in units of ppm. To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[11] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated non-attainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
Note that the 1-hour national standard is in units of ppb. California standards are in units of ppm. To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

[12] The Air Resources Board has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[13] The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated non-attainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

[14] In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

SOURCE: CARB 2016.

3.2 State Regulations

3.2.1 Criteria Pollutants

The CARB has developed the California Ambient Air Quality Standards (CAAQS) and generally has set more stringent limits on the criteria pollutants than the NAAQS (see Table 1). In addition to the federal criteria pollutants, the CAAQS also specify standards for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride (see Table 1).

Similar to the federal CAA, the state classifies as either "attainment" or "non-attainment" areas for each pollutant based on the comparison of measured data with the CAAQS. The SDAB is a non-attainment area for the state ozone standards, the state PM_{10} standard, and the state $PM_{2.5}$ standard.

3.2.2 Toxic Air Contaminants

The public's exposure to toxic air contaminants (TACs) is a significant public health issue in California. Diesel-exhaust particulate matter emissions have been established as TACs. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health (Assembly Bill [AB] 1807: Health and Safety Code Sections 39650–39674). The California Legislature established a two-step process to address the potential health effects from TACs. The first step is the risk assessment (or identification) phase. The second step is the risk management (or control) phase of the process.

The California air toxics Program establishes the process for the identification and control of TACs and includes provisions to make the public aware of significant toxic exposures and for reducing risk. Additionally, the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly Bill) was enacted in 1987 and requires stationary sources to report the types and quantities of certain substances routinely released into the air.

The goals of the Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, to notify nearby residents of significant risks, and to reduce those significant risks to acceptable levels.

The Children's Environmental Health Protection Act, California Senate Bill 25 (Chapter 731, Escutia, Statutes of 1999), focuses on children's exposure to air pollutants. The act requires CARB to review its air quality standards from a children's health perspective, evaluate the statewide air monitoring network, and develop any additional air toxic control measures needed to protect children's health. Locally, toxic air pollutants are regulated through the SDAPCD's Regulation XII. Of particular concern statewide are diesel-exhaust particulate matter emissions. Diesel-exhaust particulate matter was established as a TAC in 1998 and is estimated to represent a majority of the cancer risk from TACs statewide (based on the statewide average). Diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have

been previously identified as TACs by the CARB and are listed as carcinogens either under the state's Proposition 65 or under the federal Hazardous Air Pollutants program.

Following the identification of diesel particulate matter (DPM) as a TAC in 1998, CARB has worked on developing strategies and regulations aimed at reducing the risk from DPM. The overall strategy for achieving these reductions is found in the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (CARB 2000).

In April 2005, CARB published the *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB 2005). The handbook makes recommendations directed at protecting sensitive land uses from air pollutant emissions while balancing a myriad of other land use issues (e.g., housing, transportation needs, economics). It notes that the handbook is not regulatory or binding on local agencies and recognizes that application takes a qualitative approach. As reflected in the CARB Handbook, there is currently no adopted standard for the significance of health effects from mobile sources. Therefore, the CARB has provided guidelines for the siting of land uses near heavily traveled roadways. Of pertinence to this study, the CARB guidelines indicate that siting new sensitive land uses within 500 feet of a freeway or urban roads with 100,000 or more vehicles per day should be avoided when possible.

However, transit-oriented, infill, and compact development characterizes many communities located near heavily traveled roadways. This type of development pattern has many benefits, including reducing traffic. To address these issues, in April 2017, CARB published the *Technical Advisory: Strategies to Reduce Air Pollution Exposure Near High Volume Roadways* (Technical Advisory; CARB 2017). The Technical Advisory acknowledges the benefits of transit-oriented infill development, which often occurs adjacent to high-volume roadways, and identifies strategies to reduce exposure, including practices and technologies that reduce traffic emissions, increase dispersion of traffic pollution, and remove pollution from the air. Strategies that reduce traffic emissions include speed reduction mechanisms (e.g., reduced speed limits, speed bumps, roundabouts) and traffic signal management. Strategies that increase the dispersion of traffic emissions include land use designs that promote airflow and pollutant dispersion along street corridors, solid barriers (such as sound walls), and vegetation. Strategies that remove pollution from the air include indoor high efficiency filtration.

As an ongoing process, CARB will continue to establish new programs and regulations for the control of diesel particulate and other air-toxics emissions as appropriate. The continued development and implementation of these programs and policies will ensure that the public's exposure to DPM will continue to decline.

3.2.3 State Implementation Plan

The State Implementation Plan (SIP) is a collection of documents that set forth the state's strategies for achieving the NAAQS. In California, the SIP is a compilation of new and previously submitted plans, programs (air quality management plans, monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls. The CARB is the lead agency for all purposes related to the SIP under state law. Local air districts and other agencies, such as the Department of Pesticide Regulation and the Bureau of Automotive Repair, prepare SIP elements and submit them to CARB

for review and approval. The CARB then forwards SIP revisions to the U.S. EPA for approval and publication in the Federal Register. All the items included in the California SIP are listed in the Code of Federal Regulations (CFR) at 40 CFR 52.220.

The SDAPCD is responsible for preparing and implementing the portion of the SIP applicable to the SDAB. The SIP plans for San Diego County specifically include the Redesignation Request and Maintenance Plan for the 1997 National Ozone Standard for San Diego County (SDAPCD 2012), and the 2004 Revision to the California State Implementation Plan for Carbon Monoxide – Updated Maintenance Plan for Ten Federal Planning Areas (CARB 2004).

3.2.4 The California Environmental Quality Act

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of any inconsistencies between the project and applicable general plans and regional plans, including the applicable air quality attainment or maintenance plan (or SIP).

3.3 San Diego Air Pollution Control District

The SDAPCD is the agency that regulates air quality in the SDAB. The SDAPCD prepared the Regional Air Quality Strategy (RAQS) in response to the requirements set forth in the California CAA AB 2595 (SDAPCD 1992) and the federal CAA. Motor vehicles are San Diego County's leading source of air pollution (SDAPCD 2013). In addition to these sources, other mobile sources include construction equipment, trains, and airplanes. Reducing mobile source emissions requires the technological improvement of existing mobile sources and the examination of future mobile sources, such as those associated with new or modification projects (e.g., retrofitting older vehicles with cleaner emission technologies). In addition to mobile sources, stationary sources also contribute to air pollution in the SDAB. Stationary sources include gasoline stations, power plants, dry cleaners, and other commercial and industrial uses. Stationary sources of air pollution are regulated by the local air pollution control or management district, in this case the SDAPCD.

The SDAPCD is responsible for preparing and implementing the RAQS. As part of the RAQS, the SDAPCD developed Transportation Control Measures (TCMs) for the air quality plan prepared by the San Diego Association of Governments (SANDAG) in accordance with AB 2595 and adopted by SANDAG on March 27, 1992, as Resolution Number 92-49 and Addendum. The RAQS and TCM set forth the steps needed to accomplish attainment of NAAQS and CAAQS. The required triennial updates of the RAQS and corresponding TCM were adopted in 1995, 1998, 2001, 2004, 2009, and 2016.

The SDAPCD has also established a set of rules and regulations initially adopted on January 1, 1969 and periodically reviewed and updated. These rules and regulations are available for review on the agency's website.

4.0 Environmental Setting

4.1 Geographic Setting

The project is located in the city of San Marcos, about eight miles east of the Pacific Ocean. The eastern portion of the SDAB is surrounded by mountains to the north, east, and south. These mountains tend to restrict airflow and concentrate pollutants in the valleys and low-lying areas below.

4.2 Climate

The project area, like the rest of San Diego County, has a Mediterranean climate characterized by warm, dry summers and mild winters. The mean annual temperature for the project area is 63 degrees Fahrenheit (°F). The average annual precipitation is 10 inches, falling primarily from November to April. Winter low temperatures in the project area average about 47°F, and summer high temperatures average about 75°F (National Oceanic and Atmospheric Administration 2021).

The dominant meteorological feature affecting the region is the Pacific High Pressure Zone, which produces the prevailing westerly to northwesterly winds. These winds tend to blow pollutants away from the coast toward the inland areas. Consequently, air quality near the coast is generally better than that which occurs at the base of the coastal mountain range.

Fluctuations in the strength and pattern of winds from the Pacific High Pressure Zone interacting with the daily local cycle produce periodic temperature inversions that influence the dispersal or containment of air pollutants in the SDAB. Beneath the inversion layer pollutants become "trapped" as their ability to disperse diminishes. The mixing depth is the area under the inversion layer. Generally, the morning inversion layer is lower than the afternoon inversion layer. The greater the change between the morning and afternoon mixing depths, the greater the ability of the atmosphere to disperse pollutants.

Throughout the year, the height of the temperature inversion in the afternoon varies between approximately 1,500 and 2,500 feet above mean sea level. In winter, the morning inversion layer is about 800 feet above mean sea level. In summer, the morning inversion layer is about 1,100 feet above mean sea level. Therefore, air quality generally tends to be better in the winter than in the summer.

The prevailing westerly wind pattern is sometimes interrupted by regional "Santa Ana" conditions. A Santa Ana occurs when a strong high pressure develops over the Nevada-Utah area and overcomes the prevailing westerly coastal winds, sending strong, steady, hot, dry northeasterly winds over the mountains and out to sea.

Strong Santa Anas tend to blow pollutants out over the ocean, producing clear days. However, at the onset or during breakdown of these conditions, or if the Santa Ana is weak, local air quality may be adversely affected. In these cases, emissions from the South Coast Air Basin to the north are blown out over the ocean, and low pressure over Baja California draws this pollutant-laden air mass southward. As the high pressure weakens, prevailing northwesterly winds reassert themselves and

send this cloud of contamination ashore in the SDAB. When this event does occur, the combination of transported and locally produced contaminants produce the worst air quality measurements recorded in the basin.

4.3 Existing Air Quality

Air quality at a particular location is a function of the kinds, amounts, and dispersal rates of pollutants being emitted into the air locally and throughout the basin. The major factors affecting pollutant dispersion are wind speed and direction, the vertical dispersion of pollutants (which is affected by inversions), and the local topography.

Air quality is commonly expressed as the number of days in which air pollution levels exceed state standards set by the CARB or federal standards set by the U.S. EPA. The SDAPCD currently maintains nine air quality monitoring stations located throughout the greater San Diego metropolitan region. Air pollutant concentrations and meteorological information are continuously recorded at these stations. Measurements are then used by scientists to help forecast daily air pollution levels.

The Camp Pendleton monitoring station, located at 21441 West B Street, approximately 12 miles northwest of the project site, is the nearest station to the project site. The Camp Pendleton monitoring station measures ozone (O_3) and nitrogen dioxide (NO_2). The closest station of the project site that measures PM_{10} and $PM_{2.5}$ is the San Diego–Kearny Villa Road monitoring station located at 6125A Kearny Villa Road, approximately 22 miles south of the project site. The San Diego–Kearny Villa Road monitoring station measures ozone, NO_2, PM_{10}, and $PM_{2.5}$. Table 2 provides a summary of measurements collected at the Camp Pendleton and Kearny Villa Road monitoring station for the years 2016 through 2020.

Table 2
Summary of Air Quality Measurements Recorded at the Camp Pendleton and Kearny Villa Road Monitoring Stations

Pollutant/Standard	2016	2017	2018	2019	2020
CAMP PENDLETON MONITORING STATION					
Ozone					
Federal Max 8-hr (ppm)	0.073	0.081	0.068	0.064	0.074
Days 2015 Federal 8-hour Standard Exceeded (0.07 ppm)	4	4	0	0	3
Days 2008 Federal 8-hour Standard Exceeded (0.075 ppm)	0	1	0	0	0
State Max 8-hr (ppm)	0.073	0.082	0.069	0.065	0.074
Days State 8-hour Standard Exceeded (0.07 ppm)	5	5	0	0	3
Max. 1-hour (ppm)	0.083	0.094	0.084	0.075	0.094
Days State 1-hour Standard Exceeded (0.09 ppm)	0	0	0	0	0
Nitrogen Dioxide					
Max 1-hour (ppm)	0.072	0.063	0.048	0.053	0.058
Days State 1-hour Standard Exceeded (0.18 ppm)	0	0	0	0	0
Days Federal 1-hour Standard Exceeded (0.100 ppb)	0	0	0	0	0
Annual Average (ppm)	0.006	0.006	--	0.005	0.006

Table 2 Summary of Air Quality Measurements Recorded at the Camp Pendleton and Kearny Villa Road Monitoring Stations					
Pollutant/Standard	2016	2017	2018	2019	2020
SAN DIEGO – KEARNY VILLA ROAD MONITORING STATION					
Ozone					
Federal Max 8-hr (ppm)	0.075	0.083	0.077	0.075	0.102
Days 2015 Federal 8-hour Standard Exceeded (0.07 ppm)	3	6	5	1	10
Days 2008 Federal 8-hour Standard Exceeded (0.075 ppm)	0	4	1	0	6
State Max 8-hr (ppm)	0.075	0.084	0.077	0.075	0.102
Days State 8-hour Standard Exceeded (0.07 ppm)	3	6	5	1	12
Max. 1-hour (ppm)	0.087	0.097	0.102	0.083	0.123
Days State 1-hour Standard Exceeded (0.09 ppm)	0	2	1	0	2
Nitrogen Dioxide					
Max 1-hour (ppm)	0.053	0.054	0.045	0.046	0.052
Days State 1-hour Standard Exceeded (0.18 ppm)	0	0	0	0	0
Days Federal 1-hour Standard Exceeded (0.100 ppb)	0	0	0	0	0
Annual Average (ppm)	0.009	0.009	0.008	0.008	0.007
PM_{10}*					
Federal Max. Daily ($\mu g/m^3$)	36.0	46.0	38.0	--	--
Measured Days Federal 24-hour Standard Exceeded (150 $\mu g/m^3$)	0	0	0	--	--
Calculated Days Federal 24-hour Standard Exceeded (150 $\mu g/m^3$)	0.0	0.0	0.0	--	--
Federal Annual Average ($\mu g/m^3$)	17.1	17.6	18.4	--	--
State Max. Daily ($\mu g/m^3$)	35.0	47.0	38.0	--	--
Measured Days State 24-hour Standard Exceeded (50 $\mu g/m^3$)	0	0	0	--	--
Calculated Days State 24-hour Standard Exceeded (50 $\mu g/m^3$)	--	0.0	0.0	--	--
State Annual Average ($\mu g/m^3$)	--	17.6	18.4	--	--
$PM_{2.5}$*					
Federal Max. Daily ($\mu g/m^3$)	19.4	27.5	32.2	16.2	47.5
Measured Days Federal 24-hour Standard Exceeded (35 $\mu g/m^3$)	0	0	0	0	2
Calculated Days Federal 24-hour Standard Exceeded (35 $\mu g/m^3$)	0.0	0.0	0.0	0.0	5.8
Federal Annual Average ($\mu g/m^3$)	7.5	7.9	8.3	7.0	8.7
State Max. Daily ($\mu g/m^3$)	20.3	27.5	32.2	15.0	--
State Annual Average ($\mu g/m^3$)	7.8	8.0	8.3	--	--

SOURCE: CARB 2022.

ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; -- = Not available.

* Calculated days value. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

4.3.1 Ozone

Nitrogen oxides (NO_X) and hydrocarbons (reactive organic gases [ROG]) are known as the chief "precursors" of ozone. These compounds react in the presence of sunlight to produce ozone, which is the primary air pollution problem in the SDAB. Because sunlight plays such an important role in its formation, ozone pollution—or smog—is mainly a concern during the daytime in summer months. The SDAB is currently designated a federal and state non-attainment area for ozone. During the past 25 years, San Diego had experienced a decline in the number of days with unhealthy levels of ozone despite the region's growth in population and vehicle miles traveled (SDAPCD 2013).

About half of smog-forming emissions come from automobiles. Population growth in San Diego has resulted in a large increase in the number of automobiles expelling ozone-forming pollutants while operating on area roadways. In addition, the occasional transport of smog-filled air from the South Coast Air Basin only adds to the SDAB's ozone problem. Stricter automobile emission controls, including more efficient automobile engines, have played a large role in why ozone levels have steadily decreased.

In order to address adverse health effects due to prolonged exposure, the U.S. EPA phased out the national 1-hour ozone standard and replaced it with the more protective 8-hour ozone standard. The SDAB is currently a non-attainment area for the previous (1997) national 8-hour standard and is recommended as a non-attainment area for the revised (2008) national 8-hour standard of 0.075 parts per million (ppm).

Not all the ozone within the SDAB is derived from local sources. Under certain meteorological conditions, such as during Santa Ana wind events, ozone and other pollutants are transported from the Los Angeles Basin and combine with ozone formed from local emission sources to produce elevated ozone levels in the SDAB.

Local agencies can control neither the source nor the transportation of pollutants from outside the air basin. The SDAPCD's policy, therefore, has been to control local sources effectively enough to reduce locally produced contamination to clean air standards. Through the use of air pollution control measures outlined in the RAQS, the SDAPCD has effectively reduced ozone levels in the SDAB.

Actions that have been taken in the SDAB to reduce ozone concentrations include the following:

- TCMs if vehicle travel and emissions exceed attainment demonstration levels. TCMs are strategies that will reduce transportation-related emissions by reducing vehicle use or improving traffic flow.

- Enhanced motor vehicle inspection and maintenance program. The smog check program is overseen by the Bureau of Automotive Repair. The program requires most vehicles to pass a smog test once every two years before registering in the state of California. The smog check program monitors the amount of pollutants automobiles produce. One focus of the program is identifying "gross polluters," or vehicles that exceed two times the allowable emissions for a particular model. Regular maintenance and tune-ups, changing the oil, and checking tire inflation can improve gas mileage and lower air pollutant emissions. It can also reduce traffic congestion due to preventable breakdowns, further lowering emissions.

- Air Quality Improvement Program. This program, established by AB 118, is a voluntary incentive program administered by the CARB to fund clean vehicle and equipment projects, research on biofuels production and the air quality impacts of alternative fuels, and workforce training.

4.3.2 Carbon Monoxide

The SDAB is classified as a state attainment area and as a federal maintenance area for CO. Until 2003, no violations of the state standard for CO had been recorded in the SDAB since 1991, and no violations of the national standard had been recorded in the SDAB since 1989. The violations that took place in 2003 were likely the result of massive wildfires that occurred throughout the county. No violations of the state or federal CO standards have occurred since 2003.

Small-scale, localized concentrations of CO above the state and national standards have the potential to occur at intersections with stagnation points such as those that occur on major highways and heavily traveled and congested roadways. Localized high concentrations of CO are referred to as "CO hot spots" and are a concern at congested intersections, where automobile engines burn fuel less efficiently and their exhaust contains more CO.

4.3.3 Particulate Matter

Particulate matter is a complex mixture of microscopic solid or liquid particles including chemicals, soot, and dust. Anthropogenic sources of direct particulate emissions include crushing or grinding operations, dust stirred up by vehicle traffic, and combustion sources such as motor vehicles, power plants, wood burning, forest fires, agricultural burning and industrial processes. Additionally, indirect emissions may be formed when aerosols react with compounds found in the atmosphere.

Health studies have shown a significant association between exposure to particulate matter and premature death in people with heart or lung diseases. Other important effects include aggravation of respiratory and cardiovascular disease, lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems such as heart attacks and irregular heartbeat (U.S. EPA 2021).

As its properties vary based on the size of suspended particles, particulate matter is generally categorized as PM_{10} or $PM_{2.5}$.

4.3.3.1 PM_{10}

PM_{10}, occasionally referred to as "inhalable coarse particles," has an aerodynamic diameter of about one-seventh of the diameter of a human hair. High concentrations of PM_{10} are often found near roadways, construction, mining, or agricultural operations.

4.3.3.2 $PM_{2.5}$

$PM_{2.5}$, occasionally referred to as "inhalable fine particles," has an aerodynamic diameter of about one-thirtieth of the diameter of a human hair. $PM_{2.5}$ is the main cause of haze in many parts of the United States. Federal standards applicable to $PM_{2.5}$ were first adopted in 1997.

4.3.4 Other Criteria Pollutants

The national and state standards for NO_2, oxides of sulfur (SO_X), and the previous standard for lead are being met in the SDAB, and the latest pollutant trends suggest that these standards will not be

exceeded in the foreseeable future. As discussed above, new standards for these pollutants have been adopted, and new designations for the SDAB will be determined in the future. The SDAB is also in attainment of the state standards for vinyl chloride, hydrogen sulfides, sulfates, and visibility-reducing particulates.

5.0 Thresholds of Significance

Thresholds used to evaluate potential impacts to air quality are based on applicable criteria in the CEQA Guidelines Appendix G. The project would have a significant air quality impact if it would:

1. Obstruct or conflict with the implementation of the RAQS.
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
3. Expose sensitive receptors to substantial pollutant concentrations.
4. Result in other emissions such as those leading to odors adversely affecting a substantial number of people.

The City has not adopted air quality significance thresholds. The SDAPCD also does not provide specific numeric thresholds for determining the significance of air quality impacts under CEQA. However, the SDAPCD does specify Air Quality Impact Analysis trigger levels for new or modified stationary sources (SDAPCD Rules 20.1, 20.2, and 20.3). The SDAPCD does not consider these trigger levels to represent adverse air quality impacts, rather, if these trigger levels are exceeded by a project, the SDAPCD requires an air quality analysis to determine if a significant air quality impact would occur. While, these trigger levels do not generally apply to mobile sources or general land development projects, for comparative purposes these levels are used to evaluate the increased emissions that would be discharged to the SDAB if the project were approved. The air quality impact screening levels used in this analysis are shown in Table 3.

Table 3 Air Quality Impact Screening Levels			
	Emission Rate		
Pollutant	Pounds/Hour	Pounds/Day	Tons/Year
NO_X	25	250	40
SO_X	25	250	40
CO	100	550	100
PM_{10}	--	100	15
Lead	--	3.2	0.6
VOC, ROG[1]	--	250	--
$PM_{2.5}$	--	67	10
SOURCE: SDAPCD, Rules 20.1, 20.2, 20.3. [1]ROG threshold based on federal General Conformity *de minimus* levels for ozone precursors.			

6.0 Air Quality Assessment

Construction impacts are short term and result from fugitive dust, equipment exhaust, and indirect effects associated with construction workers and deliveries. Operational impacts can occur on two levels: regional or local. In the case of this project, operational impacts are primarily due to emissions from mobile sources associated with vehicular travel along the roadways within the project area.

Construction and operation air emissions were calculated using California Emissions Estimator Model (CalEEMod) 2020.4.0 (California Air Pollution Control Officers Association [CAPCOA] 2021). The CalEEMod program is a tool used to estimate air emissions resulting from land development projects based on California-specific emission factors. The model estimates mass emissions from two basics sources: construction sources and operational sources (i.e., area, energy, and mobile sources).

Inputs to CalEEMod include such items as the air basin containing the project, land uses, trip generation rates, trip lengths, vehicle fleet mix (i.e., percentage of autos, medium truck, etc.), trip destination (i.e., percent of trips from home to work, etc.), duration of construction phases, construction equipment usage, grading areas, season, and ambient temperature, as well as other parameters. The CalEEMod output files contained in Attachment 1 indicate the specific outputs for each model run. Emissions of NO_X, CO, SO_X, PM_{10}, $PM_{2.5}$, and ROG are calculated. Emission factors are not available for lead, and consequently, lead emissions are not calculated. The SDAB is currently in attainment of the federal and state lead standards. Furthermore, fuel used in construction equipment and most other vehicles is not leaded.

6.1 Construction Emissions

Construction-related activities are temporary, short-term sources of air emissions. Sources of construction-related air emissions include the following:

- Fugitive dust from grading activities;
- Construction equipment exhaust;
- Construction-related trips by workers, delivery trucks, and material-hauling trucks; and
- Construction-related power consumption.

Construction-related pollutants result from dust raised during demolition and grading, emissions from construction vehicles, and chemicals used during construction. Fugitive dust emissions vary greatly during construction and are dependent on the amount and type of activity, silt content of the soil, and the weather. Vehicles moving over paved and unpaved surfaces, demolition, excavation, earth movement, grading, and wind erosion from exposed surfaces are all sources of fugitive dust. Construction operations are subject to the requirements established in Regulation 4, Rules 52, 54, and 55, of the SDAPCD's rules and regulations.

Heavy-duty construction equipment is usually diesel powered. In general, emissions from diesel-powered equipment contain more NO_X, SO_X, and particulate matter than gasoline-powered engines. However, diesel-powered engines generally produce less CO and less ROG than do gasoline-powered engines. Standard construction equipment includes tractors/loaders/backhoes, rubber-tired dozers, excavators, graders, cranes, forklifts, rollers, paving equipment, generator sets, welders, cement and mortar mixers, and air compressors.

Primary inputs are the numbers of each piece of equipment and the length of each construction stage. Specific construction phasing and equipment parameters are not available at this time. However, CalEEMod can estimate the required construction equipment when project-specific information is unavailable. The estimates are based on surveys, performed by the South Coast Air Quality Management District and the Sacramento Metropolitan Air Quality Management District, of typical construction projects which provide a basis for scaling equipment needs and schedule with a project's size. Air emission estimates in CalEEMod are based on the duration of construction phases; construction equipment type, quantity, and usage; grading area; season; and ambient temperature, among other parameters. Construction emissions were modeled assuming construction would begin in January 2023 and last for approximately one year, which is the CalEEMod default construction duration for the entered land uses. Assuming construction would begin in January 2023 is conservative, as continued implementation of regulations for off-road equipment, the primary construction emission source, would reduce emissions from these sources over time. Project grading would include the export of 17,250 cubic yards of soil.

Table 4 shows the total projected construction maximum daily emission levels for each criteria pollutant. The CalEEMod output files for construction emissions are contained in Attachment 1.

Table 4
Summary of Maximum Construction Emissions
(pounds per day)

Construction	Pollutant					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Site Preparation	1	14	10	<1	2	1
Grading	2	63	22	<1	15	6
Building Construction	2	15	16	<1	1	1
Paving	1	9	12	<1	1	<1
Architectural Coatings	73	1	2	<1	<1	<1
Maximum Daily Emissions	**73**	**63**	**22**	**<1**	**15**	**6**
Significance Threshold	*250*	*250*	*550*	*250*	*100*	*67*

Standard dust control measures would be implemented as a part of project construction in accordance with SDAPCD rules and regulations. Fugitive dust emissions were calculated using CalEEMod default values and did not take into account the required dust control measures. Thus, the emissions shown in Table 4 are conservative.

For assessing the significance of the air quality emissions resulting during construction of the project, the construction emissions were compared to the screening thresholds shown in Table 4. As shown in Table 4, maximum daily construction emissions associated with the project are projected to be less than the applicable thresholds for all criteria pollutants. Construction related air quality impacts would be less than significant.

6.2 Operation Emissions

Mobile source emissions would originate from traffic generated by the project. Area source emissions would result from the use of natural gas, consumer products, as well as applying architectural coatings and landscaping activities.

Mobile source operational emissions are based on the trip rate, trip length. The project would generate 6 trips per unit for a total of 300 average daily trips (Linscott, Law and Greenspan, Engineers 2022). Default trip distances and default vehicle emission factors for the soonest operational year of 2024 were used.

Area source emissions associated with the project include consumer products, natural gas used in space and water heating, architectural coatings, and landscaping equipment. Hearths (fireplaces) and woodstoves are also a source of area emissions; however, the project would not include hearths or woodstoves. Consumer products are chemically formulated products used by household and institutional consumers, including, but not limited to, detergents, cleaning compounds, polishes, floor finishes, disinfectants, sanitizers, and aerosol paints but not including other paint products, furniture coatings, or architectural coatings. Emissions due to consumer products are calculated using total building area and product emission factors.

For architectural coatings, emissions result from evaporation of solvents contained in surface coatings such as in paints and primers. Emissions are based on the building surface area, architectural coating emission factors, and a reapplication rate of 10 percent of area per year. Landscaping maintenance includes fuel combustion emission from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers as well as air compressors, generators, and pumps. Emission calculations take into account building area, equipment emission factors, and the number of operational days (summer days).

Energy source emissions associated with the project include natural gas used in space and water heating. Emissions are generated from the combustion of natural gas used in space and water heating. Emissions are based on the Residential Appliance Saturation Survey which is a comprehensive energy use assessment that includes the end use for various climate zones in California.

Table 5 provides a summary of the operational emissions generated by the project. CalEEMod output files for project operation are contained in Attachment 1. As shown, project-generated emissions are projected to be less than the screening level thresholds for all criteria pollutants.

Table 5
Summary of Project Operational Emissions
(pounds per day)

Source	Pollutant					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area Sources	1	<1	4	<1	<1	<1
Energy Sources	<1	<1	<1	<1	<1	<1
Mobile Sources	1	1	8	<1	2	<1
Total	**2**	**1**	**12**	**<1**	**2**	**1**
Significance Threshold	*250*	*250*	*550*	*250*	*100*	*67*
NOTE: Totals may vary due to independent rounding.						

6.3 Impact Analysis

1. Would the project obstruct or conflict with the implementation of the San Diego RAQS?

The RAQS is the applicable regional air quality plan that sets forth the SDAPCD's strategies for achieving the NAAQS and CAAQS. The SDAB is designated non-attainment for the federal and state ozone standard. Accordingly, the RAQS was developed to identify feasible emission control measures and provide expeditious progress toward attaining the standards for ozone. The two pollutants addressed in the RAQS are ROG and NO_X, which are precursors to the formation of ozone. Projected increases in motor vehicle usage, population, and growth create challenges in controlling emissions and by extension to maintaining and improving air quality. The RAQS, in conjunction with the TCM, were most recently adopted in 2016 as the air quality plan for the region.

The growth projections used by the SDAPCD to develop the RAQS emissions budgets are based on the population, vehicle trends, and land use plans developed in general plans and used by SANDAG in the development of the regional transportation plans and sustainable communities strategy. As such, projects that propose development that is consistent with the growth anticipated by SANDAG's growth projections and/or the general plan would not conflict with the RAQS. In the event that a project would propose development that is less dense than anticipated by the growth projections, the project would likewise be consistent with the RAQS. In the event a project proposes development that is greater than anticipated in the growth projections, further analysis would be warranted to determine if the project would exceed the growth projections used in the RAQS for the specific subregional area.

The northern 1.5-acre portion of the project site is designated Light Industrial in the City's General Plan and is zoned Light Industrial (L-I). The southern 0.8-acre portion of the project site is designated Commercial in the City's General Plan and is zoned Commercial (C). The project would require a General Plan Amendment and Rezone to Multi-Family Residential (R-3-10). The project would not be consistent with the existing land use and zoning designations for the project site; however, this does not imply that the project would be inconsistent with the growth projections assumed in the RAQS.

In order to determine if emissions associated with the project are accounted for in the growth projections assumed in the RAQS, emissions due to operation of a project consistent with the existing land use and zoning designations were calculated and compared to emissions associated with operation of the project. Title 20 – Zoning of the City's Municipal Code establishes allowable floor area ratios (FAR) for each zone. Light Industrial zones have a FAR of 0.6 and Commercial zones have a FAR of 0.7. Under these requirements, should the site be developed with commercial and industrial land uses as allowed under the existing land use and zoning designations, approximately 38,000 square feet of light industrial development and 24,000 square feet of commercial development could be constructed. Table 6 summarizes the emissions associated with an industrial and commercial land use along with the emissions associated with the project. The CalEEMod output files for the project are contained in Attachment 1, and the CalEEMod output files for the industrial and commercial project are contained in Attachment 2.

Table 6
Commercial and Industrial Land Use Operational Emissions
(pounds per day)

Source	Pollutant					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
PROJECT EMISSIONS						
Area Sources	1	<1	4	<1	<1	<1
Energy Sources	<1	<1	<1	<1	<1	<1
Mobile Sources	1	1	8	<1	2	<1
Total	**2**	**1**	**12**	**<1**	**2**	**1**
INDUSTRIAL AND COMMERCIAL PROJECT EMISSIONS						
Area Sources	2	<1	<1	<1	<1	<1
Energy Sources	<1	<1	<1	<1	<1	<1
Mobile Sources	3	3	25	<1	5	1
Total	**4**	**3**	**25**	**<1**	**5**	**1**
NOTE: Totals may vary due to independent rounding.						

As shown, project emissions would be less than operational emissions associated with an industrial and commercial project that is consistent with the existing land use and zoning designations. Therefore, the project would not result in an increase in emissions that are not already accounted for in the RAQS.

Additionally, shown in Tables 4 and 5, project emissions would not exceed the screening level thresholds. Therefore, the project would not result in an increase in emissions that are not already accounted for in the RAQS. The project would not obstruct or conflict with implementation of the RAQS, and impacts would be less than significant.

2. *Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?*

The region is classified as an attainment area for all criterion pollutants except ozone, PM_{10}, and $PM_{2.5}$. The SDAB is a non-attainment area for the 8-hour federal and state ozone standards. Ozone

is not emitted directly, but is a result of atmospheric activity on precursors. NO_X and ROG are known as the chief "precursors" of ozone. These compounds react in the presence of sunlight to produce ozone. $PM_{2.5}$ includes fine particles that are found in smoke and haze, and are emitted from all types of combustion activities (motor vehicles, power plants, wood burning, etc.) and certain industrial processes. PM_{10} includes both fine and coarse dust particles, and sources include crushing or grinding operations and dust from paved or unpaved roads.

As shown in Table 4, project construction would not exceed the applicable regional emissions thresholds. These thresholds are designed to provide limits below which project emissions would not significantly change regional air quality. Therefore, as project construction emissions would be below these limits, project construction would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant.

Long-term emissions of regional air pollutants occur from operational sources. As shown in Table 5, project operation would not exceed the applicable regional emissions thresholds. Therefore, as operational emissions would be below these limits, the project would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant.

3. Would the project expose sensitive receptors to substantial pollutant concentrations?

Sensitive land uses include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities. The nearest sensitive receptors are the residential uses located 300 feet to the northeast, 100 feet to the southeast, 160 feet to the south, and 115 feet to the southwest.

Carbon Monoxide Hot Spots

Localized CO concentration is a direct function of motor vehicle activity at signalized intersections (e.g., idling time and traffic flow conditions), particularly during peak commute hours and meteorological conditions. The SDAB is a CO maintenance area under the federal CAA. This means that SDAB was previously a non-attainment area and is currently implementing a 10-year plan for continuing to meet and maintain air quality standards.

Due to increased requirements for cleaner vehicles, equipment, and fuels, CO levels in the state have dropped substantially. All air basins are attainment or maintenance areas for CO. Therefore, more recent screening procedures based on more current methodologies have been developed. The Sacramento Metropolitan Air Quality Management District developed a screening threshold in 2011, which states that any project involving an intersection experiencing 31,600 vehicles per hour or more will require detailed analysis. In addition, the Bay Area Air Quality Management District developed a screening threshold in 2010 which states that any project involving an intersection experiencing 44,000 vehicles per hour would require detailed analysis. This analysis conservatively assesses potential CO hot spots using the South Coast Air Quality Management District screening threshold of 31,600 vehicles per hour.

As discussed, the project would generate 300 daily trips. Based on the project daily traffic volumes on roadways in the vicinity of the project site (SANDAG 2022), the hourly turning volumes at nearby intersections are projected to be well less than 31,600 vehicles per hour. Therefore, the project is not anticipated to result in a CO hot spot.

Diesel Particulate Matter – Construction

Construction of the project and associated infrastructure would result in short-term diesel exhaust emissions from on-site heavy-duty equipment. Construction of the project would result in the generation of diesel-exhaust DPM emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities and on-road diesel equipment used to bring materials to and from the project site.

Generation of DPM from construction projects typically occurs in a single area for a short period. Construction is anticipated to last for approximately 14 months. The dose to which the receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the Maximally Exposed Individual. The risks estimated for a Maximally Exposed Individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2015). Thus, if the duration of proposed construction activities near any specific sensitive receptor were one year, the exposure would be 3 percent of the total 30-year exposure period used for health risk calculation. Further, the project would implement construction best management practices and would be conducted in accordance with CARB regulations. Specifically, the project would implement the following Best Available Control Technology for Toxics measures during construction:

- The construction fleet shall use any combination of diesel catalytic converters, diesel oxidation catalysts, diesel particulate filters and/or utilize CARB/U.S. EPA Engine Certification Tier 3 or better, or other equivalent methods approved by the CARB.
- The engine size of construction equipment shall be the minimum size suitable for the required job.
- Construction equipment shall be properly tuned and maintained in accordance with the manufacturer's specifications.
- Per CARB's Airborne Toxic Control Measures 13 (California Code of Regulations Chapter 10 Section 2485), the applicant shall not allow idling time to exceed 5 minutes unless more time is required per engine manufacturers' specifications or for safety reasons.

Therefore, DPM generated by project construction is not expected to create conditions where the probability is greater than 10 in 1 million of contracting cancer for the Maximally Exposed Individual or to generate ground-level concentrations of noncarcinogenic TACs that exceed a Hazard Index greater than 1 for the Maximally Exposed Individual. Additionally, with ongoing implementation of U.S. EPA and CARB requirements for cleaner fuels; off-road diesel engine retrofits; and new, low-emission diesel engine types, the DPM emissions of individual equipment would be substantially reduced. Therefore, project construction would not expose sensitive receptors to substantial pollutant concentration.

Stationary Sources

CARB provides guidance on siting land uses near major emitters or facilities of concern. These facilities include distribution centers, chrome platers, dry cleaners using perchloroethylene, and large gas stations. CARB siting constraints are summarized in Table 7.

The project would not include any of the sources included in Table 7. The project would not construct a stationary source of toxic emissions.

Table 7
CARB Land Use Siting Constraints

Source Category	Recommended Buffer Distances (feet)
Distribution centers (that accommodate more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units per day, or where transport refrigeration unit operations exceed 300 hours per week)	1,000
Chrome platers	1,000
Dry cleaners using perchloroethylene (1 machine)	300
Dry cleaners using perchloroethylene (2 machines)	500
Dry cleaners using perchloroethylene (3 or more machines)	Requires consultation with APCD
Large gas station (3.6 million gallons or more per year)	300
Other gas stations	50

SOURCE: CARB 2005.

4. *Would the project result in other emissions such as those leading to odors adversely affecting a substantial number of people?*

The project does not include heavy industrial or agricultural uses that are typically associated with odor complaints. During construction, diesel equipment may generate some nuisance odors. However, exposure to odors associated with project construction would be short term and temporary in nature. Impacts associated with odors would be less than significant.

7.0 Conclusions

The primary goal of the RAQS is to reduce ozone precursor emissions. The northern portion of the project site is designated Light Industrial in the City's General Plan and is zoned L-I Light Industrial. The southern portion of the project site is designated Commercial in the City's General Plan and is zoned C Commercial. The project would require a General Plan Amendment and Rezone to multi-family residential. However, project emissions would be less than operational emissions associated with an industrial and commercial project that is consistent with the existing land use and zoning designations. Therefore, the project would not result in an increase in emissions that are not already accounted for in the RAQS. Thus, it can be concluded that the project would not obstruct or conflict with the implementation of the RAQS.

As shown in Table 4, project construction emissions would not exceed the applicable regional emissions thresholds. These thresholds are designed to provide limits below which project emissions would not significantly change regional air quality. Therefore, as project construction emissions would be below these limits, project construction would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant. Additionally, construction emissions would be temporary, intermittent, and would cease at the end of project construction.

Long-term emissions of regional air pollutants occur from operational sources. As shown in Table 5, project operational emissions would not exceed the applicable regional emissions thresholds. Therefore, as project operational emissions would be below these limits, project operation would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant.

Sensitive land uses include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities. The nearest sensitive receptors are the residential uses located 300 feet to the northeast, 100 feet to the southeast, 160 feet to the south, and 115 feet to the southwest. The project is not anticipated to result in a CO hot spot at project area intersections. Construction of the project and associated infrastructure would result in short-term diesel exhaust emissions from on-site heavy-duty equipment. However, given the temporary nature of construction activities and implementation of Best Available Control Technology for Toxics measures, the project would not result in the exposure of sensitive receptors to substantial pollutant concentrations during construction.

The project does not include heavy industrial or agricultural uses that are typically associated with objectionable odors. The project would involve the use of diesel-powered construction equipment. Diesel exhaust may be noticeable temporarily at adjacent properties; however, construction activities would be temporary. Therefore, odor impacts would be less than significant.

8.0 References Cited

California Air Pollution Control Officers Association (CAPCOA)

2021 California Emissions Estimator model (CalEEMod). Version 2020.4.0. May 2021.

California Air Resources Board (CARB)

2000 Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. California Air Resources Board. Stationary Source Division, Mobile Source Control Division. October.

2004 2004 Revisions to the California State Implementation Plan for Carbon Monoxide. Updated Maintenance Plan for Ten Federal Planning Areas. Adopted July 22, 2004.

2005 Air Quality and Land Use Handbook: A Community Health Perspective. California Air Resources Board. April.

2016 Ambient Air Quality Standards. California Air Resources Board. May 4

2017 Technical Advisory: Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways. April 2017.

2022 California Air Quality Data Statistics. Available at http://www.arb.ca.gov/adam/welcome.html. Top 4 Summary and Hourly Listing. Accessed on February 24, 2022.

Linscott, Law, and Greenspan, Engineers, Inc. (LLG)
2022 Existing, Year 2025, and Year 2050 Forecasted Traffic Volumes and Trip Generation Data emailed to RECON by Amelia Giacalone, Senior Transportation Planner, on March 21, 2022.

National Oceanic and Atmospheric Administration (NOAA)
2021 Climate Database – SC ACIS Version 2. Accessed at http://scacis.rcc-acis.org/. Updated May 4, 2021.

Office of Environmental Health Hazard Assessment (OEHHA)
2015 Air Toxics Hot Spots Program Guidance Manual for the Preparation of Risk Assessments (Guidance Manual), February.

San Diego Air Pollution Control District (SDAPCD)
1992 1991/1992 Regional Air Quality Strategies. Air Pollution Control District. June.

2012 Redesignation Request and Maintenance Plan for the 1997 National Ozone Standard for San Diego County. Adopted December 5, 2012.

2013 Air Quality in San Diego County. 2013 Annual Report.

San Diego Association of Governments (SANDAG)
2021 Transportation Forecast Information Center. Years 2025, 2035, and 2050 Series 14 traffic volumes. Accessed at https://tfic.sandag.org/map.html. November 1, 2021.

U.S. Environmental Protection Agency (U.S. EPA)
2021 U.S. Environmental Protection Agency Website Criteria Air Pollutants. Last updated March 22. https://www.epa.gov/criteria-air-pollutants.

ATTACHMENTS

ATTACHMENT 1

CalEEMod Output – Project Emissions

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

9865 Santa Fe Flores San Marcos

San Diego County APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	77.10	1000sqft	1.77	77,101.00	0
Apartments Mid Rise	50.00	Dwelling Unit	0.43	50,000.00	143

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	539.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 50 units
0.43 acre building footprint
2.2 acres

Construction Phase -

Grading - 17,250 cy export

Architectural Coating - SDAPCD Rule 67.0.1

Vehicle Trips - 6 trips/du weekday trip rates

Woodstoves - No woodstoves or fireplaces

Area Coating - SDAPCD Rule 67.0.1

Trips and VMT -

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	100.00
tblAreaCoating	Area_EF_Parking	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	150
tblAreaCoating	Area_EF_Residential_Interior	250	100
tblFireplaces	FireplaceDayYear	82.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	27.50	0.00
tblFireplaces	NumberNoFireplace	5.00	50.00
tblFireplaces	NumberWood	17.50	0.00
tblGrading	MaterialExported	0.00	17,250.00
tblLandUse	LandUseSquareFeet	77,100.00	77,101.00
tblLandUse	LotAcreage	1.32	0.43
tblVehicleTrips	ST_TR	4.91	5.42
tblVehicleTrips	SU_TR	4.09	4.51
tblVehicleTrips	WD_TR	5.44	6.00
tblWoodstoves	NumberCatalytic	2.50	0.00
tblWoodstoves	NumberNoncatalytic	2.50	0.00
tblWoodstoves	WoodstoveDayYear	82.00	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	72.7714	63.3885	22.0060	0.2365	13.8536	1.0045	14.8581	5.2304	0.9388	6.1692	0.0000	25,850.8061	25,850.8061	1.8422	3.7846	27,024.6586
Maximum	**72.7714**	**63.3885**	**22.0060**	**0.2365**	**13.8536**	**1.0045**	**14.8581**	**5.2304**	**0.9388**	**6.1692**	**0.0000**	**25,850.8061**	**25,850.8061**	**1.8422**	**3.7846**	**27,024.6586**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	72.7714	63.3885	22.0060	0.2365	13.8536	1.0045	14.8581	5.2304	0.9388	6.1692	0.0000	25,850.8061	25,850.8061	1.8422	3.7846	27,024.6586
Maximum	**72.7714**	**63.3885**	**22.0060**	**0.2365**	**13.8536**	**1.0045**	**14.8581**	**5.2304**	**0.9388**	**6.1692**	**0.0000**	**25,850.8061**	**25,850.8061**	**1.8422**	**3.7846**	**27,024.6586**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.4208	0.0476	4.1312	2.2000e-004		0.0229	0.0229		0.0229	0.0229	0.0000	7.4445	7.4445	7.1700e-003	0.0000	7.6238
Energy	0.0108	0.0919	0.0391	5.9000e-004		7.4300e-003	7.4300e-003		7.4300e-003	7.4300e-003		117.2611	117.2611	2.2500e-003	2.1500e-003	117.9579
Mobile	0.8456	0.9520	7.9716	0.0164	1.8032	0.0129	1.8161	0.4804	0.0121	0.4924		1,698.6339	1,698.6339	0.1225	0.0773	1,724.7343
Total	**2.2771**	**1.0914**	**12.1419**	**0.0172**	**1.8032**	**0.0432**	**1.8465**	**0.4804**	**0.0424**	**0.5227**	**0.0000**	**1,823.3395**	**1,823.3395**	**0.1319**	**0.0795**	**1,850.3159**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.4208	0.0476	4.1312	2.2000e-004		0.0229	0.0229		0.0229	0.0229	0.0000	7.4445	7.4445	7.1700e-003	0.0000	7.6238
Energy	0.0108	0.0919	0.0391	5.9000e-004		7.4300e-003	7.4300e-003		7.4300e-003	7.4300e-003		117.2611	117.2611	2.2500e-003	2.1500e-003	117.9579
Mobile	0.8456	0.9520	7.9716	0.0164	1.8032	0.0129	1.8161	0.4804	0.0121	0.4924		1,698.6339	1,698.6339	0.1225	0.0773	1,724.7343
Total	**2.2771**	**1.0914**	**12.1419**	**0.0172**	**1.8032**	**0.0432**	**1.8465**	**0.4804**	**0.0424**	**0.5227**	**0.0000**	**1,823.3395**	**1,823.3395**	**0.1319**	**0.0795**	**1,850.3159**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/2/2023	1/4/2023	5	3	
2	Grading	Grading	1/5/2023	1/12/2023	5	6	
3	Building Construction	Building Construction	1/13/2023	11/16/2023	5	220	
4	Paving	Paving	11/17/2023	11/30/2023	5	10	
5	Architectural Coating	Architectural Coating	12/1/2023	12/14/2023	5	10	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 6

Acres of Paving: 1.77

Residential Indoor: 101,250; Residential Outdoor: 33,750; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 4,626 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	2,156.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	68.00	18.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	14.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3027	14.2802	9.7820	0.0245		0.5419	0.5419		0.4985	0.4985		2,374.8634	2,374.8634	0.7681		2,394.0654
Total	**1.3027**	**14.2802**	**9.7820**	**0.0245**	**1.5908**	**0.5419**	**2.1326**	**0.1718**	**0.4985**	**0.6703**		**2,374.8634**	**2,374.8634**	**0.7681**		**2,394.0654**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0237	0.0153	0.1829	5.5000e-004	0.0657	3.5000e-004	0.0661	0.0174	3.3000e-004	0.0178		56.1616	56.1616	1.6900e-003	1.5800e-003	56.6755
Total	**0.0237**	**0.0153**	**0.1829**	**5.5000e-004**	**0.0657**	**3.5000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**56.1616**	**56.1616**	**1.6900e-003**	**1.5800e-003**	**56.6755**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3027	14.2802	9.7820	0.0245		0.5419	0.5419		0.4985	0.4985	0.0000	2,374.8634	2,374.8634	0.7681		2,394.0654
Total	**1.3027**	**14.2802**	**9.7820**	**0.0245**	**1.5908**	**0.5419**	**2.1326**	**0.1718**	**0.4985**	**0.6703**	**0.0000**	**2,374.8634**	**2,374.8634**	**0.7681**		**2,394.0654**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0237	0.0153	0.1829	5.5000e-004	0.0657	3.5000e-004	0.0661	0.0174	3.3000e-004	0.0178		56.1616	56.1616	1.6900e-003	1.5800e-003	56.6755
Total	**0.0237**	**0.0153**	**0.1829**	**5.5000e-004**	**0.0657**	**3.5000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**56.1616**	**56.1616**	**1.6900e-003**	**1.5800e-003**	**56.6755**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.4866	0.0000	7.4866	3.4859	0.0000	3.4859			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560		1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**7.4866**	**0.6044**	**8.0909**	**3.4859**	**0.5560**	**4.0419**		**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.7650	48.9018	13.0735	0.2152	6.2848	0.3997	6.6845	1.7227	0.3824	2.1051		23,784.9893	23,784.9893	1.1947	3.7826	24,942.0639
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0297	0.0191	0.2287	6.9000e-004	0.0822	4.4000e-004	0.0826	0.0218	4.1000e-004	0.0222		70.2020	70.2020	2.1200e-003	1.9800e-003	70.8444
Total	**0.7947**	**48.9209**	**13.3022**	**0.2159**	**6.3670**	**0.4002**	**6.7671**	**1.7445**	**0.3828**	**2.1273**		**23,855.1914**	**23,855.1914**	**1.1968**	**3.7846**	**25,012.9083**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.4866	0.0000	7.4866	3.4859	0.0000	3.4859			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560	0.0000	1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**7.4866**	**0.6044**	**8.0909**	**3.4859**	**0.5560**	**4.0419**	**0.0000**	**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.7650	48.9018	13.0735	0.2152	6.2848	0.3997	6.6845	1.7227	0.3824	2.1051		23,784.9893	23,784.9893	1.1947	3.7826	24,942.0639
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0297	0.0191	0.2287	6.9000e-004	0.0822	4.4000e-004	0.0826	0.0218	4.1000e-004	0.0222		70.2020	70.2020	2.1200e-003	1.9800e-003	70.8444
Total	**0.7947**	**48.9209**	**13.3022**	**0.2159**	**6.3670**	**0.4002**	**6.7671**	**1.7445**	**0.3828**	**2.1273**		**23,855.1914**	**23,855.1914**	**1.1968**	**3.7846**	**25,012.9083**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880		2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**		**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0209	0.8041	0.2865	3.6900e-003	0.1219	4.7200e-003	0.1266	0.0351	4.5200e-003	0.0396		398.4502	398.4502	0.0120	0.0578	415.9583
Worker	0.2016	0.1299	1.5549	4.6600e-003	0.5586	3.0000e-003	0.5616	0.1482	2.7700e-003	0.1509		477.3738	477.3738	0.0144	0.0135	481.7421
Total	**0.2225**	**0.9340**	**1.8414**	**8.3500e-003**	**0.6805**	**7.7200e-003**	**0.6882**	**0.1833**	**7.2900e-003**	**0.1905**		**875.8240**	**875.8240**	**0.0264**	**0.0712**	**897.7004**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880	0.0000	2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**	**0.0000**	**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0209	0.8041	0.2865	3.6900e-003	0.1219	4.7200e-003	0.1266	0.0351	4.5200e-003	0.0396		398.4502	398.4502	0.0120	0.0578	415.9583
Worker	0.2016	0.1299	1.5549	4.6600e-003	0.5586	3.0000e-003	0.5616	0.1482	2.7700e-003	0.1509		477.3738	477.3738	0.0144	0.0135	481.7421
Total	**0.2225**	**0.9340**	**1.8414**	**8.3500e-003**	**0.6805**	**7.7200e-003**	**0.6882**	**0.1833**	**7.2900e-003**	**0.1905**		**875.8240**	**875.8240**	**0.0264**	**0.0712**	**897.7004**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8802	8.6098	11.6840	0.0179		0.4338	0.4338		0.4003	0.4003		1,709.9926	1,709.9926	0.5420		1,723.5414
Paving	0.4637					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3439**	**8.6098**	**11.6840**	**0.0179**		**0.4338**	**0.4338**		**0.4003**	**0.4003**		**1,709.9926**	**1,709.9926**	**0.5420**		**1,723.5414**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0445	0.0287	0.3430	1.0300e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		105.3031	105.3031	3.1800e-003	2.9700e-003	106.2666
Total	**0.0445**	**0.0287**	**0.3430**	**1.0300e-003**	**0.1232**	**6.6000e-004**	**0.1239**	**0.0327**	**6.1000e-004**	**0.0333**		**105.3031**	**105.3031**	**3.1800e-003**	**2.9700e-003**	**106.2666**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8802	8.6098	11.6840	0.0179		0.4338	0.4338		0.4003	0.4003	0.0000	1,709.9926	1,709.9926	0.5420		1,723.5414
Paving	0.4637					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3439**	**8.6098**	**11.6840**	**0.0179**		**0.4338**	**0.4338**		**0.4003**	**0.4003**	**0.0000**	**1,709.9926**	**1,709.9926**	**0.5420**		**1,723.5414**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0445	0.0287	0.3430	1.0300e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		105.3031	105.3031	3.1800e-003	2.9700e-003	106.2666
Total	**0.0445**	**0.0287**	**0.3430**	**1.0300e-003**	**0.1232**	**6.6000e-004**	**0.1239**	**0.0327**	**6.1000e-004**	**0.0333**		**105.3031**	**105.3031**	**3.1800e-003**	**2.9700e-003**	**106.2666**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	72.5382					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**72.7299**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0415	0.0267	0.3201	9.6000e-004	0.1150	6.2000e-004	0.1156	0.0305	5.7000e-004	0.0311		98.2829	98.2829	2.9700e-003	2.7700e-003	99.1822
Total	**0.0415**	**0.0267**	**0.3201**	**9.6000e-004**	**0.1150**	**6.2000e-004**	**0.1156**	**0.0305**	**5.7000e-004**	**0.0311**		**98.2829**	**98.2829**	**2.9700e-003**	**2.7700e-003**	**99.1822**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	72.5382					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**72.7299**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0415	0.0267	0.3201	9.6000e-004	0.1150	6.2000e-004	0.1156	0.0305	5.7000e-004	0.0311		98.2829	98.2829	2.9700e-003	2.7700e-003	99.1822
Total	**0.0415**	**0.0267**	**0.3201**	**9.6000e-004**	**0.1150**	**6.2000e-004**	**0.1156**	**0.0305**	**5.7000e-004**	**0.0311**		**98.2829**	**98.2829**	**2.9700e-003**	**2.7700e-003**	**99.1822**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.8456	0.9520	7.9716	0.0164	1.8032	0.0129	1.8161	0.4804	0.0121	0.4924		1,698.6339	1,698.6339	0.1225	0.0773	1,724.7343
Unmitigated	0.8456	0.9520	7.9716	0.0164	1.8032	0.0129	1.8161	0.4804	0.0121	0.4924		1,698.6339	1,698.6339	0.1225	0.0773	1,724.7343

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	300.00	271.00	225.50	814,373	814,373
Parking Lot	0.00	0.00	0.00		
Total	300.00	271.00	225.50	814,373	814,373

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Parking Lot	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0108	0.0919	0.0391	5.9000e-004		7.4300e-003	7.4300e-003		7.4300e-003	7.4300e-003		117.2611	117.2611	2.2500e-003	2.1500e-003	117.9579
NaturalGas Unmitigated	0.0108	0.0919	0.0391	5.9000e-004		7.4300e-003	7.4300e-003		7.4300e-003	7.4300e-003		117.2611	117.2611	2.2500e-003	2.1500e-003	117.9579

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	996.719	0.0108	0.0919	0.0391	5.9000e-004		7.4300e-003	7.4300e-003		7.4300e-003	7.4300e-003		117.2611	117.2611	2.2500e-003	2.1500e-003	117.9579
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0108**	**0.0919**	**0.0391**	**5.9000e-004**		**7.4300e-003**	**7.4300e-003**		**7.4300e-003**	**7.4300e-003**		**117.2611**	**117.2611**	**2.2500e-003**	**2.1500e-003**	**117.9579**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	0.996719	0.0108	0.0919	0.0391	5.9000e-004		7.4300e-003	7.4300e-003		7.4300e-003	7.4300e-003		117.2611	117.2611	2.2500e-003	2.1500e-003	117.9579
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0108**	**0.0919**	**0.0391**	**5.9000e-004**		**7.4300e-003**	**7.4300e-003**		**7.4300e-003**	**7.4300e-003**		**117.2611**	**117.2611**	**2.2500e-003**	**2.1500e-003**	**117.9579**

6.0 Area Detail

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.4208	0.0476	4.1312	2.2000e-004		0.0229	0.0229		0.0229	0.0229	0.0000	7.4445	7.4445	7.1700e-003	0.0000	7.6238
Unmitigated	1.4208	0.0476	4.1312	2.2000e-004		0.0229	0.0229		0.0229	0.0229	0.0000	7.4445	7.4445	7.1700e-003	0.0000	7.6238

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1987					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0973					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1247	0.0476	4.1312	2.2000e-004		0.0229	0.0229		0.0229	0.0229		7.4445	7.4445	7.1700e-003		7.6238
Total	**1.4207**	**0.0476**	**4.1312**	**2.2000e-004**		**0.0229**	**0.0229**		**0.0229**	**0.0229**	**0.0000**	**7.4445**	**7.4445**	**7.1700e-003**	**0.0000**	**7.6238**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1987					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0973					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1247	0.0476	4.1312	2.2000e-004		0.0229	0.0229		0.0229	0.0229		7.4445	7.4445	7.1700e-003		7.6238
Total	**1.4207**	**0.0476**	**4.1312**	**2.2000e-004**		**0.0229**	**0.0229**		**0.0229**	**0.0229**	**0.0000**	**7.4445**	**7.4445**	**7.1700e-003**	**0.0000**	**7.6238**

7.0 Water Detail

7.1 Mitigation Measures Water

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

9865 Santa Fe Flores San Marcos

San Diego County APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	77.10	1000sqft	1.77	77,101.00	0
Apartments Mid Rise	50.00	Dwelling Unit	0.43	50,000.00	143

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	539.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 50 units
0.43 acre building footprint
2.2 acres

Construction Phase -

Grading - 17,250 cy export

Architectural Coating - SDAPCD Rule 67.0.1

Vehicle Trips - 6 trips/du weekday trip rates

Woodstoves - No woodstoves or fireplaces

Area Coating - SDAPCD Rule 67.0.1

Trips and VMT -

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	100.00
tblAreaCoating	Area_EF_Parking	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	150
tblAreaCoating	Area_EF_Residential_Interior	250	100
tblFireplaces	FireplaceDayYear	82.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	27.50	0.00
tblFireplaces	NumberNoFireplace	5.00	50.00
tblFireplaces	NumberWood	17.50	0.00
tblGrading	MaterialExported	0.00	17,250.00
tblLandUse	LandUseSquareFeet	77,100.00	77,101.00
tblLandUse	LotAcreage	1.32	0.43
tblVehicleTrips	ST_TR	4.91	5.42
tblVehicleTrips	SU_TR	4.09	4.51
tblVehicleTrips	WD_TR	5.44	6.00
tblWoodstoves	NumberCatalytic	2.50	0.00
tblWoodstoves	NumberNoncatalytic	2.50	0.00
tblWoodstoves	WoodstoveDayYear	82.00	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	72.7682	61.4905	21.8570	0.2363	13.8536	1.0037	14.8573	5.2304	0.9381	6.1685	0.0000	25,831.7992	25,831.7992	1.8450	3.7806	27,004.5360
Maximum	**72.7682**	**61.4905**	**21.8570**	**0.2363**	**13.8536**	**1.0037**	**14.8573**	**5.2304**	**0.9381**	**6.1685**	**0.0000**	**25,831.7992**	**25,831.7992**	**1.8450**	**3.7806**	**27,004.5360**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	72.7682	61.4905	21.8570	0.2363	13.8536	1.0037	14.8573	5.2304	0.9381	6.1685	0.0000	25,831.7992	25,831.7992	1.8450	3.7806	27,004.5360
Maximum	**72.7682**	**61.4905**	**21.8570**	**0.2363**	**13.8536**	**1.0037**	**14.8573**	**5.2304**	**0.9381**	**6.1685**	**0.0000**	**25,831.7992**	**25,831.7992**	**1.8450**	**3.7806**	**27,004.5360**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.4208	0.0476	4.1312	2.2000e-004		0.0229	0.0229		0.0229	0.0229	0.0000	7.4445	7.4445	7.1700e-003	0.0000	7.6238
Energy	0.0108	0.0919	0.0391	5.9000e-004		7.4300e-003	7.4300e-003		7.4300e-003	7.4300e-003		117.2611	117.2611	2.2500e-003	2.1500e-003	117.9579
Mobile	0.8647	0.8784	7.7800	0.0171	1.8032	0.0129	1.8161	0.4804	0.0120	0.4924		1,775.9728	1,775.9728	0.1159	0.0734	1,800.7361
Total	**2.2962**	**1.0179**	**11.9503**	**0.0180**	**1.8032**	**0.0432**	**1.8464**	**0.4804**	**0.0424**	**0.5227**	**0.0000**	**1,900.6783**	**1,900.6783**	**0.1253**	**0.0755**	**1,926.3178**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.4208	0.0476	4.1312	2.2000e-004		0.0229	0.0229		0.0229	0.0229	0.0000	7.4445	7.4445	7.1700e-003	0.0000	7.6238
Energy	0.0108	0.0919	0.0391	5.9000e-004		7.4300e-003	7.4300e-003		7.4300e-003	7.4300e-003		117.2611	117.2611	2.2500e-003	2.1500e-003	117.9579
Mobile	0.8647	0.8784	7.7800	0.0171	1.8032	0.0129	1.8161	0.4804	0.0120	0.4924		1,775.9728	1,775.9728	0.1159	0.0734	1,800.7361
Total	**2.2962**	**1.0179**	**11.9503**	**0.0180**	**1.8032**	**0.0432**	**1.8464**	**0.4804**	**0.0424**	**0.5227**	**0.0000**	**1,900.6783**	**1,900.6783**	**0.1253**	**0.0755**	**1,926.3178**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/2/2023	1/4/2023	5	3	
2	Grading	Grading	1/5/2023	1/12/2023	5	6	
3	Building Construction	Building Construction	1/13/2023	11/16/2023	5	220	
4	Paving	Paving	11/17/2023	11/30/2023	5	10	
5	Architectural Coating	Architectural Coating	12/1/2023	12/14/2023	5	10	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 6

Acres of Paving: 1.77

Residential Indoor: 101,250; Residential Outdoor: 33,750; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 4,626 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	2,156.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	68.00	18.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	14.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3027	14.2802	9.7820	0.0245		0.5419	0.5419		0.4985	0.4985		2,374.8634	2,374.8634	0.7681		2,394.0654
Total	**1.3027**	**14.2802**	**9.7820**	**0.0245**	**1.5908**	**0.5419**	**2.1326**	**0.1718**	**0.4985**	**0.6703**		**2,374.8634**	**2,374.8634**	**0.7681**		**2,394.0654**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0219	0.0136	0.1925	5.8000e-004	0.0657	3.5000e-004	0.0661	0.0174	3.3000e-004	0.0178		59.4283	59.4283	1.5900e-003	1.4600e-003	59.9041
Total	**0.0219**	**0.0136**	**0.1925**	**5.8000e-004**	**0.0657**	**3.5000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**59.4283**	**59.4283**	**1.5900e-003**	**1.4600e-003**	**59.9041**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3027	14.2802	9.7820	0.0245		0.5419	0.5419		0.4985	0.4985	0.0000	2,374.8634	2,374.8634	0.7681		2,394.0654
Total	**1.3027**	**14.2802**	**9.7820**	**0.0245**	**1.5908**	**0.5419**	**2.1326**	**0.1718**	**0.4985**	**0.6703**	**0.0000**	**2,374.8634**	**2,374.8634**	**0.7681**		**2,394.0654**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0219	0.0136	0.1925	5.8000e-004	0.0657	3.5000e-004	0.0661	0.0174	3.3000e-004	0.0178		59.4283	59.4283	1.5900e-003	1.4600e-003	59.9041
Total	**0.0219**	**0.0136**	**0.1925**	**5.8000e-004**	**0.0657**	**3.5000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**59.4283**	**59.4283**	**1.5900e-003**	**1.4600e-003**	**59.9041**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.4866	0.0000	7.4866	3.4859	0.0000	3.4859			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560		1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**7.4866**	**0.6044**	**8.0909**	**3.4859**	**0.5560**	**4.0419**		**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.8138	47.0059	12.9126	0.2150	6.2848	0.3989	6.6838	1.7227	0.3817	2.1044		23,761.8991	23,761.8991	1.1975	3.7788	24,917.9056
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0274	0.0170	0.2406	7.3000e-004	0.0822	4.4000e-004	0.0826	0.0218	4.1000e-004	0.0222		74.2854	74.2854	1.9900e-003	1.8300e-003	74.8801
Total	**0.8411**	**47.0229**	**13.1532**	**0.2157**	**6.3670**	**0.3994**	**6.7664**	**1.7445**	**0.3821**	**2.1266**		**23,836.1844**	**23,836.1844**	**1.1995**	**3.7806**	**24,992.7857**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.4866	0.0000	7.4866	3.4859	0.0000	3.4859			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560	0.0000	1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**7.4866**	**0.6044**	**8.0909**	**3.4859**	**0.5560**	**4.0419**	**0.0000**	**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.8138	47.0059	12.9126	0.2150	6.2848	0.3989	6.6838	1.7227	0.3817	2.1044		23,761.8991	23,761.8991	1.1975	3.7788	24,917.9056
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0274	0.0170	0.2406	7.3000e-004	0.0822	4.4000e-004	0.0826	0.0218	4.1000e-004	0.0222		74.2854	74.2854	1.9900e-003	1.8300e-003	74.8801
Total	**0.8411**	**47.0229**	**13.1532**	**0.2157**	**6.3670**	**0.3994**	**6.7664**	**1.7445**	**0.3821**	**2.1266**		**23,836.1844**	**23,836.1844**	**1.1995**	**3.7806**	**24,992.7857**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880		2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**		**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0215	0.7716	0.2781	3.6900e-003	0.1219	4.7000e-003	0.1266	0.0351	4.5000e-003	0.0396		397.8845	397.8845	0.0121	0.0576	415.3540
Worker	0.1860	0.1155	1.6363	4.9400e-003	0.5586	3.0000e-003	0.5616	0.1482	2.7700e-003	0.1509		505.1404	505.1404	0.0135	0.0124	509.1845
Total	**0.2075**	**0.8871**	**1.9144**	**8.6300e-003**	**0.6805**	**7.7000e-003**	**0.6882**	**0.1833**	**7.2700e-003**	**0.1905**		**903.0249**	**903.0249**	**0.0256**	**0.0701**	**924.5385**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880	0.0000	2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**	**0.0000**	**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0215	0.7716	0.2781	3.6900e-003	0.1219	4.7000e-003	0.1266	0.0351	4.5000e-003	0.0396		397.8845	397.8845	0.0121	0.0576	415.3540
Worker	0.1860	0.1155	1.6363	4.9400e-003	0.5586	3.0000e-003	0.5616	0.1482	2.7700e-003	0.1509		505.1404	505.1404	0.0135	0.0124	509.1845
Total	**0.2075**	**0.8871**	**1.9144**	**8.6300e-003**	**0.6805**	**7.7000e-003**	**0.6882**	**0.1833**	**7.2700e-003**	**0.1905**		**903.0249**	**903.0249**	**0.0256**	**0.0701**	**924.5385**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8802	8.6098	11.6840	0.0179		0.4338	0.4338		0.4003	0.4003		1,709.9926	1,709.9926	0.5420		1,723.5414
Paving	0.4637					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3439**	**8.6098**	**11.6840**	**0.0179**		**0.4338**	**0.4338**		**0.4003**	**0.4003**		**1,709.9926**	**1,709.9926**	**0.5420**		**1,723.5414**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0410	0.0255	0.3610	1.0900e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		111.4280	111.4280	2.9800e-003	2.7400e-003	112.3201
Total	**0.0410**	**0.0255**	**0.3610**	**1.0900e-003**	**0.1232**	**6.6000e-004**	**0.1239**	**0.0327**	**6.1000e-004**	**0.0333**		**111.4280**	**111.4280**	**2.9800e-003**	**2.7400e-003**	**112.3201**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8802	8.6098	11.6840	0.0179		0.4338	0.4338		0.4003	0.4003	0.0000	1,709.9926	1,709.9926	0.5420		1,723.5414
Paving	0.4637					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3439**	**8.6098**	**11.6840**	**0.0179**		**0.4338**	**0.4338**		**0.4003**	**0.4003**	**0.0000**	**1,709.9926**	**1,709.9926**	**0.5420**		**1,723.5414**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0410	0.0255	0.3610	1.0900e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		111.4280	111.4280	2.9800e-003	2.7400e-003	112.3201
Total	**0.0410**	**0.0255**	**0.3610**	**1.0900e-003**	**0.1232**	**6.6000e-004**	**0.1239**	**0.0327**	**6.1000e-004**	**0.0333**		**111.4280**	**111.4280**	**2.9800e-003**	**2.7400e-003**	**112.3201**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	72.5382					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**72.7299**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0383	0.0238	0.3369	1.0200e-003	0.1150	6.2000e-004	0.1156	0.0305	5.7000e-004	0.0311		103.9995	103.9995	2.7800e-003	2.5600e-003	104.8321
Total	**0.0383**	**0.0238**	**0.3369**	**1.0200e-003**	**0.1150**	**6.2000e-004**	**0.1156**	**0.0305**	**5.7000e-004**	**0.0311**		**103.9995**	**103.9995**	**2.7800e-003**	**2.5600e-003**	**104.8321**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	72.5382					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**72.7299**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0383	0.0238	0.3369	1.0200e-003	0.1150	6.2000e-004	0.1156	0.0305	5.7000e-004	0.0311		103.9995	103.9995	2.7800e-003	2.5600e-003	104.8321
Total	**0.0383**	**0.0238**	**0.3369**	**1.0200e-003**	**0.1150**	**6.2000e-004**	**0.1156**	**0.0305**	**5.7000e-004**	**0.0311**		**103.9995**	**103.9995**	**2.7800e-003**	**2.5600e-003**	**104.8321**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.8647	0.8784	7.7800	0.0171	1.8032	0.0129	1.8161	0.4804	0.0120	0.4924		1,775.9728	1,775.9728	0.1159	0.0734	1,800.7361
Unmitigated	0.8647	0.8784	7.7800	0.0171	1.8032	0.0129	1.8161	0.4804	0.0120	0.4924		1,775.9728	1,775.9728	0.1159	0.0734	1,800.7361

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	300.00	271.00	225.50	814,373	814,373
Parking Lot	0.00	0.00	0.00		
Total	300.00	271.00	225.50	814,373	814,373

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Parking Lot	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0108	0.0919	0.0391	5.9000e-004		7.4300e-003	7.4300e-003		7.4300e-003	7.4300e-003		117.2611	117.2611	2.2500e-003	2.1500e-003	117.9579
NaturalGas Unmitigated	0.0108	0.0919	0.0391	5.9000e-004		7.4300e-003	7.4300e-003		7.4300e-003	7.4300e-003		117.2611	117.2611	2.2500e-003	2.1500e-003	117.9579

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	996.719	0.0108	0.0919	0.0391	5.9000e-004		7.4300e-003	7.4300e-003		7.4300e-003	7.4300e-003		117.2611	117.2611	2.2500e-003	2.1500e-003	117.9579
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0108**	**0.0919**	**0.0391**	**5.9000e-004**		**7.4300e-003**	**7.4300e-003**		**7.4300e-003**	**7.4300e-003**		**117.2611**	**117.2611**	**2.2500e-003**	**2.1500e-003**	**117.9579**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	0.996719	0.0108	0.0919	0.0391	5.9000e-004		7.4300e-003	7.4300e-003		7.4300e-003	7.4300e-003		117.2611	117.2611	2.2500e-003	2.1500e-003	117.9579
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0108**	**0.0919**	**0.0391**	**5.9000e-004**		**7.4300e-003**	**7.4300e-003**		**7.4300e-003**	**7.4300e-003**		**117.2611**	**117.2611**	**2.2500e-003**	**2.1500e-003**	**117.9579**

6.0 Area Detail

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.4208	0.0476	4.1312	2.2000e-004		0.0229	0.0229		0.0229	0.0229	0.0000	7.4445	7.4445	7.1700e-003	0.0000	7.6238
Unmitigated	1.4208	0.0476	4.1312	2.2000e-004		0.0229	0.0229		0.0229	0.0229	0.0000	7.4445	7.4445	7.1700e-003	0.0000	7.6238

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1987					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0973					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1247	0.0476	4.1312	2.2000e-004		0.0229	0.0229		0.0229	0.0229		7.4445	7.4445	7.1700e-003		7.6238
Total	**1.4207**	**0.0476**	**4.1312**	**2.2000e-004**		**0.0229**	**0.0229**		**0.0229**	**0.0229**	**0.0000**	**7.4445**	**7.4445**	**7.1700e-003**	**0.0000**	**7.6238**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1987					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0973					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1247	0.0476	4.1312	2.2000e-004		0.0229	0.0229		0.0229	0.0229		7.4445	7.4445	7.1700e-003		7.6238
Total	**1.4207**	**0.0476**	**4.1312**	**2.2000e-004**		**0.0229**	**0.0229**		**0.0229**	**0.0229**	**0.0000**	**7.4445**	**7.4445**	**7.1700e-003**	**0.0000**	**7.6238**

7.0 Water Detail

7.1 Mitigation Measures Water

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

9865 Santa Fe Flores San Marcos

San Diego County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	77.10	1000sqft	1.77	77,101.00	0
Apartments Mid Rise	50.00	Dwelling Unit	0.43	50,000.00	143

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	539.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 50 units
0.43 acre building footprint
2.2 acres

Construction Phase -

Grading - 17,250 cy export

Architectural Coating - SDAPCD Rule 67.0.1

Vehicle Trips - 6 trips/du weekday trip rates

Woodstoves - No woodstoves or fireplaces

Area Coating - SDAPCD Rule 67.0.1

Trips and VMT -

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	100.00
tblAreaCoating	Area_EF_Parking	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	150
tblAreaCoating	Area_EF_Residential_Interior	250	100
tblFireplaces	FireplaceDayYear	82.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	27.50	0.00
tblFireplaces	NumberNoFireplace	5.00	50.00
tblFireplaces	NumberWood	17.50	0.00
tblGrading	MaterialExported	0.00	17,250.00
tblLandUse	LandUseSquareFeet	77,100.00	77,101.00
tblLandUse	LotAcreage	1.32	0.43
tblVehicleTrips	ST_TR	4.91	5.42
tblVehicleTrips	SU_TR	4.09	4.51
tblVehicleTrips	WD_TR	5.44	6.00
tblWoodstoves	NumberCatalytic	2.50	0.00
tblWoodstoves	NumberNoncatalytic	2.50	0.00
tblWoodstoves	WoodstoveDayYear	82.00	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.5903	1.8616	1.9170	4.5400e-003	0.1179	0.0747	0.1926	0.0359	0.0714	0.1073	0.0000	399.8534	399.8534	0.0544	0.0174	406.4005
Maximum	**0.5903**	**1.8616**	**1.9170**	**4.5400e-003**	**0.1179**	**0.0747**	**0.1926**	**0.0359**	**0.0714**	**0.1073**	**0.0000**	**399.8534**	**399.8534**	**0.0544**	**0.0174**	**406.4005**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.5903	1.8616	1.9170	4.5400e-003	0.1179	0.0747	0.1926	0.0359	0.0714	0.1073	0.0000	399.8531	399.8531	0.0544	0.0174	406.4002
Maximum	**0.5903**	**1.8616**	**1.9170**	**4.5400e-003**	**0.1179**	**0.0747**	**0.1926**	**0.0359**	**0.0714**	**0.1073**	**0.0000**	**399.8531**	**399.8531**	**0.0544**	**0.0174**	**406.4002**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-2-2023	4-1-2023	0.6693	0.6693
2	4-2-2023	7-1-2023	0.5340	0.5340
3	7-2-2023	9-30-2023	0.5340	0.5340
		Highest	0.6693	0.6693

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2478	4.2800e-003	0.3718	2.0000e-005		2.0600e-003	2.0600e-003		2.0600e-003	2.0600e-003	0.0000	0.6078	0.6078	5.9000e-004	0.0000	0.6225
Energy	1.9600e-003	0.0168	7.1300e-003	1.1000e-004		1.3600e-003	1.3600e-003		1.3600e-003	1.3600e-003	0.0000	73.0519	73.0519	3.6500e-003	7.5000e-004	73.3676
Mobile	0.1436	0.1629	1.3522	2.8500e-003	0.3046	2.2300e-003	0.3069	0.0813	2.0800e-003	0.0834	0.0000	268.1350	268.1350	0.0189	0.0120	272.1864
Waste						0.0000	0.0000		0.0000	0.0000	4.6688	0.0000	4.6688	0.2759	0.0000	11.5667
Water						0.0000	0.0000		0.0000	0.0000	1.0335	15.9783	17.0118	0.1071	2.6200e-003	20.4722
Total	**0.3933**	**0.1839**	**1.7311**	**2.9800e-003**	**0.3046**	**5.6500e-003**	**0.3103**	**0.0813**	**5.5000e-003**	**0.0868**	**5.7023**	**357.7730**	**363.4753**	**0.4062**	**0.0154**	**378.2154**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2478	4.2800e-003	0.3718	2.0000e-005		2.0600e-003	2.0600e-003		2.0600e-003	2.0600e-003	0.0000	0.6078	0.6078	5.9000e-004	0.0000	0.6225
Energy	1.9600e-003	0.0168	7.1300e-003	1.1000e-004		1.3600e-003	1.3600e-003		1.3600e-003	1.3600e-003	0.0000	73.0519	73.0519	3.6500e-003	7.5000e-004	73.3676
Mobile	0.1436	0.1629	1.3522	2.8500e-003	0.3046	2.2300e-003	0.3069	0.0813	2.0800e-003	0.0834	0.0000	268.1350	268.1350	0.0189	0.0120	272.1864
Waste						0.0000	0.0000		0.0000	0.0000	4.6688	0.0000	4.6688	0.2759	0.0000	11.5667
Water						0.0000	0.0000		0.0000	0.0000	1.0335	15.9783	17.0118	0.1071	2.6200e-003	20.4722
Total	**0.3933**	**0.1839**	**1.7311**	**2.9800e-003**	**0.3046**	**5.6500e-003**	**0.3103**	**0.0813**	**5.5000e-003**	**0.0868**	**5.7023**	**357.7730**	**363.4753**	**0.4062**	**0.0154**	**378.2154**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/2/2023	1/4/2023	5	3	
2	Grading	Grading	1/5/2023	1/12/2023	5	6	
3	Building Construction	Building Construction	1/13/2023	11/16/2023	5	220	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Paving	Paving	11/17/2023	11/30/2023	5	10	
5	Architectural Coating	Architectural Coating	12/1/2023	12/14/2023	5	10	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 6

Acres of Paving: 1.77

Residential Indoor: 101,250; Residential Outdoor: 33,750; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 4,626 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	2,156.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	68.00	18.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	14.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.3900e-003	0.0000	2.3900e-003	2.6000e-004	0.0000	2.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9500e-003	0.0214	0.0147	4.0000e-005		8.1000e-004	8.1000e-004		7.5000e-004	7.5000e-004	0.0000	3.2317	3.2317	1.0500e-003	0.0000	3.2578
Total	**1.9500e-003**	**0.0214**	**0.0147**	**4.0000e-005**	**2.3900e-003**	**8.1000e-004**	**3.2000e-003**	**2.6000e-004**	**7.5000e-004**	**1.0100e-003**	**0.0000**	**3.2317**	**3.2317**	**1.0500e-003**	**0.0000**	**3.2578**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.7000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0771	0.0771	0.0000	0.0000	0.0778
Total	**3.0000e-005**	**2.0000e-005**	**2.7000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0771**	**0.0771**	**0.0000**	**0.0000**	**0.0778**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.3900e-003	0.0000	2.3900e-003	2.6000e-004	0.0000	2.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9500e-003	0.0214	0.0147	4.0000e-005		8.1000e-004	8.1000e-004		7.5000e-004	7.5000e-004	0.0000	3.2317	3.2317	1.0500e-003	0.0000	3.2578
Total	**1.9500e-003**	**0.0214**	**0.0147**	**4.0000e-005**	**2.3900e-003**	**8.1000e-004**	**3.2000e-003**	**2.6000e-004**	**7.5000e-004**	**1.0100e-003**	**0.0000**	**3.2317**	**3.2317**	**1.0500e-003**	**0.0000**	**3.2578**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.7000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0771	0.0771	0.0000	0.0000	0.0778
Total	**3.0000e-005**	**2.0000e-005**	**2.7000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0771**	**0.0771**	**0.0000**	**0.0000**	**0.0778**

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0225	0.0000	0.0225	0.0105	0.0000	0.0105	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0000e-003	0.0434	0.0261	6.0000e-005		1.8100e-003	1.8100e-003		1.6700e-003	1.6700e-003	0.0000	5.4312	5.4312	1.7600e-003	0.0000	5.4751
Total	**4.0000e-003**	**0.0434**	**0.0261**	**6.0000e-005**	**0.0225**	**1.8100e-003**	**0.0243**	**0.0105**	**1.6700e-003**	**0.0121**	**0.0000**	**5.4312**	**5.4312**	**1.7600e-003**	**0.0000**	**5.4751**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.3800e-003	0.1463	0.0389	6.5000e-004	0.0185	1.2000e-003	0.0197	5.0700e-003	1.1500e-003	6.2200e-003	0.0000	64.6957	64.6957	3.2600e-003	0.0103	67.8431
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	6.9000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	7.0000e-005	0.0000	0.1928	0.1928	1.0000e-005	1.0000e-005	0.1945
Total	**2.4600e-003**	**0.1464**	**0.0396**	**6.5000e-004**	**0.0187**	**1.2000e-003**	**0.0199**	**5.1300e-003**	**1.1500e-003**	**6.2900e-003**	**0.0000**	**64.8884**	**64.8884**	**3.2700e-003**	**0.0103**	**68.0376**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0225	0.0000	0.0225	0.0105	0.0000	0.0105	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0000e-003	0.0434	0.0261	6.0000e-005		1.8100e-003	1.8100e-003		1.6700e-003	1.6700e-003	0.0000	5.4312	5.4312	1.7600e-003	0.0000	5.4751
Total	**4.0000e-003**	**0.0434**	**0.0261**	**6.0000e-005**	**0.0225**	**1.8100e-003**	**0.0243**	**0.0105**	**1.6700e-003**	**0.0121**	**0.0000**	**5.4312**	**5.4312**	**1.7600e-003**	**0.0000**	**5.4751**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.3800e-003	0.1463	0.0389	6.5000e-004	0.0185	1.2000e-003	0.0197	5.0700e-003	1.1500e-003	6.2200e-003	0.0000	64.6957	64.6957	3.2600e-003	0.0103	67.8431
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	6.9000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	7.0000e-005	0.0000	0.1928	0.1928	1.0000e-005	1.0000e-005	0.1945
Total	**2.4600e-003**	**0.1464**	**0.0396**	**6.5000e-004**	**0.0187**	**1.2000e-003**	**0.0199**	**5.1300e-003**	**1.1500e-003**	**6.2900e-003**	**0.0000**	**64.8884**	**64.8884**	**3.2700e-003**	**0.0103**	**68.0376**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1885	1.4986	1.5636	2.7500e-003		0.0675	0.0675		0.0647	0.0647	0.0000	228.4723	228.4723	0.0432	0.0000	229.5525
Total	**0.1885**	**1.4986**	**1.5636**	**2.7500e-003**		**0.0675**	**0.0675**		**0.0647**	**0.0647**	**0.0000**	**228.4723**	**228.4723**	**0.0432**	**0.0000**	**229.5525**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3200e-003	0.0879	0.0310	4.1000e-004	0.0132	5.2000e-004	0.0137	3.8000e-003	5.0000e-004	4.2900e-003	0.0000	39.7288	39.7288	1.2000e-003	5.7600e-003	41.4743
Worker	0.0202	0.0140	0.1709	5.2000e-004	0.0600	3.3000e-004	0.0603	0.0159	3.0000e-004	0.0162	0.0000	48.0594	48.0594	1.4100e-003	1.3200e-003	48.4892
Total	**0.0226**	**0.1019**	**0.2019**	**9.3000e-004**	**0.0731**	**8.5000e-004**	**0.0740**	**0.0197**	**8.0000e-004**	**0.0205**	**0.0000**	**87.7881**	**87.7881**	**2.6100e-003**	**7.0800e-003**	**89.9635**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1885	1.4986	1.5636	2.7500e-003		0.0675	0.0675		0.0647	0.0647	0.0000	228.4720	228.4720	0.0432	0.0000	229.5522
Total	**0.1885**	**1.4986**	**1.5636**	**2.7500e-003**		**0.0675**	**0.0675**		**0.0647**	**0.0647**	**0.0000**	**228.4720**	**228.4720**	**0.0432**	**0.0000**	**229.5522**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3200e-003	0.0879	0.0310	4.1000e-004	0.0132	5.2000e-004	0.0137	3.8000e-003	5.0000e-004	4.2900e-003	0.0000	39.7288	39.7288	1.2000e-003	5.7600e-003	41.4743
Worker	0.0202	0.0140	0.1709	5.2000e-004	0.0600	3.3000e-004	0.0603	0.0159	3.0000e-004	0.0162	0.0000	48.0594	48.0594	1.4100e-003	1.3200e-003	48.4892
Total	**0.0226**	**0.1019**	**0.2019**	**9.3000e-004**	**0.0731**	**8.5000e-004**	**0.0740**	**0.0197**	**8.0000e-004**	**0.0205**	**0.0000**	**87.7881**	**87.7881**	**2.6100e-003**	**7.0800e-003**	**89.9635**

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.4000e-003	0.0431	0.0584	9.0000e-005		2.1700e-003	2.1700e-003		2.0000e-003	2.0000e-003	0.0000	7.7564	7.7564	2.4600e-003	0.0000	7.8179
Paving	2.3200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.7200e-003**	**0.0431**	**0.0584**	**9.0000e-005**		**2.1700e-003**	**2.1700e-003**		**2.0000e-003**	**2.0000e-003**	**0.0000**	**7.7564**	**7.7564**	**2.4600e-003**	**0.0000**	**7.8179**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.4000e-004	1.7100e-003	1.0000e-005	6.0000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4819	0.4819	1.0000e-005	1.0000e-005	0.4862
Total	**2.0000e-004**	**1.4000e-004**	**1.7100e-003**	**1.0000e-005**	**6.0000e-004**	**0.0000**	**6.0000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.4819**	**0.4819**	**1.0000e-005**	**1.0000e-005**	**0.4862**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.4000e-003	0.0431	0.0584	9.0000e-005		2.1700e-003	2.1700e-003		2.0000e-003	2.0000e-003	0.0000	7.7564	7.7564	2.4600e-003	0.0000	7.8178
Paving	2.3200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.7200e-003**	**0.0431**	**0.0584**	**9.0000e-005**		**2.1700e-003**	**2.1700e-003**		**2.0000e-003**	**2.0000e-003**	**0.0000**	**7.7564**	**7.7564**	**2.4600e-003**	**0.0000**	**7.8178**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.4000e-004	1.7100e-003	1.0000e-005	6.0000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4819	0.4819	1.0000e-005	1.0000e-005	0.4862
Total	**2.0000e-004**	**1.4000e-004**	**1.7100e-003**	**1.0000e-005**	**6.0000e-004**	**0.0000**	**6.0000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.4819**	**0.4819**	**1.0000e-005**	**1.0000e-005**	**0.4862**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3627					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.6000e-004	6.5100e-003	9.0600e-003	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	1.2766	1.2766	8.0000e-005	0.0000	1.2785
Total	**0.3637**	**6.5100e-003**	**9.0600e-003**	**1.0000e-005**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**	**0.0000**	**1.2766**	**1.2766**	**8.0000e-005**	**0.0000**	**1.2785**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	1.3000e-004	1.6000e-003	0.0000	5.6000e-004	0.0000	5.6000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4498	0.4498	1.0000e-005	1.0000e-005	0.4538
Total	**1.9000e-004**	**1.3000e-004**	**1.6000e-003**	**0.0000**	**5.6000e-004**	**0.0000**	**5.6000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4498**	**0.4498**	**1.0000e-005**	**1.0000e-005**	**0.4538**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3627					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.6000e-004	6.5100e-003	9.0600e-003	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	1.2766	1.2766	8.0000e-005	0.0000	1.2785
Total	**0.3637**	**6.5100e-003**	**9.0600e-003**	**1.0000e-005**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**	**0.0000**	**1.2766**	**1.2766**	**8.0000e-005**	**0.0000**	**1.2785**

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	1.3000e-004	1.6000e-003	0.0000	5.6000e-004	0.0000	5.6000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4498	0.4498	1.0000e-005	1.0000e-005	0.4538
Total	**1.9000e-004**	**1.3000e-004**	**1.6000e-003**	**0.0000**	**5.6000e-004**	**0.0000**	**5.6000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4498**	**0.4498**	**1.0000e-005**	**1.0000e-005**	**0.4538**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1436	0.1629	1.3522	2.8500e-003	0.3046	2.2300e-003	0.3069	0.0813	2.0800e-003	0.0834	0.0000	268.1350	268.1350	0.0189	0.0120	272.1864
Unmitigated	0.1436	0.1629	1.3522	2.8500e-003	0.3046	2.2300e-003	0.3069	0.0813	2.0800e-003	0.0834	0.0000	268.1350	268.1350	0.0189	0.0120	272.1864

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	300.00	271.00	225.50	814,373	814,373
Parking Lot	0.00	0.00	0.00		
Total	300.00	271.00	225.50	814,373	814,373

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Parking Lot	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949

5.0 Energy Detail

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	53.6380	53.6380	3.2800e-003	4.0000e-004	53.8383
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	53.6380	53.6380	3.2800e-003	4.0000e-004	53.8383
NaturalGas Mitigated	1.9600e-003	0.0168	7.1300e-003	1.1000e-004		1.3600e-003	1.3600e-003		1.3600e-003	1.3600e-003	0.0000	19.4139	19.4139	3.7000e-004	3.6000e-004	19.5293
NaturalGas Unmitigated	1.9600e-003	0.0168	7.1300e-003	1.1000e-004		1.3600e-003	1.3600e-003		1.3600e-003	1.3600e-003	0.0000	19.4139	19.4139	3.7000e-004	3.6000e-004	19.5293

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	363803	1.9600e-003	0.0168	7.1300e-003	1.1000e-004		1.3600e-003	1.3600e-003		1.3600e-003	1.3600e-003	0.0000	19.4139	19.4139	3.7000e-004	3.6000e-004	19.5293
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.9600e-003**	**0.0168**	**7.1300e-003**	**1.1000e-004**		**1.3600e-003**	**1.3600e-003**		**1.3600e-003**	**1.3600e-003**	**0.0000**	**19.4139**	**19.4139**	**3.7000e-004**	**3.6000e-004**	**19.5293**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	363803	1.9600e-003	0.0168	7.1300e-003	1.1000e-004		1.3600e-003	1.3600e-003		1.3600e-003	1.3600e-003	0.0000	19.4139	19.4139	3.7000e-004	3.6000e-004	19.5293
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.9600e-003**	**0.0168**	**7.1300e-003**	**1.1000e-004**		**1.3600e-003**	**1.3600e-003**		**1.3600e-003**	**1.3600e-003**	**0.0000**	**19.4139**	**19.4139**	**3.7000e-004**	**3.6000e-004**	**19.5293**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	192007	47.0284	2.8700e-003	3.5000e-004	47.2041
Parking Lot	26985.3	6.6095	4.0000e-004	5.0000e-005	6.6342
Total		**53.6380**	**3.2700e-003**	**4.0000e-004**	**53.8383**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	192007	47.0284	2.8700e-003	3.5000e-004	47.2041
Parking Lot	26985.3	6.6095	4.0000e-004	5.0000e-005	6.6342
Total		**53.6380**	**3.2700e-003**	**4.0000e-004**	**53.8383**

6.0 Area Detail

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2478	4.2800e-003	0.3718	2.0000e-005		2.0600e-003	2.0600e-003		2.0600e-003	2.0600e-003	0.0000	0.6078	0.6078	5.9000e-004	0.0000	0.6225
Unmitigated	0.2478	4.2800e-003	0.3718	2.0000e-005		2.0600e-003	2.0600e-003		2.0600e-003	2.0600e-003	0.0000	0.6078	0.6078	5.9000e-004	0.0000	0.6225

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0363					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0112	4.2800e-003	0.3718	2.0000e-005		2.0600e-003	2.0600e-003		2.0600e-003	2.0600e-003	0.0000	0.6078	0.6078	5.9000e-004	0.0000	0.6225
Total	**0.2478**	**4.2800e-003**	**0.3718**	**2.0000e-005**		**2.0600e-003**	**2.0600e-003**		**2.0600e-003**	**2.0600e-003**	**0.0000**	**0.6078**	**0.6078**	**5.9000e-004**	**0.0000**	**0.6225**

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0363					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0112	4.2800e-003	0.3718	2.0000e-005		2.0600e-003	2.0600e-003		2.0600e-003	2.0600e-003	0.0000	0.6078	0.6078	5.9000e-004	0.0000	0.6225
Total	**0.2478**	**4.2800e-003**	**0.3718**	**2.0000e-005**		**2.0600e-003**	**2.0600e-003**		**2.0600e-003**	**2.0600e-003**	**0.0000**	**0.6078**	**0.6078**	**5.9000e-004**	**0.0000**	**0.6225**

7.0 Water Detail

7.1 Mitigation Measures Water

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	17.0118	0.1071	2.6200e-003	20.4722
Unmitigated	17.0118	0.1071	2.6200e-003	20.4722

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	3.2577 / 2.05377	17.0118	0.1071	2.6200e-003	20.4722
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**17.0118**	**0.1071**	**2.6200e-003**	**20.4722**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	3.2577 / 2.05377	17.0118	0.1071	2.6200e-003	20.4722
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**17.0118**	**0.1071**	**2.6200e-003**	**20.4722**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.6688	0.2759	0.0000	11.5667
Unmitigated	4.6688	0.2759	0.0000	11.5667

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	23	4.6688	0.2759	0.0000	11.5667
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**4.6688**	**0.2759**	**0.0000**	**11.5667**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	23	4.6688	0.2759	0.0000	11.5667
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**4.6688**	**0.2759**	**0.0000**	**11.5667**

9.0 Operational Offroad

9865 Santa Fe Flores San Marcos - San Diego County APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

ATTACHMENT 2

CalEEMod Output – Industrial and Commercial Project Emissions

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Santa Fe Residential - Existing Designations

San Diego County APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	38.00	1000sqft	1.47	38,000.00	0
Strip Mall	24.00	1000sqft	0.80	24,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	539.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 1.47 acres LI, 0.8 acre C

Construction Phase -

Architectural Coating - SDAPCD Rule 67.0.1

Vehicle Trips - SANDAG trip rates

Area Coating - SDAPCD Rule 67.0.1

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	100.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblAreaCoating	Area_EF_Nonresidential_Interior	250	100
tblLandUse	LotAcreage	0.87	1.47
tblLandUse	LotAcreage	0.55	0.80
tblVehicleTrips	ST_TR	1.99	3.21
tblVehicleTrips	ST_TR	42.04	37.94
tblVehicleTrips	SU_TR	5.00	8.06
tblVehicleTrips	SU_TR	20.43	18.44
tblVehicleTrips	WD_TR	4.96	8.00
tblVehicleTrips	WD_TR	44.32	40.00

2.0 Emissions Summary

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	64.8647	14.4867	14.9224	0.0287	7.1647	0.6173	7.7695	3.4465	0.5915	4.0029	0.0000	2,679.3694	2,679.3694	0.7698	0.0368	2,701.4625
Maximum	**64.8647**	**14.4867**	**14.9224**	**0.0287**	**7.1647**	**0.6173**	**7.7695**	**3.4465**	**0.5915**	**4.0029**	**0.0000**	**2,679.3694**	**2,679.3694**	**0.7698**	**0.0368**	**2,701.4625**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	64.8647	14.4867	14.9224	0.0287	7.1647	0.6173	7.7695	3.4465	0.5915	4.0029	0.0000	2,679.3694	2,679.3694	0.7698	0.0368	2,701.4625
Maximum	**64.8647**	**14.4867**	**14.9224**	**0.0287**	**7.1647**	**0.6173**	**7.7695**	**3.4465**	**0.5915**	**4.0029**	**0.0000**	**2,679.3694**	**2,679.3694**	**0.7698**	**0.0368**	**2,701.4625**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5045	6.0000e-005	6.3200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0136	0.0136	4.0000e-005		0.0145
Energy	0.0145	0.1319	0.1108	7.9000e-004		0.0100	0.0100		0.0100	0.0100		158.2724	158.2724	3.0300e-003	2.9000e-003	159.2129
Mobile	2.9376	2.9118	24.5493	0.0460	4.9946	0.0375	5.0321	1.3305	0.0349	1.3654		4,767.1643	4,767.1643	0.3947	0.2400	4,848.5349
Total	**4.4567**	**3.0437**	**24.6664**	**0.0468**	**4.9946**	**0.0475**	**5.0421**	**1.3305**	**0.0450**	**1.3755**		**4,925.4502**	**4,925.4502**	**0.3977**	**0.2429**	**5,007.7623**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5045	6.0000e-005	6.3200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0136	0.0136	4.0000e-005		0.0145
Energy	0.0145	0.1319	0.1108	7.9000e-004		0.0100	0.0100		0.0100	0.0100		158.2724	158.2724	3.0300e-003	2.9000e-003	159.2129
Mobile	2.9376	2.9118	24.5493	0.0460	4.9946	0.0375	5.0321	1.3305	0.0349	1.3654		4,767.1643	4,767.1643	0.3947	0.2400	4,848.5349
Total	**4.4567**	**3.0437**	**24.6664**	**0.0468**	**4.9946**	**0.0475**	**5.0421**	**1.3305**	**0.0450**	**1.3755**		**4,925.4502**	**4,925.4502**	**0.3977**	**0.2429**	**5,007.7623**

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/2/2023	1/4/2023	5	3	
2	Grading	Grading	1/5/2023	1/12/2023	5	6	
3	Building Construction	Building Construction	1/13/2023	11/16/2023	5	220	
4	Paving	Paving	11/17/2023	11/30/2023	5	10	
5	Architectural Coating	Architectural Coating	12/1/2023	12/14/2023	5	10	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 6

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 93,000; Non-Residential Outdoor: 31,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Scrapers	1	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	24.00	10.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3027	14.2802	9.7820	0.0245		0.5419	0.5419		0.4985	0.4985		2,374.8634	2,374.8634	0.7681		2,394.0654
Total	**1.3027**	**14.2802**	**9.7820**	**0.0245**	**1.5908**	**0.5419**	**2.1326**	**0.1718**	**0.4985**	**0.6703**		**2,374.8634**	**2,374.8634**	**0.7681**		**2,394.0654**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0237	0.0153	0.1829	5.5000e-004	0.0657	3.5000e-004	0.0661	0.0174	3.3000e-004	0.0178		56.1616	56.1616	1.6900e-003	1.5800e-003	56.6755
Total	**0.0237**	**0.0153**	**0.1829**	**5.5000e-004**	**0.0657**	**3.5000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**56.1616**	**56.1616**	**1.6900e-003**	**1.5800e-003**	**56.6755**

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3027	14.2802	9.7820	0.0245		0.5419	0.5419		0.4985	0.4985	0.0000	2,374.8634	2,374.8634	0.7681		2,394.0654
Total	**1.3027**	**14.2802**	**9.7820**	**0.0245**	**1.5908**	**0.5419**	**2.1326**	**0.1718**	**0.4985**	**0.6703**	**0.0000**	**2,374.8634**	**2,374.8634**	**0.7681**		**2,394.0654**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0237	0.0153	0.1829	5.5000e-004	0.0657	3.5000e-004	0.0661	0.0174	3.3000e-004	0.0178		56.1616	56.1616	1.6900e-003	1.5800e-003	56.6755
Total	**0.0237**	**0.0153**	**0.1829**	**5.5000e-004**	**0.0657**	**3.5000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**56.1616**	**56.1616**	**1.6900e-003**	**1.5800e-003**	**56.6755**

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560		1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**7.0826**	**0.6044**	**7.6869**	**3.4247**	**0.5560**	**3.9807**		**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0297	0.0191	0.2287	6.9000e-004	0.0822	4.4000e-004	0.0826	0.0218	4.1000e-004	0.0222		70.2020	70.2020	2.1200e-003	1.9800e-003	70.8444
Total	**0.0297**	**0.0191**	**0.2287**	**6.9000e-004**	**0.0822**	**4.4000e-004**	**0.0826**	**0.0218**	**4.1000e-004**	**0.0222**		**70.2020**	**70.2020**	**2.1200e-003**	**1.9800e-003**	**70.8444**

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560	0.0000	1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**7.0826**	**0.6044**	**7.6869**	**3.4247**	**0.5560**	**3.9807**	**0.0000**	**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0297	0.0191	0.2287	6.9000e-004	0.0822	4.4000e-004	0.0826	0.0218	4.1000e-004	0.0222		70.2020	70.2020	2.1200e-003	1.9800e-003	70.8444
Total	**0.0297**	**0.0191**	**0.2287**	**6.9000e-004**	**0.0822**	**4.4000e-004**	**0.0826**	**0.0218**	**4.1000e-004**	**0.0222**		**70.2020**	**70.2020**	**2.1200e-003**	**1.9800e-003**	**70.8444**

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880		2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**		**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0116	0.4467	0.1592	2.0500e-003	0.0677	2.6200e-003	0.0704	0.0195	2.5100e-003	0.0220		221.3612	221.3612	6.6700e-003	0.0321	231.0880
Worker	0.0712	0.0458	0.5488	1.6500e-003	0.1972	1.0600e-003	0.1982	0.0523	9.8000e-004	0.0533		168.4849	168.4849	5.0800e-003	4.7500e-003	170.0266
Total	**0.0828**	**0.4926**	**0.7079**	**3.7000e-003**	**0.2649**	**3.6800e-003**	**0.2686**	**0.0718**	**3.4900e-003**	**0.0753**		**389.8461**	**389.8461**	**0.0118**	**0.0368**	**401.1146**

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880	0.0000	2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**	**0.0000**	**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0116	0.4467	0.1592	2.0500e-003	0.0677	2.6200e-003	0.0704	0.0195	2.5100e-003	0.0220		221.3612	221.3612	6.6700e-003	0.0321	231.0880
Worker	0.0712	0.0458	0.5488	1.6500e-003	0.1972	1.0600e-003	0.1982	0.0523	9.8000e-004	0.0533		168.4849	168.4849	5.0800e-003	4.7500e-003	170.0266
Total	**0.0828**	**0.4926**	**0.7079**	**3.7000e-003**	**0.2649**	**3.6800e-003**	**0.2686**	**0.0718**	**3.4900e-003**	**0.0753**		**389.8461**	**389.8461**	**0.0118**	**0.0368**	**401.1146**

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8802	8.6098	11.6840	0.0179		0.4338	0.4338		0.4003	0.4003		1,709.9926	1,709.9926	0.5420		1,723.5414
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8802**	**8.6098**	**11.6840**	**0.0179**		**0.4338**	**0.4338**		**0.4003**	**0.4003**		**1,709.9926**	**1,709.9926**	**0.5420**		**1,723.5414**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0445	0.0287	0.3430	1.0300e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		105.3031	105.3031	3.1800e-003	2.9700e-003	106.2666
Total	**0.0445**	**0.0287**	**0.3430**	**1.0300e-003**	**0.1232**	**6.6000e-004**	**0.1239**	**0.0327**	**6.1000e-004**	**0.0333**		**105.3031**	**105.3031**	**3.1800e-003**	**2.9700e-003**	**106.2666**

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8802	8.6098	11.6840	0.0179		0.4338	0.4338		0.4003	0.4003	0.0000	1,709.9926	1,709.9926	0.5420		1,723.5414
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8802**	**8.6098**	**11.6840**	**0.0179**		**0.4338**	**0.4338**		**0.4003**	**0.4003**	**0.0000**	**1,709.9926**	**1,709.9926**	**0.5420**		**1,723.5414**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0445	0.0287	0.3430	1.0300e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		105.3031	105.3031	3.1800e-003	2.9700e-003	106.2666
Total	**0.0445**	**0.0287**	**0.3430**	**1.0300e-003**	**0.1232**	**6.6000e-004**	**0.1239**	**0.0327**	**6.1000e-004**	**0.0333**		**105.3031**	**105.3031**	**3.1800e-003**	**2.9700e-003**	**106.2666**

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	64.6583					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**64.8499**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0148	9.5500e-003	0.1143	3.4000e-004	0.0411	2.2000e-004	0.0413	0.0109	2.0000e-004	0.0111		35.1010	35.1010	1.0600e-003	9.9000e-004	35.4222
Total	**0.0148**	**9.5500e-003**	**0.1143**	**3.4000e-004**	**0.0411**	**2.2000e-004**	**0.0413**	**0.0109**	**2.0000e-004**	**0.0111**		**35.1010**	**35.1010**	**1.0600e-003**	**9.9000e-004**	**35.4222**

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	64.6583					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**64.8499**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0148	9.5500e-003	0.1143	3.4000e-004	0.0411	2.2000e-004	0.0413	0.0109	2.0000e-004	0.0111		35.1010	35.1010	1.0600e-003	9.9000e-004	35.4222
Total	**0.0148**	**9.5500e-003**	**0.1143**	**3.4000e-004**	**0.0411**	**2.2000e-004**	**0.0413**	**0.0109**	**2.0000e-004**	**0.0111**		**35.1010**	**35.1010**	**1.0600e-003**	**9.9000e-004**	**35.4222**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.9376	2.9118	24.5493	0.0460	4.9946	0.0375	5.0321	1.3305	0.0349	1.3654		4,767.1643	4,767.1643	0.3947	0.2400	4,848.5349
Unmitigated	2.9376	2.9118	24.5493	0.0460	4.9946	0.0375	5.0321	1.3305	0.0349	1.3654		4,767.1643	4,767.1643	0.3947	0.2400	4,848.5349

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	304.00	121.98	306.28	812,567	812,567
Strip Mall	960.00	910.56	442.56	1,353,715	1,353,715
Total	1,264.00	1,032.54	748.84	2,166,282	2,166,282

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Strip Mall	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0145	0.1319	0.1108	7.9000e-004		0.0100	0.0100		0.0100	0.0100		158.2724	158.2724	3.0300e-003	2.9000e-003	159.2129
NaturalGas Unmitigated	0.0145	0.1319	0.1108	7.9000e-004		0.0100	0.0100		0.0100	0.0100		158.2724	158.2724	3.0300e-003	2.9000e-003	159.2129

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	1199.34	0.0129	0.1176	0.0988	7.1000e-004		8.9400e-003	8.9400e-003		8.9400e-003	8.9400e-003		141.0991	141.0991	2.7000e-003	2.5900e-003	141.9376
Strip Mall	145.973	1.5700e-003	0.0143	0.0120	9.0000e-005		1.0900e-003	1.0900e-003		1.0900e-003	1.0900e-003		17.1733	17.1733	3.3000e-004	3.1000e-004	17.2753
Total		**0.0145**	**0.1319**	**0.1108**	**8.0000e-004**		**0.0100**	**0.0100**		**0.0100**	**0.0100**		**158.2724**	**158.2724**	**3.0300e-003**	**2.9000e-003**	**159.2129**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	1.19934	0.0129	0.1176	0.0988	7.1000e-004		8.9400e-003	8.9400e-003		8.9400e-003	8.9400e-003		141.0991	141.0991	2.7000e-003	2.5900e-003	141.9376
Strip Mall	0.145973	1.5700e-003	0.0143	0.0120	9.0000e-005		1.0900e-003	1.0900e-003		1.0900e-003	1.0900e-003		17.1733	17.1733	3.3000e-004	3.1000e-004	17.2753
Total		**0.0145**	**0.1319**	**0.1108**	**8.0000e-004**		**0.0100**	**0.0100**		**0.0100**	**0.0100**		**158.2724**	**158.2724**	**3.0300e-003**	**2.9000e-003**	**159.2129**

6.0 Area Detail

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.5045	6.0000e-005	6.3200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0136	0.0136	4.0000e-005		0.0145
Unmitigated	1.5045	6.0000e-005	6.3200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0136	0.0136	4.0000e-005		0.0145

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1772					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.3268					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.8000e-004	6.0000e-005	6.3200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0136	0.0136	4.0000e-005		0.0145
Total	**1.5045**	**6.0000e-005**	**6.3200e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0136**	**0.0136**	**4.0000e-005**		**0.0145**

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1772					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.3268					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.8000e-004	6.0000e-005	6.3200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0136	0.0136	4.0000e-005		0.0145
Total	**1.5045**	**6.0000e-005**	**6.3200e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0136**	**0.0136**	**4.0000e-005**		**0.0145**

7.0 Water Detail

7.1 Mitigation Measures Water

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Santa Fe Residential - Existing Designations

San Diego County APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	38.00	1000sqft	1.47	38,000.00	0
Strip Mall	24.00	1000sqft	0.80	24,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	539.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 1.47 acres LI, 0.8 acre C

Construction Phase -

Architectural Coating - SDAPCD Rule 67.0.1

Vehicle Trips - SANDAG trip rates

Area Coating - SDAPCD Rule 67.0.1

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	100.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblAreaCoating	Area_EF_Nonresidential_Interior	250	100
tblLandUse	LotAcreage	0.87	1.47
tblLandUse	LotAcreage	0.55	0.80
tblVehicleTrips	ST_TR	1.99	3.21
tblVehicleTrips	ST_TR	42.04	37.94
tblVehicleTrips	SU_TR	5.00	8.06
tblVehicleTrips	SU_TR	20.43	18.44
tblVehicleTrips	WD_TR	4.96	8.00
tblVehicleTrips	WD_TR	44.32	40.00

2.0 Emissions Summary

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	64.8636	14.4846	14.9465	0.0288	7.1647	0.6173	7.7695	3.4465	0.5915	4.0029	0.0000	2,688.8551	2,688.8551	0.7697	0.0364	2,710.8123
Maximum	**64.8636**	**14.4846**	**14.9465**	**0.0288**	**7.1647**	**0.6173**	**7.7695**	**3.4465**	**0.5915**	**4.0029**	**0.0000**	**2,688.8551**	**2,688.8551**	**0.7697**	**0.0364**	**2,710.8123**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	64.8636	14.4846	14.9465	0.0288	7.1647	0.6173	7.7695	3.4465	0.5915	4.0029	0.0000	2,688.8551	2,688.8551	0.7697	0.0364	2,710.8123
Maximum	**64.8636**	**14.4846**	**14.9465**	**0.0288**	**7.1647**	**0.6173**	**7.7695**	**3.4465**	**0.5915**	**4.0029**	**0.0000**	**2,688.8551**	**2,688.8551**	**0.7697**	**0.0364**	**2,710.8123**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5045	6.0000e-005	6.3200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0136	0.0136	4.0000e-005		0.0145
Energy	0.0145	0.1319	0.1108	7.9000e-004		0.0100	0.0100		0.0100	0.0100		158.2724	158.2724	3.0300e-003	2.9000e-003	159.2129
Mobile	3.0364	2.6813	23.4849	0.0481	4.9946	0.0375	5.0321	1.3305	0.0349	1.3654		4,980.2169	4,980.2169	0.3675	0.2269	5,057.0286
Total	**4.5554**	**2.8132**	**23.6020**	**0.0489**	**4.9946**	**0.0475**	**5.0421**	**1.3305**	**0.0450**	**1.3754**		**5,138.5028**	**5,138.5028**	**0.3706**	**0.2298**	**5,216.2559**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5045	6.0000e-005	6.3200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0136	0.0136	4.0000e-005		0.0145
Energy	0.0145	0.1319	0.1108	7.9000e-004		0.0100	0.0100		0.0100	0.0100		158.2724	158.2724	3.0300e-003	2.9000e-003	159.2129
Mobile	3.0364	2.6813	23.4849	0.0481	4.9946	0.0375	5.0321	1.3305	0.0349	1.3654		4,980.2169	4,980.2169	0.3675	0.2269	5,057.0286
Total	**4.5554**	**2.8132**	**23.6020**	**0.0489**	**4.9946**	**0.0475**	**5.0421**	**1.3305**	**0.0450**	**1.3754**		**5,138.5028**	**5,138.5028**	**0.3706**	**0.2298**	**5,216.2559**

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/2/2023	1/4/2023	5	3	
2	Grading	Grading	1/5/2023	1/12/2023	5	6	
3	Building Construction	Building Construction	1/13/2023	11/16/2023	5	220	
4	Paving	Paving	11/17/2023	11/30/2023	5	10	
5	Architectural Coating	Architectural Coating	12/1/2023	12/14/2023	5	10	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 6

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 93,000; Non-Residential Outdoor: 31,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Scrapers	1	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	24.00	10.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3027	14.2802	9.7820	0.0245		0.5419	0.5419		0.4985	0.4985		2,374.8634	2,374.8634	0.7681		2,394.0654
Total	**1.3027**	**14.2802**	**9.7820**	**0.0245**	**1.5908**	**0.5419**	**2.1326**	**0.1718**	**0.4985**	**0.6703**		**2,374.8634**	**2,374.8634**	**0.7681**		**2,394.0654**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0219	0.0136	0.1925	5.8000e-004	0.0657	3.5000e-004	0.0661	0.0174	3.3000e-004	0.0178		59.4283	59.4283	1.5900e-003	1.4600e-003	59.9041
Total	**0.0219**	**0.0136**	**0.1925**	**5.8000e-004**	**0.0657**	**3.5000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**59.4283**	**59.4283**	**1.5900e-003**	**1.4600e-003**	**59.9041**

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3027	14.2802	9.7820	0.0245		0.5419	0.5419		0.4985	0.4985	0.0000	2,374.8634	2,374.8634	0.7681		2,394.0654
Total	**1.3027**	**14.2802**	**9.7820**	**0.0245**	**1.5908**	**0.5419**	**2.1326**	**0.1718**	**0.4985**	**0.6703**	**0.0000**	**2,374.8634**	**2,374.8634**	**0.7681**		**2,394.0654**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0219	0.0136	0.1925	5.8000e-004	0.0657	3.5000e-004	0.0661	0.0174	3.3000e-004	0.0178		59.4283	59.4283	1.5900e-003	1.4600e-003	59.9041
Total	**0.0219**	**0.0136**	**0.1925**	**5.8000e-004**	**0.0657**	**3.5000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**59.4283**	**59.4283**	**1.5900e-003**	**1.4600e-003**	**59.9041**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560		1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**7.0826**	**0.6044**	**7.6869**	**3.4247**	**0.5560**	**3.9807**		**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0274	0.0170	0.2406	7.3000e-004	0.0822	4.4000e-004	0.0826	0.0218	4.1000e-004	0.0222		74.2854	74.2854	1.9900e-003	1.8300e-003	74.8801
Total	**0.0274**	**0.0170**	**0.2406**	**7.3000e-004**	**0.0822**	**4.4000e-004**	**0.0826**	**0.0218**	**4.1000e-004**	**0.0222**		**74.2854**	**74.2854**	**1.9900e-003**	**1.8300e-003**	**74.8801**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560	0.0000	1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**7.0826**	**0.6044**	**7.6869**	**3.4247**	**0.5560**	**3.9807**	**0.0000**	**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0274	0.0170	0.2406	7.3000e-004	0.0822	4.4000e-004	0.0826	0.0218	4.1000e-004	0.0222		74.2854	74.2854	1.9900e-003	1.8300e-003	74.8801
Total	**0.0274**	**0.0170**	**0.2406**	**7.3000e-004**	**0.0822**	**4.4000e-004**	**0.0826**	**0.0218**	**4.1000e-004**	**0.0222**		**74.2854**	**74.2854**	**1.9900e-003**	**1.8300e-003**	**74.8801**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880		2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**		**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0119	0.4287	0.1545	2.0500e-003	0.0677	2.6100e-003	0.0703	0.0195	2.5000e-003	0.0220		221.0470	221.0470	6.7000e-003	0.0320	230.7522
Worker	0.0656	0.0408	0.5775	1.7400e-003	0.1972	1.0600e-003	0.1982	0.0523	9.8000e-004	0.0533		178.2849	178.2849	4.7700e-003	4.3900e-003	179.7122
Total	**0.0776**	**0.4694**	**0.7320**	**3.7900e-003**	**0.2649**	**3.6700e-003**	**0.2686**	**0.0718**	**3.4800e-003**	**0.0753**		**399.3318**	**399.3318**	**0.0115**	**0.0364**	**410.4644**

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880	0.0000	2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**	**0.0000**	**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0119	0.4287	0.1545	2.0500e-003	0.0677	2.6100e-003	0.0703	0.0195	2.5000e-003	0.0220		221.0470	221.0470	6.7000e-003	0.0320	230.7522
Worker	0.0656	0.0408	0.5775	1.7400e-003	0.1972	1.0600e-003	0.1982	0.0523	9.8000e-004	0.0533		178.2849	178.2849	4.7700e-003	4.3900e-003	179.7122
Total	**0.0776**	**0.4694**	**0.7320**	**3.7900e-003**	**0.2649**	**3.6700e-003**	**0.2686**	**0.0718**	**3.4800e-003**	**0.0753**		**399.3318**	**399.3318**	**0.0115**	**0.0364**	**410.4644**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8802	8.6098	11.6840	0.0179		0.4338	0.4338		0.4003	0.4003		1,709.9926	1,709.9926	0.5420		1,723.5414
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8802**	**8.6098**	**11.6840**	**0.0179**		**0.4338**	**0.4338**		**0.4003**	**0.4003**		**1,709.9926**	**1,709.9926**	**0.5420**		**1,723.5414**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0410	0.0255	0.3610	1.0900e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		111.4280	111.4280	2.9800e-003	2.7400e-003	112.3201
Total	**0.0410**	**0.0255**	**0.3610**	**1.0900e-003**	**0.1232**	**6.6000e-004**	**0.1239**	**0.0327**	**6.1000e-004**	**0.0333**		**111.4280**	**111.4280**	**2.9800e-003**	**2.7400e-003**	**112.3201**

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8802	8.6098	11.6840	0.0179		0.4338	0.4338		0.4003	0.4003	0.0000	1,709.9926	1,709.9926	0.5420		1,723.5414
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8802**	**8.6098**	**11.6840**	**0.0179**		**0.4338**	**0.4338**		**0.4003**	**0.4003**	**0.0000**	**1,709.9926**	**1,709.9926**	**0.5420**		**1,723.5414**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0410	0.0255	0.3610	1.0900e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		111.4280	111.4280	2.9800e-003	2.7400e-003	112.3201
Total	**0.0410**	**0.0255**	**0.3610**	**1.0900e-003**	**0.1232**	**6.6000e-004**	**0.1239**	**0.0327**	**6.1000e-004**	**0.0333**		**111.4280**	**111.4280**	**2.9800e-003**	**2.7400e-003**	**112.3201**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	64.6583					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**64.8499**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0137	8.4900e-003	0.1203	3.6000e-004	0.0411	2.2000e-004	0.0413	0.0109	2.0000e-004	0.0111		37.1427	37.1427	9.9000e-004	9.1000e-004	37.4400
Total	**0.0137**	**8.4900e-003**	**0.1203**	**3.6000e-004**	**0.0411**	**2.2000e-004**	**0.0413**	**0.0109**	**2.0000e-004**	**0.0111**		**37.1427**	**37.1427**	**9.9000e-004**	**9.1000e-004**	**37.4400**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	64.6583					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**64.8499**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0137	8.4900e-003	0.1203	3.6000e-004	0.0411	2.2000e-004	0.0413	0.0109	2.0000e-004	0.0111		37.1427	37.1427	9.9000e-004	9.1000e-004	37.4400
Total	**0.0137**	**8.4900e-003**	**0.1203**	**3.6000e-004**	**0.0411**	**2.2000e-004**	**0.0413**	**0.0109**	**2.0000e-004**	**0.0111**		**37.1427**	**37.1427**	**9.9000e-004**	**9.1000e-004**	**37.4400**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.0364	2.6813	23.4849	0.0481	4.9946	0.0375	5.0321	1.3305	0.0349	1.3654		4,980.2169	4,980.2169	0.3675	0.2269	5,057.0286
Unmitigated	3.0364	2.6813	23.4849	0.0481	4.9946	0.0375	5.0321	1.3305	0.0349	1.3654		4,980.2169	4,980.2169	0.3675	0.2269	5,057.0286

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	304.00	121.98	306.28	812,567	812,567
Strip Mall	960.00	910.56	442.56	1,353,715	1,353,715
Total	1,264.00	1,032.54	748.84	2,166,282	2,166,282

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Strip Mall	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0145	0.1319	0.1108	7.9000e-004		0.0100	0.0100		0.0100	0.0100		158.2724	158.2724	3.0300e-003	2.9000e-003	159.2129
NaturalGas Unmitigated	0.0145	0.1319	0.1108	7.9000e-004		0.0100	0.0100		0.0100	0.0100		158.2724	158.2724	3.0300e-003	2.9000e-003	159.2129

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	1199.34	0.0129	0.1176	0.0988	7.1000e-004		8.9400e-003	8.9400e-003		8.9400e-003	8.9400e-003		141.0991	141.0991	2.7000e-003	2.5900e-003	141.9376
Strip Mall	145.973	1.5700e-003	0.0143	0.0120	9.0000e-005		1.0900e-003	1.0900e-003		1.0900e-003	1.0900e-003		17.1733	17.1733	3.3000e-004	3.1000e-004	17.2753
Total		**0.0145**	**0.1319**	**0.1108**	**8.0000e-004**		**0.0100**	**0.0100**		**0.0100**	**0.0100**		**158.2724**	**158.2724**	**3.0300e-003**	**2.9000e-003**	**159.2129**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	1.19934	0.0129	0.1176	0.0988	7.1000e-004		8.9400e-003	8.9400e-003		8.9400e-003	8.9400e-003		141.0991	141.0991	2.7000e-003	2.5900e-003	141.9376
Strip Mall	0.145973	1.5700e-003	0.0143	0.0120	9.0000e-005		1.0900e-003	1.0900e-003		1.0900e-003	1.0900e-003		17.1733	17.1733	3.3000e-004	3.1000e-004	17.2753
Total		**0.0145**	**0.1319**	**0.1108**	**8.0000e-004**		**0.0100**	**0.0100**		**0.0100**	**0.0100**		**158.2724**	**158.2724**	**3.0300e-003**	**2.9000e-003**	**159.2129**

6.0 Area Detail

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.5045	6.0000e-005	6.3200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0136	0.0136	4.0000e-005		0.0145
Unmitigated	1.5045	6.0000e-005	6.3200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0136	0.0136	4.0000e-005		0.0145

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1772					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.3268					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.8000e-004	6.0000e-005	6.3200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0136	0.0136	4.0000e-005		0.0145
Total	**1.5045**	**6.0000e-005**	**6.3200e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0136**	**0.0136**	**4.0000e-005**		**0.0145**

Santa Fe Residential - Existing Designations - San Diego County APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1772					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.3268					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.8000e-004	6.0000e-005	6.3200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0136	0.0136	4.0000e-005		0.0145
Total	**1.5045**	**6.0000e-005**	**6.3200e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0136**	**0.0136**	**4.0000e-005**		**0.0145**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B

Biological Resources Report

RECON

An Employee-Owned Company

November 29, ~~March 22,~~ 2022

Mr. Paul Mayer
Manager & General Partner
Santa Fe Flores LP
P.O. Box 903
Rancho Santa Fe, CA 92067

Reference: Biological Resources Report for the Santa Fe Flores Project (RECON Number 9865)

Dear Mr. Mayer:

This report summarizes the biological resources survey and results, assessment for potential impacts on biological resources, and proposed avoidance measures for the Santa Fe Flores project (project).

Summary

RECON Environmental, Inc. (RECON), on behalf of the City of San Marcos (City) Development Services Department Planning Division, has prepared this biological resources report for the proposed Santa Fe Flores project (project). RECON conducted a biological survey on March 3, 2022, and determined that the project had one sensitive plant species, decumbent goldenbush (*Isocoma menziesii* var. *decumbens*), on-site and has the potential to support migratory and nesting birds, including Cooper's hawk (*Accipiter cooperii*). Avoidance measures to prevent potential impacts associated with project construction is to conduct pre-construction nesting bird surveys.

1.0 Introduction, Project Description, Location, and Setting

This report describes the results of the biological resources survey for the project conducted by RECON biologist Jade Woll on March 3, 2022. The proposed project is located east of North Las Flores Drive, in San Marcos, California, north of South Santa Fe Avenue and east of State Route 78 (Figure 1). The biological study area (BSA) occurs within assessor's parcel numbers 217-161-18 and 217-161-19, and is located in Los Vallecitos de San Marcos Land Grant, of the U.S. Geological Survey (USGS) 7.5-minute topographic map, San Marcos (Figure 2; USGS 1996). The proposed project is located within a developed area, surrounded by residential and commercial properties on all sides of the project (Figure 3). A 2.5-acre BSA, including all areas to be potentially impacted, were evaluated to determine the current condition of the biological resources present within the project (see Attachment 1: Current Site Photographs, and Figures 2 and 3). The BSA is outside of and situated approximately 1,500 feet south of the North San Diego County Multiple Species Conservation preserve lands known as Plan Pre-Approved Mitigation Area (Figure 4).

The 2.5-acre project site is undeveloped and is currently designated Commercial and Light Industrial in the City General Plan and zoned as Commercial and Light Industrial. The project would be located on a previously graded site and require a General Plan Amendment and Rezone to Multi-family Residential to allow the development of 50 multi-family residential units that would be three to four stories. The project would also include a 1,000-square-foot roof deck for fitness and leisure, a 1,170-square-foot ground floor leasing and amenity center, and a 120-square-foot ground floor fire command center. Vehicle parking would include a total of 107 surface parking spaces and bicycle parking would include a total of 11 lockers or bike storage rooms located on the upper and lower levels.

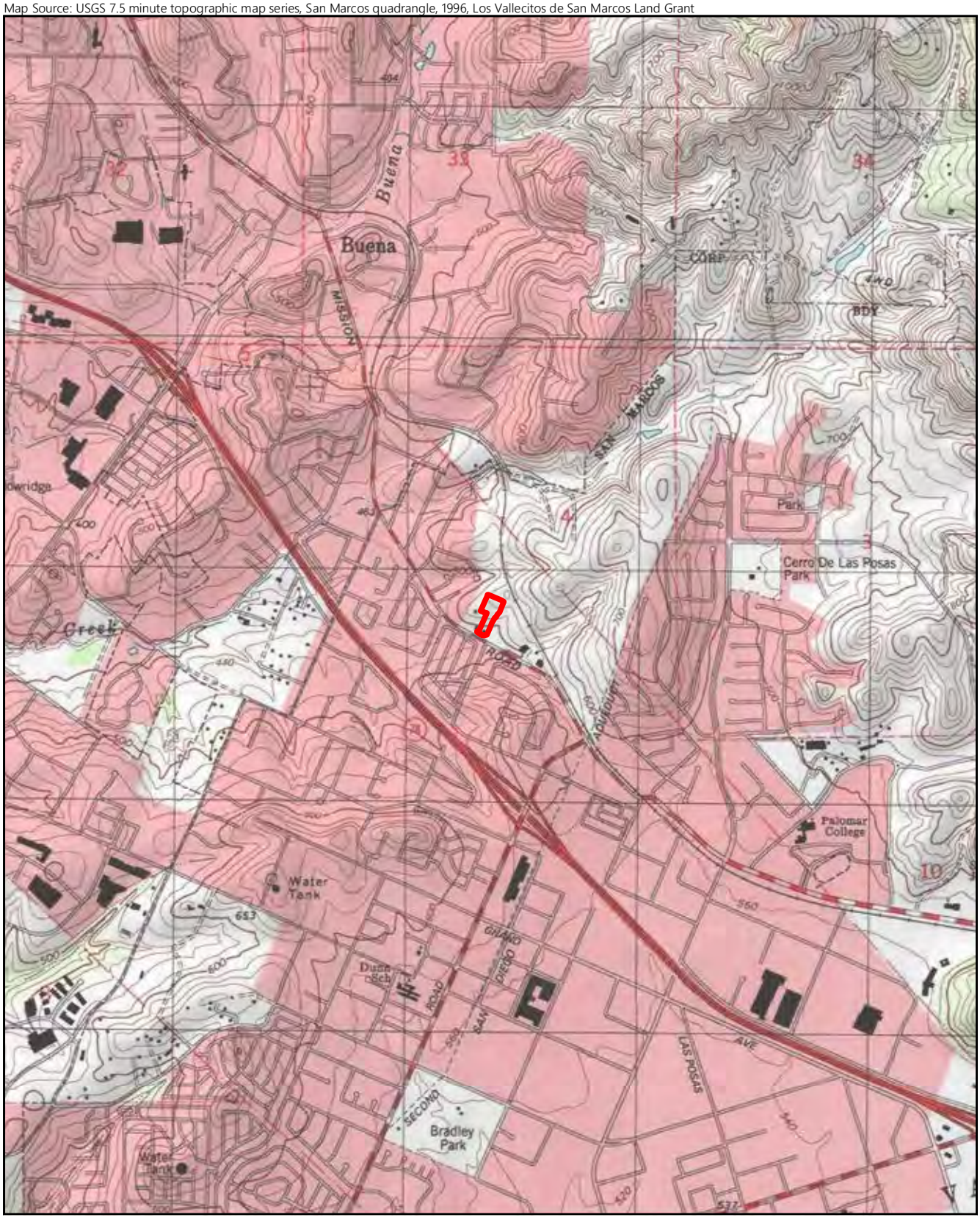
Project Location

RECON

M:\JOBS5\9865\common_gis\fig1.mxd 03/08/2022 bma

FIGURE 1
Regional Location

Map Source: USGS 7.5 minute topographic map series, San Marcos quadrangle, 1996, Los Vallecitos de San Marcos Land Grant



Biological Study Area

RECON

M:\JOBS5\9865\common_gis\fig2_bio.mxd 03/21/2022 bma

FIGURE 2
Biological Study Area on USGS Map

Image Source: NearMap (flown January 2022)

Biological Study Area

RECON

M:\JOBS5\9865\common_gis\fig3_bio.mxd 03/21/2022 bma

FIGURE 3
Biological Study Area on Aerial Photograph

Image Source: NearMap (flown January 2022)

Biological Study Area

0 Feet 500

North San Diego County MSCP

Outside Pre-Approved Mitigation Area (PAMA)

FIGURE 4
Biological Study Area
in Relation to MSCP Preserve Area

RECON

M:\JOBS5\9865\common_gis\fig4_bio.mxd 03/08/2022 bma

2.0 Regional Context

The City is in the process of preparing a Subarea Plan under the Multiple Habitat Conservation Program (MHCP). The MHCP is a habitat conservation plan for the seven jurisdictional areas within the northern subregion of San Diego County, including San Marcos (San Diego Association of Governments [SANDAG] 2003). Under the MHCP, the City prepared a draft Natural Community Conservation Plan (draft Subarea Plan) that addresses land conservation issues (City of San Marcos 2001). This draft City of San Marcos Subarea Plan identifies a series of focused planning areas (FPAs) within which some lands will be dedicated for preservation of native habitats. These areas contain both "hard line" areas, which will ultimately be preserved as open space, and "soft line" areas, which will include both development and open space to be determined through the planning process. This biological resources report has been prepared according to the guidelines set forth in the MHCP (SANDAG 2003).

3.0 Habitats/Vegetation Communities

Two vegetation communities/land cover types were identified within the BSA: disturbed land and urban/developed. The acreages of each vegetation community/land cover type within the BSA are presented in Table 1 and depicted in Figure 5. Under the MHCP, environmentally sensitive lands are categorized into different habitat groups of sensitivity. Group A consists of wetland/riparian habitats, which are considered the most sensitive of habitats. Upland vegetation communities that are classified as Group B (rare uplands), Group C (coastal sage scrub), Group D (chaparral), and Group E (annual [non-native] grasslands) are considered sensitive by the MHCP. Group F (other lands), which includes disturbed lands, is not considered sensitive (SANDAG 2003).

Table 1
Vegetation Communities/Land Cover Types within the BSA

Type or Community (Holland Code as modified by Oberbauer)	MHCP Group	Total (acres)
Disturbed Land (11300)	F	2.2
Urban/Developed (12000)	--*	0.3
TOTAL		**2.5**

*No MHCP assigned group.

Disturbed Habitat. Disturbed habitat consists of areas that may have been disturbed by human activity, and no longer function as a native vegetation community. Vegetation in such areas is typically dominated by opportunistic non-native species but may also contain a substantial portion of bare ground. Disturbed habitat can also include areas that have been previously graded, repeatedly cleared for fuel management, and/or experience repeated use (e.g., off-road vehicle trails and construction staging sites) (Oberbauer et al. 2008).

Disturbed habitat occurs within the majority of the BSA and includes areas that have been disturbed through frequent off-roading activity. The area is comprised of non-native herbaceous cover mixed with non-native grasses, with dominant species such as crimson fountain grass (*Pennisetum setaceum*), telegraph weed (*Heterotheca grandiflora*), mustard (*Brassica* sp.), Russian thistle (*Salsola tragus*), and bristly ox-tongue (*Helminthotheca echioides*). Some native vegetation was identified throughout the disturbed habitat, such as California buckwheat (*Eriogonum fasciculatum*), mule fat (*Baccharis salicifolia* ssp. *salicifolia*), coyote bush (*Baccharis pilularis*), coastal goldenbush (*Isocoma menziesii*), and decumbent goldenbush (*Isocoma menziesii* var. *decumbens)* but these individual species were too few and widespread to form a distinct native habitat. (see Figure 5). The disturbed lands on-site are classified by the MHCP as Group F. Impacts to Group F habitat types would not be considered significant and would not require mitigation.

Image Source: NearMap (flown January 2022)

0 Feet 100

Biological Study Area

Common Name, Latin Name

Decumbent Goldenbush (*Isocoma menziezii decumbens*)

Vegetation Community

Disturbed Land

Urban/Developed

RECON

M:\JOBS5\9865\common_gis\fig5_bio.mxd 03/10/2022 bma

FIGURE 5

Existing Biological Resources

Urban/Developed Land. Urban/developed areas consist of any land that has been constructed upon, containing permanent or semi-permanent structures, pavement or hardscape, or landscaped areas that are regularly maintained and/or irrigated (Oberbauer et al. 2008).

Urban/developed land occurs along the eastern edge of the BSA and consists of ornamental vegetation along the sidewalk (see Figure 5).

4.0 Special-Status Species

Prior to conducting field surveys, a review of publicly available data was conducted to determine the potential for special-status species to occur within the BSA. The review included data provided by U.S. Fish and Wildlife Service (USFWS) (USFWS 2022), California Natural Diversity Data Base (CNDDB; CDFW 2022a), and California Native Plant Society (CNPS 2021). During the field survey, habitats were assessed for their potential to support special-status species and all incidentally observed species were recorded. No focused special-status species surveys were conducted. All plant and wildlife species observed during the general survey are presented in Attachments 2 and 3, respectively. Plant or wildlife species are considered special status if they are: (1) covered or listed as a narrow endemic under the MHCP (SANDAG 2003); (2) listed by state or federal agencies as threatened or endangered or are proposed for listing; (3) included on CNPS California Rare Plant Ranks 1, 2, 3, or 4 (CNPS 2021); or (4) considered rare, endangered, or threatened by local conservation organizations or specialists (Reiser 2001).

4.1 Special Status Plant Species

One special status plant species, decumbent goldenbush (*Isocoma menziesii* var. *decumbens)*, was observed within the BSA (see Figure 5). No other sensitive plants are anticipated to occur due to high levels of disturbance within the project boundary (e.g., off-roading activity, prevalence of non-native species). A comprehensive list of sensitive plant species with potential for occurrence within the BSA based on the records search results is presented in Attachment 4, and includes those species with potential for occurrence based on species range and habitat conditions (CDFW 2022b; CDFW 2022c).

Decumbent Goldenbush. Decumbent goldenbush is a CRPR 1B.2 species (CNPS 2021). This species was observed on-site and has high potential to occur due to the disturbed nature of the site and suitable soils present.

4.2 Special Status Wildlife Species

No special status wildlife species were observed within the BSA; however, one special status wildlife species, Cooper's hawk (*Accipiter cooperii*), has a moderate potential to occur on-site. A comprehensive list of sensitive wildlife species with potential for occurrence within the BSA based on the records search results is presented in Attachment 5, and includes those species with potential for occurrence based on species range and habitat conditions (CDFW 2022a; CDFW 2022d; USFWS 2022).

Cooper's Hawk (Nesting). The Cooper's hawk is a CDFW watch list species (nesting) and a MHCP-covered species (CDFW 2022a; SANDAG 2003). This species has a moderate potential to occur due the presence of suitable trees for nesting within the disturbed land and urban/developed within the BSA. No individuals or active nests were observed within the BSA at the time of the survey.

Nesting/Migratory Birds. The project also has potential to support migratory and nesting birds within the entire BSA. Under Section 3503 of the California Fish and Game Code (CFGC), it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.

Section 3503.5 of the CFGC prohibits take, possession, or destruction of any birds in the orders Falconiformes (raptors) or Strigiformes (owls), or of their nests and eggs.

5.0 Jurisdictional Wetlands and Waterways

A formal wetland delineation was not conducted; however, no potential jurisdictional wetlands or waters were observed within the BSA.

6.0 Other Unique Features/Resources

Though it is reasonable to assume that urban-adapted species may occur locally within the project impact area, the site as a whole does not function as a wildlife movement corridor and there is no indication that the site supports any wildlife nursery sites. The proposed project area is outside any City FPAs and biological core and linkage areas (BCLA); therefore, there are no impacts anticipated to wildlife movement corridors, wildlife nursery sites, FPAs or a BCLA.

7.0 Significance of Project Impacts and Proposed Mitigation

This section describes project impacts and recommended avoidance and mitigation measures based on the County's MHCP (SANDAG 2003).

7.1 Vegetation Community Impacts and Proposed Mitigation

The project would cause direct permanent impacts to 2.0 acres of disturbed land and 0.3 acre of urban/developed (Table 2; Figure 6). Impacts to disturbed land and urban/developed are not considered significant and, therefore, no mitigation would be required.

Table 2
Habitat/Vegetation Communities, Impacts, and Mitigation

Habitat/ Vegetation Community	Existing On-site (acres)[1]	Permanent Impacts (acres)[1]	Mitigation Ratio	Mitigation Required (acres)
Disturbed Land (Group F)	2.2	2.0	0:1	0.00
Urban/Developed (--[2])	0.3	0.3	n/a[3]	n/a[3]
TOTAL	2.5	2.3	-	0.00

[1]Rounded to nearest tenth of an acre. Any discrepancies in totals are due to rounding.
[2]No MHCP assigned group.
[3]N/A = not applicable

7.2 Sensitive Plant Species

One sensitive plant species, decumbent goldenbush, was detected on-site; however, there are no other sensitive plant species that have a moderate or high potential to occur within the BSA. Suitable habitat for decumbent goldenbush within the project impact area is of marginal quality due to heavy disturbance, and comprises a small fraction of the habitat available to this species both at a local level (within the City) and on a regional scale. Therefore, the impacts that would occur to sensitive plants would be less than significant and no mitigation would be required.

Image Source: NearMap (flown January 2022)

Biological Study Area

Impact Footprint

Common Name, Latin Name

Decumbent Goldenbush
(*Isocoma menziezii decumbens*)

Vegetation Community

Disturbed Land

Urban/Developed

0 Feet 100

RECON

M:\JOBS5\9865\common_gis\fig6_bio.mxd 03/17/2022 bma

FIGURE 6
Impacts to Biological Resources

7.3 Sensitive Wildlife Species

Migratory and Nesting Birds. Direct impacts to migratory and nesting birds, including Cooper's hawk, could result from the accidental destruction of nests through removal of disturbed land, if construction were to occur during the general bird breeding season (between March and September; SANDAG 2003). Therefore, avoidance measures, which will be implemented during construction, are discussed below and are expected to prevent direct impacts to migratory and nesting birds, including Cooper's hawk.

AM-BIO-1: If construction initiation occurs between March and September, a pre-construction nesting bird and raptor survey of the project impact area shall be completed by a qualified biologist prior to vegetation removal. The pre-construction survey shall be conducted within 10 calendar days prior to the start of construction activities (including removal of vegetation). If any active nests are detected, the area will be flagged and mapped along with a buffer as recommended by the qualified biologist. The buffer area(s) established by the qualified biologist will be avoided until the nesting cycle is complete or it is determined that the nest is no longer active. The qualified biologist shall be a person familiar with bird breeding behavior and capable of identifying the bird species of San Diego County by sight and sound and determining alterations of behavior as a result of human interaction. Buffers will be based on species-appropriate buffers and/or local topography and line of sight, species behavior and tolerance to disturbance, and existing disturbance levels, as determined appropriate by the qualified biologist.

7.4 Jurisdictional Wetlands and Waterways

No potential jurisdictional wetlands or waters were observed on-site. Therefore, there are no anticipated impacts to any jurisdictional wetlands or waterways and no mitigation would be required.

7.5 Wildlife Movement and Nursery Sites

Though it is reasonable to assume that urban-adapted species may occur locally within the impact footprint, the site as a whole does not function as a wildlife movement corridor and there is no indication that the site supports any wildlife nursery sites. Therefore, the project will not result in any impact to wildlife movement or nursery sites and no mitigation would be required.

If you have any questions regarding this letter report or the biological resources present on the site, please do not hesitate to contact me at 619-308-9333 x117 or jwoll@reconenvironmental.com.

Sincerely,

Jade Woll
Biologist

Reviewed By:

Cailin Lyons, Biology Group Director

JCW:sh

8.0 References Cited

American Society of Mammalogists
2020 Mammalian Species (online). http://www.mammalsociety.org/publications/mammalian-species. July

Baldwin, B.G., S. Boyd, B.J. Ertter, R.W. Patterson, T.J. Rosatti, D.H. Wilken, eds.
2002 Jepson Online Interchange. http://ucjeps.berkeley.edu/cgi-bin/get_cpn.pl?7749. Accessed November 7, 2002.

Bradley, R.D., L.K. Ammerman, R.J. Baker, L.C. Bradley, J.A. Cook, R.C. Dowler, C. Jones, D.J. Schimdly, F.B. Stangl Jr., R.A. Van Den Bussche, and B. Wursig
2014 Revised Checklist of North American Mammals North of Mexico. Occasional Papers, Museum of Texas Tech University No. 327. October

Brenzel, K. N.
2001 *Sunset Western Garden Book*. Sunset Publishing. Menlo Park, California.

California Department of Fish and Wildlife (CDFW)
2022a Special Animals. Natural Diversity Database. Department of Fish and Wildlife. July.

2022b Special Vascular Plants, Bryophytes, and Lichens List. Natural Diversity Database. Department of Fish and Wildlife. July.

2022c State and Federally Listed Endangered, Threatened, and Rare Plants of California. July.

2022d State & Federally Listed Endangered & Threatened Animals of California. July.

California Native Plant Society (CNPS)
2021 Rare Plant Program. Inventory of Rare and Endangered Plants of California (online edition, v8-03). Sacramento, CA. Accessed in July. Available at http://www.rareplants.cnps.org.

Chesser, R. T., S. M. Billerman, K. J. Burns, C. Cicero, J. L. Dunn, B. E. Hernández-Baños, A. W. Kratter, I. J. Lovette, N. A. Mason, P. C. Rasmussen, J. V. Remsen, Jr., D. F. Stotz, and K. Winker
2021 Check-list of North American Birds (online). American Ornithological Society. http://checklist.aou.org/taxa.

Crother, B. I., Ronald M. Bonett, Jeff Boundy, Frank T. Burbrink, Kevin de Queiroz, Darrel R. Frost, Richard Highton, John B. Iverson, Elizabeth L. Jockusch, Fred Kraus, Kenneth L. Krysko, , Adam D. Leaché, Emilly Moriarty Lemmon, Roy W. McDiarmid, Joseph R. Mendelson III, Peter A. Meylan, Tod W. Reeder, Sara Ruane, and Michael E. Seidel
2017 *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in our Understanding,* Eighth Edition. Society for the Study of Amphibians and Reptiles Herpetological Circular No. 43.

Eriksen, Clyde, and Denton Belk
1999 *Fairy Shrimp of California's Puddles, Pools, and Playas.* Mad River Press, Eureka.

Evans, Arthur V.
2008 *Field Guide to Insects and Spiders of North America.* Sterling Publishing Company, New York.

Harvey, M. J., J. S. Altenbach, and T. L. Best
2011 *Bats of the United States and Canada*. The Johns Hopkins University Press, Baltimore.

Jennings, M. R., and M. P. Hayes
1994 Amphibian and Reptile Species of Special Concern in California. Final report submitted to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA. Contract number 8023.

Jepson Flora Project (eds.)
2020 Jepson eFlora, http://ucjeps.berkeley.edu/IJM.html.

Nature Festivals of San Diego County
2002 Checklist of Butterflies of San Diego County. Professional review by David Faulkner of the San Diego Natural History Museum and Dr. John Brown of the Smithsonian Institute. Revised September. http://www.sdnhm.org/science/entomology/projects/checklist-of-butterflies-of-san-diego-county/.

NatureServe
2021 NatureServe Explorer. www.natureserve.org.

Oberbauer, T., M. Kelly, and J. Buegge
2008 *Draft Vegetation Communities of San Diego County*. Based on "Preliminary Descriptions of the Terrestrial Natural Communities of California," Robert F. Holland, Ph.D., October 1986. March.

Page, L. M., H. Espinosa-Pérez, L. T. Findley, C. R. Gilbert, R. N. Lea, N. E. Mandrak, R. L. Mayden, and J. S. Nelson
2013 Common and scientific names of fishes from the United States, Canada, and Mexico, 7th edition. American Fisheries Society, Special Publication 34, Bethesda, Maryland.

Rebman, J. P., and M. G. Simpson
2014 Checklist of the Vascular Plants of San Diego County, 5th edition. San Diego Natural History Museum.

Reiser, C.H.
2001 Rare Plants of San Diego County. Aquafir Press. July

San Diego, County of
2010 Guidelines for Determining Significance. Biological Resources, Land Use and Environment Group. Department of Planning and Land Use. Department of Public Works. Fourth Revision. September 15.

San Diego Association of Governments (SANDAG)
2003 Final MHCP Plan. Prepared for the Multiple Habitat Conservation Program for the Cities of Carlsbad, Encinitas, Escondido, San Marcos, Solana Beach, and Vista. Volumes I, II, and III. March.

San Marcos, City of
2001 Natural Community Conservation Plan for the City of San Marcos. Agency review draft, May.

Tremor, Scott, D. Stokes, W. Spencer, J. Diffendorfer, H. Thomas, S. Chivers, and P. Unitt, eds.
2017 San Diego County Mammal Atlas. San Diego Natural History Museum.

Unitt, P. A.
2004 *San Diego County Bird Atlas*. San Diego Natural History Museum, Ibis, San Diego

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS)
2021 The PLANTS Database. National Plant Data Team, Greensboro, North Carolina, USA. Accessed from http://plants.usda.gov.

U.S. Fish and Wildlife Service (USFWS)
2022 Species Observation Database.

U.S. Geological Survey (USGS)
1996 7.5 minute topographic map series, San Marcos quadrangle, Los Vallecitos de San Marcos Land Grant.

Western Bat Working Group (WBWG)
2017 Western Bat Species (species accounts). http://wbwg.org/western-bat-species/.

9.0 Preparers and Persons/Organizations Contacted

Cailin Lyons, RECON Environmental, Inc., Biology Project Director
Jade Woll, RECON Environmental, Inc., Biologist
Benjamin Arp, RECON Environmental, Inc., GIS Analyst
Stacey Higgins, RECON Environmental, Inc., Senior Production Specialist

10.0 Attachments

1. Current Site Photographs
2. Plants Species Observed
3. Wildlife Species Observed
4. Sensitive Plant Species with the Potential to Occur
5. Sensitive Wildlife Species with the Potential to Occur

ATTACHMENTS

ATTACHMENT 1

Current Site Photographs

PHOTOGRAPH 1
View of Project Site Looking Southeast

PHOTOGRAPH 2
View of Project Site Looking Northwest

PHOTOGRAPH 3
View of Project Site Looking Southwest

PHOTOGRAPH 4
View of Project Site Looking Southeast

ATTACHMENT 2

Plant Species Observed

Attachment 2 Plant Species Observed			
Scientific Name	Common Name	Habitat	Origin
ANGIOSPERMS: MONOCOTS			
ARECACEAE	PALM FAMILY		
Washingtonia robusta	Mexican fan palm	DL	I
POACEAE (GRAMINEAE)	GRASS FAMILY		
Avena sp.	oats	DL	I
Bromus diandrus	ripgut grass	DL	I
Bromus rubens [=*Bromus madritensis* ssp. *rubens*]	red brome	DL	I
Festuca perennis [=*Lolium multiflorum* and *Lolium perenne*]	rye grass	DL	I
Hordeum murinum	wall barley	DL	I
Pennisetum setaceum	crimson fountain grass	DL	I
ANGIOSPERMS: EUDICOTS			
AIZOACEAE	FIG-MARIGOLD FAMILY		
Carpobrotus edulis	freeway iceplant	DL	I
ANACARDIACEAE	SUMAC OR CASHEW FAMILY		
Searsia [=Rhus] lancea	African sumac	UD	I
APIACEAE (UMBELLIFERAE)	CARROT FAMILY		
Foeniculum vulgare	fennel	DL	I
ASTERACEAE	SUNFLOWER FAMILY		
Baccharis pilularis	chaparral broom, coyote brush	DL	N
Baccharis salicifolia ssp. *salicifolia*	mule fat, seep-willow	DL	N
Cynara cardunculus ssp. *flavescens*	cardoon, artichoke thistle	DL	I
Dittrichia graveolens	stinkwort	DL	I
Hedypnois cretica	Crete weed	DL	I
Helminthotheca [=*Picris*] *echioides*	bristly ox-tongue	DL	I
Heterotheca grandiflora	telegraph weed	DL	N
Isocoma menziesii	coastal goldenbush	DL	N
Isocoma menziesii var. *decumbens*	decumbent goldenbush	DL	N
BRASSICACEAE (CRUCIFERAE)	MUSTARD FAMILY		
Brassica sp.	mustard	DL	I

Attachment 2 Plant Species Observed			
Scientific Name	Common Name	Habitat	Origin
Brassica rapa	turnip, field mustard	DL	I
CAPRIFOLIACEAE	**HONEYSUCKLE FAMILY**		
Lonicera japonica	Japanese honeysuckle	UD	I
CHENOPODIACEAE	**GOOSEFOOT FAMILY**		
Salsola tragus	Russian thistle, tumbleweed	DL	I
CONVOLVULACEAE	**MORNING-GLORY FAMILY**		
Calystegia macrostegia	morning-glory	DL	N
EUPHORBIACEAE	**SPURGE FAMILY**		
Euphorbia peplus	petty spurge	DL	I
FABACEAE (LEGUMINOSAE)	**LEGUME FAMILY**		
Acmispon glaber [=*Lotus scoparius*]	deerweed, California broom	DL	N
Astragalus trichopodus var. *lonchus*	ocean locoweed	DL	N
Medicago polymorpha	California burclover	DL	I
Melilotus albus	white sweetclover	DL	I
GERANIACEAE	**GERANIUM FAMILY**		
Erodium botrys	long-beak filaree	DL	I
Erodium moschatum	greenstem filaree	DL	I
MALVACEAE	**MALLOW FAMILY**		
Malva neglecta	common mallow, cheeses	DL	I
OXALIDACEAE	**OXALIS FAMILY**		
Oxalis pes-caprae	Bermuda buttercup	DL	I
POLYGONACEAE	**BUCKWHEAT FAMILY**		
Polygonum aviculare	Prostrate knotweed	DL	I
SCROPHULARIACEAE	**FIGWORT FAMILY**		
Myoporum parvifolium	slender myoporum	UD	I
VERBENACEAE	**VERVAIN FAMILY**		
Lantana montevidensis	trailing lantana	UD	I

Attachment 2 Plant Species Observed			
Scientific Name	Common Name	Habitat	Origin

Notes: Scientific and common names were primarily derived from Jepson eFlora (Jepson Flora Project 2020). In instances where common names were not provided in this resource, common names were obtained from Rebman and Simpson (2014). Additional common names were obtained from the USDA maintained database (USDA 2021) or the *Sunset Western Garden Book* (Brenzel 2001) for ornamental/horticultural plants. Common names denoted with * are from County of San Diego 2010.

HABITATS

DL = Disturbed Land
UD = Urban/Developed

ORIGIN

N = Native to locality
I = Introduced species from outside locality

ATTACHMENT 3

Wildlife Species Detected

Attachment 3 Wildlife Species Observed				
Scientific Name	Common Name	Occupied Habitat	On-Site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence
		INVERTEBRATES		
PIERIDAE	WHITES & SULPHURS			
Pieris rapae	cabbage white (I)	DL		O
		BIRDS		
ACCIPITRIDAE	HAWKS, KITES, & EAGLES			
Buteo lineatus	red-shouldered hawk	FO	F/ Y	O
COLUMBIDAE	PIGEONS & DOVES			
Zenaida macroura	mourning dove	FO	C/ Y	O
TROCHILIDAE	HUMMINGBIRDS			
Calypte anna	Anna's hummingbird	DL	C/ Y	O
CORVIDAE	CROWS, JAYS, & MAGPIES			
Corvus brachyrhynchos	American crow	FO	C/ Y	O
AEGITHALIDAE	BUSHTIT			
Psaltriparus minimus	bushtit	UD	C/ Y	V
Melozone [=*Pipilo*] *crissalis*	California towhee	DL	C/ Y	O
		MAMMALS		
SCIURIDAE	SQUIRRELS & CHIPMUNKS			
Otopermophilus [=*Spermophilus*] *beecheyi*	California ground squirrel	DL		B
CANIDAE	CANIDS			
Canis latrans	coyote	DL		S

(I) = Introduced species

NOTE: Zoological nomenclature for invertebrates is in accordance with the NatureServe 2021 and Evans 2008; for fish with NatureServe 2021; for reptiles and amphibians with Crother et. al (2017); for birds with Chesser et al. 2021; for mammals with Bradley et al. (2014), American Society of Mammalogists 2021.

Attachment 3 Wildlife Species Observed				
Scientific Name	Common Name	Occupied Habitat	On-Site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence

HABITATS

DL = Disturbed land
FO = Flying overhead
UD = Urban/developed

EVIDENCE OF OCCURRENCE

B = Burrow
O = Observed
S = Scat
V = Vocalization

ABUNDANCE

C = Common to abundant; almost always encountered in proper habitat, usually in moderate to large numbers
F = Fairly common; usually encountered in proper habitat, generally not in large numbers

SEASONALITY (birds only)

Y = Year-round resident; probable breeder on-site or in vicinity

ATTACHMENT 4

Sensitive Plant Species with the Potential to Occur

Attachment 4 Sensitive Plant Species Observed or with the Potential to Occur							
Scientific Name Common Name	Sensitivity Code & Status			Habitat Preference/ Requirements	Detected On-Site Yes/No	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
	State/ Federal Status	CNPS Rank	County of San Diego				
ANGIOSPERMS: DICOTS							
APIACEAE **CARROT FAMILY**							
Eryngium aristulatum var. *parishii* San Diego button-celery	SE/FE	1B.1	--	Biennial/perennial herb; vernal pools, mesic areas of coastal sage scrub and grasslands, blooms April–June; elevation less than 2,000 feet. Known from San Diego and Riverside counties. Additional populations occur in Baja California, Mexico.	No	U	Unlikely to occur due to lack of vernal pools, mesic areas of coastal sage scrub, and grasslands. This species has been documented within a 1-mile radius of the survey area (CDFW 2022b).
ASTERACEAE **SUNFLOWER FAMILY**							
Isocoma menziesii var. *decumbens* decumbent goldenbush	–/–	1B.2	--	Perennial shrub; chaparral, coastal sage scrub; sandy soils, often in disturbed areas; blooms April–November; elevation less than 500 feet.	Yes	H	This species was **observed** on-site.

Attachment 4 Sensitive Plant Species Observed or with the Potential to Occur							
Scientific Name Common Name	Sensitivity Code & Status State/ Federal Status	 CNPS Rank	 County of San Diego	Habitat Preference/ Requirements	Detected On-Site Yes/No	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
ANGIOSPERMS: MONOCOTS							
THEMIDACEAE BRODIAEA FAMILY							
Brodiaea filifolia thread-leaved brodiaea [=thread-leaf brodiaea]	SE/FT	1B.1	--	Perennial herb (bulbiferous); cismontane woodland, coastal sage scrub, playas, valley and foothill grassland, vernal pools; often clay soils; blooms March–June; elevation 80-3,675 feet. California endemic. Known from San Diego, Riverside, Orange, Los Angeles, and San Bernardino counties.	No	U	Unlikely to occur due to lack of cismontane woodland, coastal sage scrub, playas, valley and foothill grassland, and vernal pools. Additionally, the survey was conducted during the time of this species blooming period and no flowering individuals or vegetative stems/stalks were observed at the time of survey. This species has been documented within a 1-mile radius of the survey area (CDFW 2022b).
Brodiaea orcuttii Orcutt's brodiaea	–/–	1B.1	--	Perennial herb (bulbiferous); closed cone coniferous forest, chaparral, meadows and seeps, valley and foothill grassland, vernal pools; mesic, clay soil; blooms May–July; elevation less than 5,600 feet.	No	U	Unlikely to occur due to lack of closed cone coniferous forest, chaparral, meadows and seeps, valley and foothill grassland, and vernal pools. This species has been documented within a 1-mile radius of the survey area (CDFW 2022b).

Attachment 4 Sensitive Plant Species Observed or with the Potential to Occur							
	Sensitivity Code & Status						
Scientific Name Common Name	State/ Federal Status	CNPS Rank	County of San Diego	Habitat Preference/ Requirements	Detected On-Site Yes/No	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential

FEDERAL CANDIDATES AND LISTED PLANTS

FE = Federally listed endangered

FT = Federally listed threatened

STATE LISTED PLANTS

SE = State listed endangered

CALIFORNIA NATIVE PLANT SOCIETY (CNPS): CALIFORNIA RARE PLANT RANKS (CRPR)

1B = Species rare, threatened, or endangered in California and elsewhere. These species are eligible for state listing.

.1 = Species seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat).

.2 = Species fairly threatened in California (20-80% occurrences threatened; moderate degree and immediacy of threat).

POTENTIAL TO OCCUR ON-SITE

U = Unexpected

ATTACHMENT 5

Sensitive Wildlife Species with the Potential to Occur

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur						
Common Name/ Scientific Name	Sensitivity Code & Status State/Federal Status	 County of San Diego	Habitat Preference/ Requirements	Detected On-Site? Yes/No	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
INVERTEBRATES						
BRANCHINECTIDAE FAIRY SHRIMP						
San Diego fairy shrimp *Branchinecta sandiegonensis*	FT	MHCP	Vernal pools.	No	U	Not expected to occur. No vernal pools or other depressions containing wetland or vernal pool plant species characteristic of vernal habitat were observed.
BIRDS						
ACCIPITRIDAE HAWKS, KITES, & EAGLES						
Cooper's hawk (nesting) *Accipiter cooperii*	WL/-	MHCP	Mature forest, open woodlands, wood edges, river groves. Parks and residential areas.	No	M	Moderate potential to nest within the survey area due to the presence of suitable trees for nesting.
POLIOPTILIDAE GNATCATCHERS						
Coastal California gnatcatcher *Polioptila californica californica*	SSC/FT	MHCP	Coastal sage scrub, maritime succulent scrub. Resident.	No	U	Not expected to occur due to the lack of coastal sage scrub, and maritime succulent scrub. This species has been documented within a 1-mile radius of the survey area (CDFW 2022b).

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur						
Common Name/ Scientific Name	Sensitivity Code & Status State/Federal Status	 County of San Diego	Habitat Preference/ Requirements	Detected On-Site? Yes/No	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
PASSERELLIDAE NEW WORLD PASSERINES						
Southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	WL/-	MHCP	Coastal sage scrub, chaparral, grassland. Resident.	No	U	Not expected to occur due to the lack of coastal sage scrub, chaparral, and grassland. This species has been documented within a 1-mile radius of the survey area (CDFW 2022b).
MAMMALS						
MUSTELIDAE WEASELS, OTTERS, & BADGERS						
American badger *Taxidea taxus*	SSC/-	--	Grasslands, Sonoran desert scrub.	No	U	Not expected to occur in the survey area due to the high level of disturbance and lack of suitable habitat. This species has been documented within a 1-mile radius of the survey area (CDFW 2022a).

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur						
Common Name/ Scientific Name	Sensitivity Code & Status		Habitat Preference/ Requirements	Detected On-Site? Yes/No	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
	State/Federal Status	County of San Diego				

(I) = Introduced species

NOTE: Zoological nomenclature for invertebrates is in accordance with the NatureServe 2021 and Evans 2008; for fish with NatureServe 2021; for reptiles and amphibians with Crother et. al (2017); for birds with Chesser et al. 2021; for mammals with Bradley et al. (2014), American Society of Mammalogists 2021. Determination of the potential occurrence for listed, sensitive, or noteworthy species is based upon known ranges and habitat preferences for species follows Eriksen and Belk 1999, Nature Festivals of San Diego County 2002, Evans 2008, Page et al. 2013, Jennings and Hayes 1994, Unitt 2004, Tremor et. al. 2017, Western Bat Working Group 2017, and Harvey et al. 2011. Listing status is based on California Department of Fish and Wildlife, Natural Diversity Database (CDFW) 2022d and the County of San Diego MHCP (SANDAG 2003).

STATUS CODES

Listed/Proposed

FT = Listed as threatened by the federal government

Other

SSC = California Department of Fish and Wildlife species of special concern
WL = California Department of Fish and Wildlife watch list species
MHCP = Multiple Habitat Conservation Program covered species

Potential to Occur On-Site

M = Medium
U = Unexpected

APPENDIX C

Cultural Resources Survey

Cultural Resources Survey for the Santa Fe Flores Project San Marcos, California

Prepared for

Santa Fe Flores, LP
P.O. Box 903
Rancho Santa Fe, CA 92067
Contact: Paul Mayer

Prepared by

RECON Environmental, Inc.
3111 Camino del Rio North, Suite 600
San Diego, CA 92108
P 619.308.9333

RECON Number 9865
March 22, 2022

Nathanial Yerka, Project Archaeologist/Author

Carmen Zepeda-Herman, M.A., RPA, Principal Investigator

NATIONAL ARCHAEOLOGICAL DATA BASE INFORMATION

Author:	Nathanial Yerka, Project Archaeologist Carmen Zepeda-Herman, M.A., RPA, Principal Investigator
Consulting Firm:	RECON Environmental, Inc. 3111 Camino del Rio North, Suite 600 San Diego, CA 92108
Report Date:	March 21, 2022
Report Title:	Cultural Resources Survey for the Santa Fe Flores Project, San Marcos, California
Submitted to:	Mr. Paul Mayer
Prepared for:	Santa Fe Flores, LP P.O. Box 903 Rancho Santa Fe, CA 92067
Project Number:	RECON Number 9865
USGS Quadrangle Map:	7.5-minute, San Marcos
Acres:	2.5
Keywords:	Negative archaeological survey; San Marcos quadrangle

RECON Environmental, Inc. (RECON) conducted a cultural resources inventory for the proposed Santa Fe Flores Project. The survey covered the entire 2.5 acres of the project located at 2972 and 2982 South Santa Fe Avenue (Assessor's Parcel Numbers 217-161-1800 and 217-161-1900).

The cultural resources survey took place on March 10, 2022, using a survey interval of approximately seven meters across the property. The RECON archaeologist was accompanied by a Luiseño representative from Saving Sacred Sites.

No significant prehistoric or historic cultural resources were found during the survey of the project area. No prehistoric or historic cultural resources were mapped on or immediately adjacent to the property in the record search files. Therefore, the proposed project will have no impact on known prehistoric or historic cultural resources. However, the possibility exists for buried prehistoric archaeological deposits on-site. Because of this factor, RECON recommends that all ground-disturbing activities for the project be monitored by a qualified archaeological monitor and Native American monitors representing the Luiseño community.

TABLE OF CONTENTS

Acronyms and Abbreviations iii
Summary 1
1.0 Introduction 2
2.0 Natural Setting 2
3.0 Cultural Setting 6
3.1 Paleoindian Period 6
3.2 Archaic Period 6
3.3 Late Prehistoric Period 7
3.4 Ethnohistory 8
3.5 Spanish Period 9
3.6 Mexican Period 10
3.7 American Period 10
3.8 City of San Marcos 11
4.0 Background Research 11
5.0 Methods 14
6.0 Report of Findings 14
7.0 Management Considerations 18
8.0 Certification and Project Staff 19
9.0 References Cited 19

FIGURES

1: Regional Location 3
2: Project Location on USGS Map 4
3: Project Location on Aerial Photograph 5

TABLES

1: Cultural Resources within One Mile of the Project 12

TABLE OF CONTENTS (cont.)

PHOTOGRAPHS

1: Overview of Project Area from the Southeast Corner, Looking North 15
2: Two Granite Boulders Checked for Cultural Manipulation, Looking North-Northeast..... 15
3: Overview of Project Area from Northern Terrace on Eastern Boundary, Looking Southwest 16
4: Overview of Manufactured Drainage Area on Northern Terrace, Looking South..... 16
5: Overview of Southern Terrace Showing a Portion of OHV Disturbance, Looking South 17
6: Episodic Rubbish Dumping on Northern Terrace, Looking West-Northwest..... 17

ATTACHMENT

1: Native American Heritage Request Letter

CONFIDENTIAL ATTACHMENT (Under Separate Cover)

1: Records Search: Historical Resources with Primary and Trinomial Designations; Reports; Historic Addresses

Acronyms and Abbreviations

C.E.	Common Era
CEQA	California Environmental Quality Act
CRHR	California Register of Historical Resources
NAHC	Native American Heritage Commission
project	Santa Fe Flores Project
RECON	RECON Environmental, Inc.

Summary

RECON Environmental conducted a cultural resources inventory, in accordance with the California Environmental Quality Act (CEQA) and the California Register of Historical Resources for the proposed Santa Fe Flores Project (project). The survey covered the entire 2.5-acre parcel located at 2972 and 2982 South Santa Fe Avenue adjacent to Las Flores Drive on assessor parcel numbers 217-161-1800 and 217-161-1900. The project is located on a previously graded area and requires a General Plan Amendment and Rezone to Multi-family Residential to allow the development of 50 multi-family residential units that would be three to four stories in height. The project would also include a 1,000-square-foot roof deck for fitness and leisure, a 1,170-square-foot ground floor leasing and amenity center, and 120 square-foot ground floor fire command center. Vehicle parking would include a total of 107 surface parking spaces and bicycle parking would include a total of 11 lockers or bike storage rooms located on the upper and lower levels.

RECON requested a records search at the South Coastal Information Center, San Diego State University. The search radius was one mile. No prehistoric or historic cultural resources are recorded on or adjacent to the project area. A total of 31 cultural resources have been documented within one mile of the project boundary, including 9 prehistoric period resources and 22 historic period resources. In addition, there are 19 historic addresses listed within the one-mile search radius.

The cultural resources survey took place on March 10, 2022, using a survey interval of approximately seven meters across the property. The RECON archaeologist was accompanied by a Luiseño representative from Saving Sacred Sites. No significant prehistoric or historic cultural resources were found during the survey of the project area. The project will have no impact on known prehistoric or historic cultural resources. However, the possibility exists for the buried prehistoric archaeological deposits to exist on-site. Because of this factor, RECON recommends that all ground-disturbing activities for the project be monitored by a qualified archaeological monitor and Native American monitors representing the Luiseño community.

1.0 Introduction

The Santa Fe Flores project (project) is located in the city of San Marcos at 2972 and 2982 South Santa Fe Avenue adjacent to Las Flores Drive on Assessor Parcel Numbers 217-161-1800 and 217-161-1900 (Figure 1). The 2.5-acre project area is undeveloped and is currently designated Commercial and Light Industrial in the City of San Marcos (City) General Plan and zoned as Commercial and Light Industrial. The project is located on a previously graded site and requires a General Plan Amendment and Rezone to Multi-family Residential to allow the development of 50 multi-family residential units that would be three to four stories in height. The project would also include a 1,000-square-foot roof deck for fitness and leisure, a 1,170-square-foot ground floor leasing and amenity center, and 120-square-foot ground floor fire command center. Vehicle parking would include a total of 107 surface parking spaces and bicycle parking would include a total of 11 lockers or bike storage rooms located on the upper and lower levels.

The project area is in an unsectioned portion of the Los Vallecitos de San Marcos land grant, of the U.S. Geological Survey 7.5-minute topographic map, San Marcos quadrangle (Figure 2; U.S. Geological Survey 1996). The project area is currently undeveloped land. It is surrounded on the west and north by industrial development, to the east by multi-family residential development, and to the south by single-family residential development (Figure 3).

2.0 Natural Setting

The project area is dominated by disturbed habitat which includes areas that have been disturbed through frequent off-roading activity. The project area is comprised of non-native herbaceous cover mixed with non-native grasses. A smaller portion of the project area consists of urban/developed land which features landscaping that receives routine maintenance and irrigation; this area occurs along the eastern boundary of the project area and consists of ornamental vegetation. Elevation of the project area ranges between approximately 495 feet above mean sea level in the south and 550 above mean sea level to the north.

Soils within the project area consist of Diablo clay on the northern portion and Huerhuero loam on the southern portion (U.S. Department of Agriculture 1973). The Diablo clay series with 9 to 15 percent slopes occurs on strong slopes and ranges from 26 to 37 inches in depth over rock. The Huerhuero loam soil series is loam soils developed in sandy marine sediments and have slopes ranging from 2 to 9 percent. In a representative profile the surface layer is brown and pale brown, strongly acid to medium acid loam. The upper subsoil is brown moderately alkaline clay. Below this is brown mildly alkaline clay loam and sandy loam (U.S. Department of Agriculture 1973).

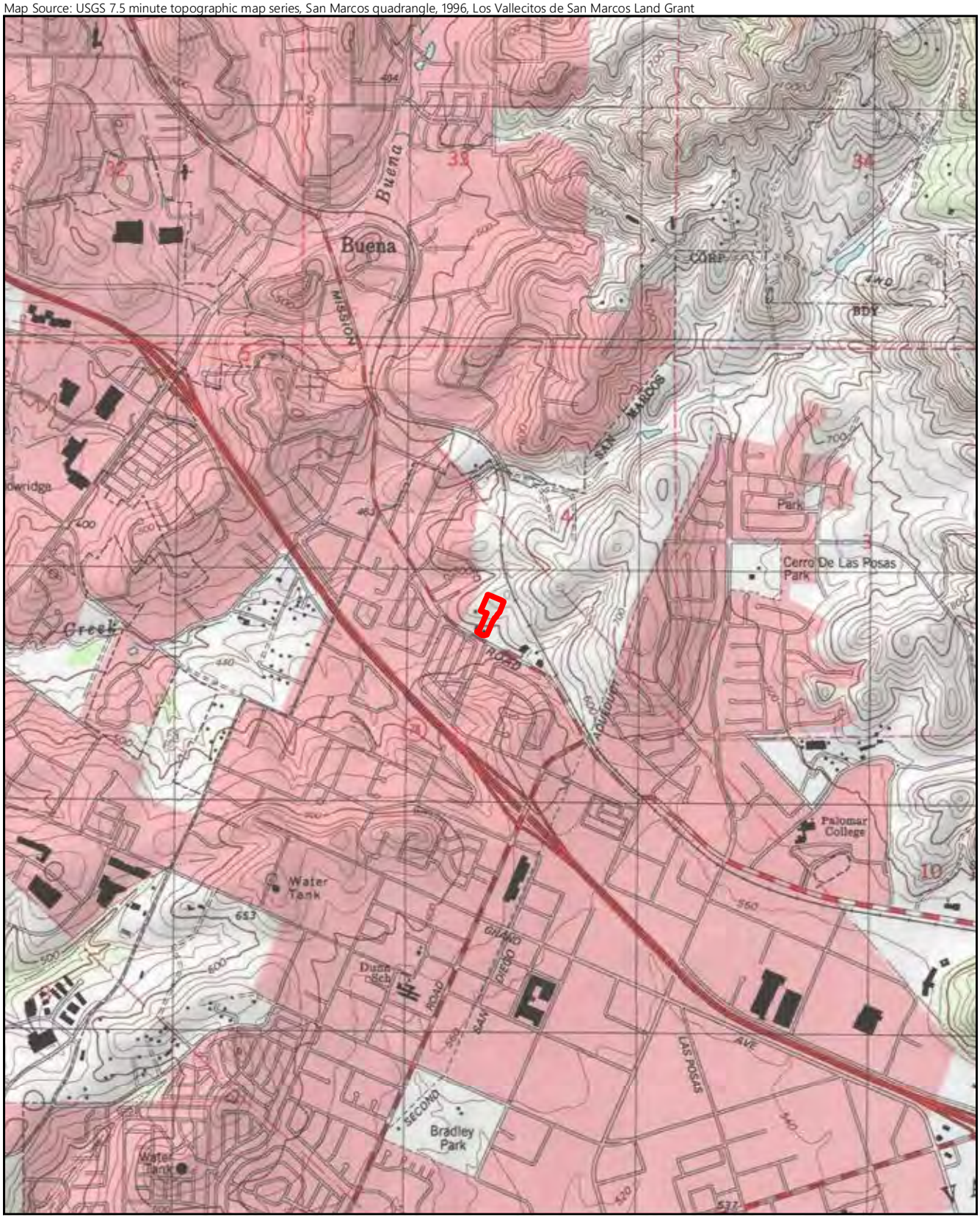
Project Location

RECON

M:\JOBS5\9865\common_gis\fig1.mxd 03/08/2022 bma

FIGURE 1
Regional Location

Map Source: USGS 7.5 minute topographic map series, San Marcos quadrangle, 1996, Los Vallecitos de San Marcos Land Grant



Project Boundary

RECON

M:\JOBS5\9865\common_gis\fig2_USGS.mxd 03/21/2022 bma

FIGURE 2
Project Location on USGS Map

Image Source: NearMap (flown January 2022)

Project Boundary

RECON

M:\JOBS5\9865\common_gis\fig3_aerial.mxd 03/21/2022 bma

FIGURE 3
Project Location on Aerial Photograph

3.0 Cultural Setting

3.1 Paleoindian Period

The Paleoindian Period in northern San Diego County is most closely associated with the San Dieguito Complex, as identified by Malcolm Rogers (1938, 1939, 1945) and Claude N. Warren (1961, 1964, 1966, 1967). The San Dieguito Complex includes the Lake Mohave sites, Death Valley I sites, and Playa I and II sites according to Warren (1967) and represents a generalized hunting tradition (Moratto 2004). The San Dieguito Complex can be found in all of San Diego County, parts of Riverside County, north through the Mohave Desert, east through western Arizona, and south into northern Baja California and northern Sonora (Rogers 1966). The San Dieguito Complex assemblage is dominated by finely made scraping and chopping tools, such as well-made scraper planes, choppers, scraping tools, crescentics, elongated bifacial knives, and leaf-shaped projectile points. These tools were often made of fine-grained, slate-green felsite, or fine-grained basalt. Projectile points consist of Lake Mojave and Silver Lake types along with non-diagnostic leaf-shaped points. Evidence of seed grinding technology (manos and metates) is scarce. San Dieguito sites in the desert are typically found around dry Pleistocene playas (Moratto 2004). Site locations and assemblages suggest a subsistence emphasis on lacustrine resources and big game hunting.

3.2 Archaic Period

The Archaic Period in northern San Diego County is represented by the Pauma Complex, a local manifestation of the widespread Millingstone Horizon (Wallace 1955). The Millingstone Horizon has been identified throughout coastal southern and central California and includes La Jolla Complex of the San Diego region and the Pauma Complex in the foothills of San Diego and Riverside counties. These have very similar assemblages and are thought to be different environmental adaptations of the same culture (True 1958). A similar assemblage has been identified in the Cajon Pass area of Riverside County and is referred to as the Sayles Complex (Kowta 1969). This is thought to be transitional between the Pinto Complex of the Mojave Desert and the Millingstone Horizon of the coast (Kowta 1969:1).

The Pauma Complex assemblage suggests a generalized subsistence focus with an emphasis on hard seeds. This emphasis is indicated by the appearance of numerous slab and basin metates and the adoption of a mixed cobble/core-based tool assemblage composed primarily of crudely made choppers, scrapers, and cobble hammerstones.

Pauma Complex sites are typically found on terraces or ridges above a water source such as a stream. They often do not have discernible midden development, but they may have subsurface deposits. While they typically have numerous portable metates and manos, they lack bedrock milling, and mortars and pestles (True and Waugh 1981:101-102).

Major technological change within the Archaic Period in San Diego County appears to have been limited mainly to the introduction of large side-notched and Elko series projectile points. There seems to have been some reorientation in settlement from coastal to inland settings during the latter

portion of this period in northern San Diego County. This settlement shift appears to have occurred around 4,000 years ago and is thought to relate to the final phases of Holocene sea level rise and the resulting siltation of coastal lagoons. Prior to this time, the lagoons had been highly productive sources of shellfish for La Jollan people (Gallegos 1987; Warren et al. 1993).

3.3 Late Prehistoric Period

Near the coast and in the Peninsular Mountains beginning approximately 1,500 years ago, patterns began to emerge that suggest the ethnohistoric Kumeyaay. The Late Prehistoric Period is characterized by higher population densities and elaborations in social, political, and technological systems. Economic systems diversified and intensified during this period, with the continued elaboration of trade networks, the use of shell-bead currency, and the appearance of more labor-intensive but effective technological innovations. The late prehistoric archaeology of the San Diego coast and foothills is characterized by the Cuyamaca Complex. The Cuyamaca Complex is described by the presence of steatite arrow shaft straighteners, steatite pendants, steatite comales (heating stones), Tizon Brownware pottery, ceramic figurines reminiscent of Hohokam styles, ceramic "Yuman bow pipes," ceramic rattles, miniature pottery, various cobble-based tools (e.g., scrapers, choppers, hammerstones), bone awls, manos and metates, mortars and pestles, and Desert Side-notched (more common) and Cottonwood Series projectile points (True 1970).

Other parts of northern San Diego County are also represented by the San Luis Rey Complex (Meighan 1954; True et al. 1974). First described by Meighan (1954) and based on excavations at Pala some 16 miles north-northeast of the study area, San Luis Rey I sites are associated with bedrock milling features and often have recognizable midden soils. The artifact assemblage includes manos and metates, Cottonwood Triangular, and less frequently Desert Side-notched type projectile points, drills, bifacially flaked knives, bone awls, occasional steatite arrow shaft straighteners, and bone and shell ornaments (True and Waugh 1981:87). The Cottonwood Triangular and Desert Side-notched points are both smaller than earlier types, suggesting the introduction of bow-and-arrow technology into the region.

San Luis Rey II consists of the same assemblage with the addition of Tizon Brownware ceramics, red and black pictographs, cremation remains in urns, and historic materials such as glass beads and metal objects. True (1966) demonstrated that the San Luis Rey Complex almost certainly represents the ancestors of the Luiseño.

Meighan argued that ceramics, probably introduced into north San Diego County from the south, appeared around 1750 Common Era (C.E.) and were a product of indigenous diffusion that appeared at about the same time or slightly earlier than the Spanish arrival. In contrast, True et al. (1974) suggested that pottery may have appeared as early as 1200 to 1600 C.E. Later, Griset (1996) obtained 22 accelerator mass spectrometry dates from residue on pottery sherds, and she reviewed and recalibrated a number of others. Griset found four dates earlier than 800 C.E. The earliest pottery date in San Diego County according to Griset's study was from Ystagua at 549 C.E. (1996:251-253). However, Griset's data suggest that pottery was not common in San Diego County until about 1400 C.E. (1996:262). The earliest date for Tizon Brownware in the San Diego region is not long after the advent of Lower Colorado Buff Ware, which was dated as early as 430 C.E. in the vicinity of Blythe (Hildebrand 2003:258-259).

3.4 Ethnohistory

The study area falls along the border of the Luiseño and Kumeyaay tribal territories (ASM Affiliates, Inc. 2014), which can be described as a line following Agua Hedionda Creek, extending northeasterly inland towards Lake Henshaw, north into Riverside County, and west through San Juan Capistrano to the coast (Bean and Shipek 1978). The Kumeyaay historically occupied the area south of Agua Hedionda into what is now Baja California, Mexico, and east into the Imperial Valley. Spanish explorers and missionaries noted that this geopolitical boundary was not static but rather fluid and dynamic (Luomala 1978:593). Because of this fluidity, the San Marcos area could have been inhabited by either the Luiseño or the Kumeyaay during the late Prehistoric and Ethnohistoric periods (ASM Affiliates, Inc. 2014). Work by Gallegos (Gallegos et al. 2002) and Comeau (Comeau et al. 2012) has attributed nearby archaeological resources to the Luiseño. This evidence supports Sparkman's (1908) attribution of the area to the Luiseños.

The Luiseño are the most southwesterly of the Shoshonean or Uto-Aztecan speakers. Historically, the Luiseño social structure was the clan triblet. The triblet was composed of patrilineally related people who were politically and economically autonomous from neighboring triblets. Unlike other Takic-speaking tribes that surrounded them, the Luiseño do not appear to have been organized into exogamous moieties, but may have been loosely divided into mountain-oriented groups and ocean-oriented groups (Bean and Shipek 1978). One or more clans would have resided together in a village (Oxendine 1980). A hereditary village chief held a position that controlled economic, religious, and warfare powers (Bean and Shipek 1978). The chief had an assistant and an advisory council of shamans and ritual specialists. These positions were also hereditary, with successors being selected from the advisor's lineage.

Luiseño settlement systems have been carefully reconstructed on the basis of extensive ethnographic and ethnohistoric research (Bean and Shipek 1978; Kroeber 1925; Sparkman 1908; Strong 1929; White 1963). A Luiseño clan controlled one, or possibly more, specified territories, called rancherias. White (1963) suggests that the average inland rancheria had a territory of approximately 30 square miles. He suggested that the Luiseño settlement system consisted of a series of villages or rancherias located on terraces above a valley bottom watercourse (e.g., the San Luis Rey River). Villages were usually located in defensible locations in sheltered canyons or coves, or on the sides of slopes in warm thermal zones, near reliable water sources. The rancheria owned territory in a contiguous strip leading from the valley bottom to upland areas. This vertical pattern of rancheria territory facilitated gathering plant foods through the year. In early spring, tubers and berries first ripened along the watercourse below the rancheria. As spring turned to summer, chaparral plants near the rancheria became ripe. Later, those at a higher elevation above the rancheria ripened. In fall, people moved temporarily to higher elevations (e.g., Palomar Mountain) for the acorn harvest (White 1963).

A wide variety of plants growing in the various biotic communities between the coast and mountains were utilized by the Luiseño, including acorns, annual grasses, seeds, yucca, sage, chia, lemonade berry, manzanita, and other wild greens and fruits (Kroeber 1925) These resources become available at different times of the year, prompting moves to different campsites. In addition to plant-associated moves, trips to coastal camps to exploit marine resources such as shellfish, fish, and marine mammals would take place.

According to most ethnographic accounts, acorns were considered the most important food source (Bean and Shipek 1978). Since acorns mature at differing rates between groves, and even within individual groves, movement from place to place would have been necessary to be able to effectively harvest the annual acorn crop. Acorns could be harvested in one of two ways, either gathered from the ground after they had fallen or knocked off the tree with long sticks. After harvesting, acorns could either be processed into meal or stored for winter. Acorns had to be dry to be stored to prevent spoilage. Acorns to be processed were first shelled, then worked lightly with a pestle, and winnowed to remove the thin seed covering. Next, acorns were pounded to a fine flower and leached to remove the tannins. After this, acorn flour was ready to be cooked.

Baskets, both coiled and twined, were used in gathering, preparation, and storage of food (Bean and Shipek 1978). Basket size and shape depended on its use. Pottery vessels were used for cooking and storage. Pottery was made using the paddle and anvil technique, and was seldom decorated (Bean and Shipek 1978). Nets and pouches made of cordage and animal skins were used for carrying food and tools.

Animal resources used by the Luiseño included most of the mammals occurring in their territory, except for predator animals and tree squirrels (Bean and Shipek 1978). Reptiles were also avoided as a food source. Birds hunted included quail, ducks, and doves. Larger animals were hunted with the bow and arrow, while smaller game was caught using nets, deadfalls, slings, and throwing sticks. Game drives were also used for hunting rabbits and deer. Coastal marine animals exploited included sea mammals, fish, crustaceans, and mollusks (Bean and Shipek 1978). Basketry fish traps, seines, dip nets, bone, and shell hooks were used. Dugout and light balsa canoes were used for near-shore ocean fishing (Bean and Shipek 1978).

3.5 Spanish Period

The Spanish Period in Alta California (1769–1821) represents a time of European exploration and settlement. Military and religious contingents established the San Diego Presidio and the San Diego Mission in 1769, San Carlos Borromeo (Carmel) in 1770, and San Gabriel Arcangel in 1771. The opening of the mission system created the need to link Alta California with Sonora, Mexico. Juan Bautista de Anza of Tubac was commissioned to open up a road across the Colorado Desert to San Gabriel and on to Monterey. Mission San Luis Rey de Francia, the closest mission to the project, was founded on June 13, 1798 by Padre Fermin Lasuén. Two sub-missions, San Antonio de Pala Asistencia and Las Flores Estancia, were established in the early 1800s to support Mission San Luis Rey. The project is on the western end of Los Vallecitos de San Marcos Rancho, which was run by Mission San Luis Rey for cattle grazing.

The Spanish mission system used forced Native American labor to produce goods and provide services needed for European settlement. The mission system also introduced horses, cattle, sheep, and agricultural goods and implements as well as new construction methods and architectural styles. Also, with the arrival of the Spanish came devastating epidemics and very high death rates. According to available mission records, the worst year was 1806 when a measles epidemic spread through southern California. An estimated 33.5 percent of the Indian population along the coast died (Cook 1976:424).

3.6 Mexican Period

The Mexican Period (1821–1848) retained many of the Spanish institutions and laws. While Spanish and Mexican settlement was focused on coastal Alta California, exploration of inland areas continued, often during the course of pursuing neophytes that had run away from the missions. In 1824, Santiago Arguello, an officer of the San Diego Presidio "discovered" San Felipe Valley, which opened the route through present day Warner Springs and Riverside and on to the San Gabriel Mission. This route, which became known as the Sonora Road, soon became the official Mexican mail route (Gudde and Bright 2004; Lawton 1976:58).

The missions were secularized in 1834, opening vast tracts of former mission lands for private use and settlement. Los Vallecitos de San Marcos Rancho was granted to Don José Maria Alvarado in 1834 (Pourade 1969). Cattle ranching dominated the southern California economy, and the hide and tallow trade with New England merchant ships increased during the early part of the Mexican Period. Native American communities continued to decline, particularly those close to the coast. However, some Native Americans found jobs as *vaqueros*, laborers, gardeners, and housekeepers (Rolle 1998:57).

3.7 American Period

The signing of the treaty of Guadalupe Hidalgo in 1848, which signaled the end of the Mexican–American War, gave Alta California, the northern three-quarters of Arizona, New Mexico, a greatly enlarged Texas, and southern parts of Colorado, Nevada, and Utah to the United States (Rolle 1998:91). The treaty guaranteed citizenship to former Mexican citizens if they chose to stay in the new lands of the United States and it promised to respect their property. Native Americans had been granted Mexican citizenship in 1821 but the Americans never recognized their legal claims to U.S. citizenship, to property rights, or to other civil rights. In 1850, California was admitted to the Union as a free state (Phillips 1996:60-61).

On January 24, 1848, gold was discovered by John W. Marshall at Sutter's Fort in the central Sierra Nevada foothills. Sutter and Marshall did their best to keep it a secret, but the news of the discovery was published on March 15 in the *San Francisco Californian* newspaper. The subsequent Gold Rush launched an immigrant tide, which engulfed many of the Spanish and Mexican cultural traditions and eliminated many remaining vestiges of Native American culture. Many Mexican *ranchos* were overrun by forty-niners or dissolved in land claim disputes (Rolle 1998). Native American *Rancherias* were supposedly recognized by the American government in the terms of the Treaty of Guadalupe Hidalgo but not in reality.

The homestead system and the railroad encouraged American settlement in California after the Civil War, but settlement was slow in southern California. Most communities and ranches in northern San Diego and southern Riverside counties were not established until the land booms of the 1880s following completion of the Santa Fe and Southern Pacific railroads linking San Diego, Riverside, and San Bernardino with the East.

3.8 City of San Marcos

By the late 1850s, part of Los Vallecitos de San Marcos had been sold to Cave Couts, who primarily used the parcels to raise livestock. The remainder of the grant, sold to Lorenzo Soto by Jose Alvarado's widow, Lugarda Osuna, was patented by the U.S. Land Commission in 1883 (Carrol 1975:40). Major Gustavus French Merriam soon after established the first permanent European settlement in the North Twin Oaks Valley. On the 160-acre homestead, Merriam began wine and honey production (City of San Marcos 2010).

Not long after Major Merriam's settlement, German and Dutch immigrants began moving into the area in the early 1880s. By 1883, John H. Barham founded the first town in the area, just few miles south of the Merriam's settlement. Named "Barham Township," the new town site had a post office, a blacksmith, a feed store, and a weekly newspaper by 1884. The San Marcos Land Company purchased nearly all of the San Marcos land formerly owned by the Couts family in 1887, dividing the land into planned community tracts, establishing the town of San Marcos (City of San Marcos 2010). The arrival of the Santa Fe Railroad brought more people to the San Marcos area, but its siting outside the town forced the community to move the town center to present-day Mission Road and Pico Avenue. By the mid-1900s, dairies and poultry production became critical to the area's economic development (City of San Marcos 2010).

San Marcos saw another period of rapid growth after 1956 when it established a water connection with the Colorado River water supply. With more water came more opportunities for small businesses. Through the 1960s, the city slowly gained new residents but by the 1970s, San Marcos became the third fastest-growing city in the state with a population of 17,479. During the 1980s, San Marcos almost doubled its population to 33,800. Growth has continued to boom in San Marcos bringing the city's present population to 83,781 (City of San Marcos 2010).

4.0 Background Research

RECON requested a records search at the South Coastal Information Center, San Diego State University, which is a member of the California Historical Resources Information System. The search radius was one mile. No prehistoric or historic cultural resources are recorded on or adjacent to the project area. A total of 31 cultural resources have been documented within one mile of the project boundaries (Confidential Attachment 1; Table 1), including 9 prehistoric period resources and 22 historic period resources. In addition, there are 19 historic addresses listed within the one-mile search radius. A summary of the available site data appears in Table 1.

Table 1 Cultural Resources within One Mile of the Project				
Primary #	Trinomial	Age	Site Type	Recording Events
P-37-005584	CA-SDI-005584	Prehistoric	Lithic scatter; Bedrock milling feature	1977 (Randy Franklin)
P-37-005633	CA-SDI-005633	Prehistoric	Lithic scatter; Ceramic scatter; Bedrock milling feature; Burials; Habitation debris; Other - shell	1977 (Randy Franklin); 2002, 2007 (Delman James, Rich Bark, Brian Glenn, Jerry Sabio, Ted Cooley, Ogden Environmental Services, Inc.)
P-37-008813	CA-SDI-008813	Prehistoric	Lithic scatter; Bedrock milling feature	1981 (Linda Roth)
P-37-008814	CA-SDI-008814	Historic	Trash scatter; Other - burned residence	1981 (Linda Roth)
P-37-008815	CA-SDI-008815	Prehistoric	Lithic scatter	1981 (Linda Roth)
P-37-011663	CA-SDI-011663	Prehistoric	Lithic scatter	1990 (Scott Crull, Ken Smith, Palomar College)
P-37-013009	CA-SDI-013009	Prehistoric	Lithic scatter; Bedrock milling feature	1993 (B. Glenn, C. Schultze, K. Collins, Ogden Environmental Services, Inc.)
P-37-018186		Historic	Single-family property	1999 (P.S. Preservation Services)
P-37-018187		Historic	1-3 Story commercial building	1999 (P.S. Preservation Services)
P-37-018188		Historic	1-3 Story commercial building	1999 (P.S. Preservation Services)
P-37-018189		Historic	Industrial building	1999 (P.S. Preservation Services)
P-37-018190		Historic	Industrial building	1999 (P.S. Preservation Services)
P-37-018191		Historic	Industrial building	1999 (P.S. Preservation Services)
P-37-018192		Historic	1-3 Story commercial building; Single-family property	1999 (P.S. Preservation Services)
P-37-018193		Historic	Single-family property	1999 (P.S. Preservation Services)
P-37-018194		Historic	Single-family property	1999 (P.S. Preservation Services)
P-37-018195		Historic	Single-family property	1999 (P.S. Preservation Services)
P-37-018196		Historic	Single-family property	1999 (P.S. Preservation Services)
P-37-018197		Historic	Single-family property	1999 (P.S. Preservation Services)
P-37-018198		Historic	1-3 Story commercial building	1999 (P.S. Preservation Services)
P-37-018199		Historic	Industrial building	1999 (P.S. Preservation Services)
P-37-018200		Historic	Single-family property	1999 (P.S. Preservation Services)
P-37-018201		Historic	Single-family property	1999 (P.S. Preservation Services)
P-37-018202		Historic	Single-family property	1999 (P.S. Preservation Services)

Table 1 Cultural Resources within One Mile of the Project				
Primary #	Trinomial	Age	Site Type	Recording Events
P-37-025309	CA-SDI-016787	Prehistoric	Lithic scatter	2003 (Gallegos & Associates)
P-37-030664	CA-SDI-019476	Prehistoric	Lithic scatter	1994 (R. Carrico, D. James, and A. Pigniolo, Ogden Environmental Services, Inc.); 2009 (CalTrans District 11)
P-37-033557		Historic	Roads; Highway	2013 (Larry Tift, ASM Affiliates, Inc.); 2015 (Kent Manchen, Matt DeCarlo, ASM Affiliates, Inc.); 2017 (Haley Chateene, PanGIS); 2017 (A. Foglia, K. Keckeisen, PanGIS, Inc.); 2018 (Sarah Stringer-Bowsher, ASM Affiliates, Inc.)
P-37-036868		Historic	Dam	2016 (Lucas Piek, ASM Affiliates)
P-37-036869		Historic	Dam	2016 (Lucas Piek, ASM Affiliates)
P-37-036870		Prehistoric	Isolate - flake	2016 (Lucas Piek, ASM Affiliates)
P-37-038298		Historic	Single-family property	2019 (Terri Jacquemain, CRM Tech)

Fifty-eight cultural resources studies have been conducted within one mile of the project. One cultural resource investigation appears to have included the project area: Archaeological Survey for the Proposed Widening of South Santa Fe Avenue, Vista, California, conducted in 1974.

A letter was sent to the Native American Heritage Commission (NAHC) in Sacramento on February 11, 2022, requesting a search of their Sacred Lands File (Attachment 1). No response from the NAHC has been received as of the writing of this report.

Historic aerial photographs and topographic maps by Nationwide Environmental Title Research, LLC available online (at http://www.historicaerials.com) were inspected to identify any previous uses of the property. Aerial photographs from 1938, 1947, and 1953 show the project in agriculture. The 1938 and 1953 aerial photographs exhibit the parcels in fallow agriculture where the 1947 shows the central portion planted possibly with trees. All three aerials support that the agriculture originates from the adjacent property to the west which is supported by the 1949 topographic map. A 1964 aerial photograph shows building development in both parcels with ancillary structures supporting the northern parcel. Both parcels now have independent entrances to their properties off of what would be present-day South Santa Fe Avenue in the south and North Las Flores Drive to the north. The buildings and supporting structures on the parcel to the north were removed between 1989 and 1990. The building on the southern parcel was removed between 2005 and 2009. Also during this time, the present-day alignment for North Las Flores Drive was installed along with the generally west-facing bank of ornamental vegetation which dominates the eastern project boundary. A west-northwest by east-southeast alignment of K-Rails were added to the southern edge of the upper/northern terrace of the northern parcel between 2016 and 2018. Also installed in the upper/northern terrace during this time is an assumed drainage depression with stormwater manhole, culvert, and corrugated vertically placed metal pipe (Nationwide Environmental Title Research, LLC 2022).

5.0 Methods

The project area was surveyed by RECON archaeologist Nathanial Yerka on March 10, 2022. Mr. Yerka was accompanied by Native American monitor Vi'i Sialo'i of Saving Sacred Sites. Mr. Yerka served as project archaeologist and author and Carmen Zepeda-Herman served as principal investigator. Ms. Zepeda-Herman is a member of the Register of Professional Archaeologists and meets the Secretary of the Interior's Standards for Archaeology and Historic Preservation. The primary goal of this survey was to determine (1) if there are previously unrecorded cultural resources present, and if so, document the resources' locations and what they consist of, and (2) to update conditions of previously recorded cultural resources. The project area was inspected for evidence of archaeological materials such as debris, flaked and ground stone tools, ceramics, milling features, and human remains. Photographs were taken to document the environmental setting and general conditions.

6.0 Report of Findings

The survey did not identify any prehistoric artifacts or features, or any potentially significant historic artifacts or features.

The field inspection was conducted on foot, in conditions of high clouds, strong daylight, and cool temperatures. Survey transect intervals were approximately seven meters, spaced across the property. The project area is terraced into three generally flat steps with steep south-southwest-facing slopes. The entire surface of both parcels is disturbed. The southern parcel has a high amount of import gravel that link the area as a possible supporting parking area to the business adjacent to the west, with entry/exit to both the business improved parking area, as well as North Las Flores Drive (Photograph 1). Imported topping mulch is placed along a shallow berm that abuts the sidewalk of South Santa Fe Avenue and swings northeast to a manufactured slope with irrigated ornamental vegetation that supports Las Flores Drive. Near the top of the first/lower terrace are two granite imported boulders (Photograph 2). Near the eastern manufactured bank is an installed concrete stormwater culvert. At the southern edge of the second/upper terrace is a west-northwest by east-southeast alignment of K-Rails (Photograph 3). Also on this terrace is a central manufactured depression that is assumed to aid for drainage with stormwater manhole, culvert, and corrugated vertically placed metal pipe (Photograph 4). A significant amount of rodent disturbance occurs along the western boundary; back dirt was checked for cultural material. There is current project area ground surface disturbance in the form of off-highway vehicle and bicycle activity (Photograph 5; see also Photographs 1 and 3). The project area also exhibits a fair amount of modern rubbish, mostly in the form of broken consumer bottle glass, as well as episodic dumping of furniture (Photograph 6) and dimensional lumber.

PHOTOGRAPH 1
Overview of Project Area from the Southeast Corner, Looking North

PHOTOGRAPH 2
Two Granite Boulders Checked for Cultural Manipulation,
Looking North-Northeast

PHOTOGRAPH 3
Overview of Project Area from Northern Terrace on Eastern Boundary,
Looking Southwest

PHOTOGRAPH 4
Overview of Manufactured Drainage Area on Northern Terrace,
Looking South

PHOTOGRAPH 5
Overview of Southern Terrace Showing a Portion of OHV Disturbance, Looking South

PHOTOGRAPH 6
Episodic Rubbish Dumping on Northern Terrace, Looking West-Northwest

7.0 Management Considerations

The key consideration for the management of cultural resources within the CEQA framework is their eligibility for inclusion on the California Register of Historical Resources (CRHR). A resource must satisfy one or more of the qualifying criteria in order to be considered eligible for listing. In order to be eligible for listing in the CRHR, a resource must satisfy at least one of the following four criteria:

1) It is associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States.

2) It is associated with the lives of persons important to local, California, or national history.

3) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values.

4) It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Cultural and historical resources eligible for listing in the CRHR must meet one of the criteria of significance described above and retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. For the purposes of eligibility for CRHR, integrity is defined as "the authenticity of an historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance" (California Office of Historic Preservation 2005:67).

No significant prehistoric or historic cultural resources were found during the survey of the project area. No prehistoric or historic cultural resources were mapped on or immediately adjacent to the property in the record search files. Therefore, the project will have no impact on known prehistoric or historic cultural resources. However, it appears probable that soil has been dumped on a significant portion of the parcel, obscuring the original ground. Also, the project is in an area of alluvial deposition adjacent to San Marcos Creek. Because of these factors, the possibility exists for buried prehistoric archaeological deposits on-site. RECON recommends that all ground-disturbing activities for the project be monitored by a qualified archaeological monitor and a Native American monitor representing the Luiseño community. If archaeological materials are identified during construction activities, work in the immediate area shall cease and an archaeologist meeting the City of San Marcos Qualifications Standards for Archaeology must evaluate the find. If the discovery proves to be significant under CEQA, a data recovery program shall be implemented. If human remains are found, construction shall halt in the immediate area and procedures set forth in California Public Resources Code Section 5097.98 and State health and Safety Code Section 7050.5 shall be followed. After completion of monitoring, a final report with the monitoring methods and results shall be prepared and submitted to the City.

8.0 Certification and Project Staff

This report was prepared in compliance with the CEQA (Section 21083.2 of the Statutes and Appendix K of the Guidelines) and with policies and procedures of the City of San Marcos. To the best of my knowledge, the statements and information contained in this report are accurate.

Nathanial Yerka
Project Archaeologist/Author

Carmen Zepeda-Herman, M.A., RPA
Principal Investigator

The following individuals participated in the field tasks or preparation of this report.

Carmen Zepeda-Herman	Principal Investigator
Nathanial Yerka	Project Archaeologist/Author
Vi'i Sialo'i	Luiseño Native American Monitor
Benjamin Arp	GIS Specialist
Jennifer Gutierrez	Production Specialist

9.0 References Cited

ASM Affiliates, Inc.
2014 Cultural Resources Study for the Mulberry Drive Development Project, San Marcos. Manuscript on file at the South Coastal Information Center, San Diego State University.

Bean, Lowell, and Florence C. Shipek
1978 Luiseño. In *California,* edited by Robert F. Heizer. Handbook of North American Indians, vol. 8, William G. Sturtevant, general editor. Smithsonian Institution, Washington, DC.

California Office of Historic Preservation
2005 *Technical Assistance Series #10: California State Law and Historic Preservation: Statues, Regulations and Administrative Policies Regarding Historic Preservation and Protection of Cultural and Historical Resources*. Sacramento.

Carrol, William
1975 *San Marcos: A Brief History*. Coda Productions, San Marcos, California.

Comeau, Brad, Micah Hale, and Mark Becker
2012 Cultural Resources Survey Report for the Palomar Station Project, San Marcos, San Diego County, California. ASM Affiliates, Inc. Manuscript on file at the South Coastal Information Center, San Diego State University.

Cook, Shelburne F.
1976 *The Population of the California Indians, 1769-1970*. University of California Press, Berkeley.

Gallegos, D. R.
1987 A Review and Synthesis of Environmental and Cultural Material for the Batiquitos Lagoon Region. In *San Dieguito–La Jolla: Chronology and Controversy, edited by Dennis R. Gallegos*. San Diego County Archaeological Society Research Papers 1:23-34.

Gallegos, D.R., M. Guerrero, J. Flenniken, and T. Stopes
2002 Data Recovery Program for Packbell Site CA-SDI-5633, San Marcos, California. Gallegos and Associates, Carlsbad, CA. Manuscript on file at the South Coastal Information Center, San Diego State University.

Griset, Suzanne
1996 *Southern California Brown Ware*. Ph.D. Dissertation, Department of Anthropology, University of California, Davis.

Gudde, Erwin G., and William Bright
2004 *California Place Names: The Origin and Etymology of Current Geographical Names*. University of California Press, Berkeley.

Hildebrand, John
2003 Ceramics Excavated from the Lower Colorado River Region by the North Baja Pipeline Project. In *A View Across the Cultural Landscape of the Lower Colorado Desert: Cultural Resource Investigations for the North Baja Pipeline* Project edited by James H. Cleland and Rebecca McCorkle Apple, pp. 245-260. Document on file with the Southeast Information Center, Imperial Valley College Desert Museum, Ocotillo, California.

Kowta, Makoto
1969 The Sayles Complex: A Late Milling Stone Assemblage from Cajon Pass and the Ecological Implications of Its Scraper Planes. University of California Publications in *Anthropology* 6.

Kroeber, A. L.
1925 *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Smithsonian Institution, Washington.

Lawton, Harry W.
1976 History and Ethnohistory of the Yuha Desert (1769-1865). In *Background to Prehistory of the Yuha Desert Region,* edited by Philip J. Wilke, pp. 43-72. Ballena Press, Ramona, California.

Luomala, Katharine
1978 Tipai-Ipai. In *California,* edited by Robert F. Heizer. Handbook of North American Indians, vol. 8, William G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Meighan, Clement W.
1954 A Late Complex in Southern California Prehistory. *Southwestern Journal of Anthropology* 10:215-227.

Moratto, Michael
2004 *California Archaeology*. Reprint, Coyote Press, Salinas, California.

Nationwide Environmental Title Research, LLC
2022 Historic photographs of the survey area inspected at historicaerials.com. Accessed on March 10, 2022.

Oxendine, Joan
1980 The Luiseno Girls Ceremony. *Journal of California and Great Basin Anthropology* 2 (1)37-50.

Phillips, George H.
1996 *The Enduring Struggle: Indians in California History*. MTL, Inc., Sparks, Nevada.

Pourade, Richard F.
1969 *Historic Ranchos of San Diego*. A Copley Book, Union-Tribune Publishing, San Diego.

Rogers, Malcolm J.
1938 Archaeological and Geological Investigations of the Culture Levels in an Old Channel of San Dieguito Valley. *Carnegie Institution of Washington Yearbook* 37:344-45.

1939 *Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Desert Areas*. San Diego Museum of Man Papers 3.

1945 An Outline of Yuman Prehistory. *Southwestern Journal of Anthropology* 1(2):167-198. Albuquerque.

1966 *Ancient Hunters of the Far West,* edited by Richard F. Pourade. Union-Tribune. San Diego, California.

Rolle, Andrew
1998 *California: A History*. Harlan Davidson, Wheeling, Illinois.

San Marcos, City of
2010 *History*. Available at http://www.ci.san-marcos.ca.us/index.aspx?page=139. Accessed on January 27, 2015.

Sparkman, Philip S.
1908 The Culture of the Luiseño Indians. *University of California Publications in American Archaeology and Ethnology* 8(4):187-234.

Strong, William
1929 Aboriginal Society in Southern California. *University of California Publications in American Archeology and Ethnology* 26:1-358.

True, D.L.
1958 An Early Complex in San Diego County, California. *American Antiquity* 23(3):255-263.

1966 *Archaeological Differentiation of Shoshonean and Yuman Speaking Groups in Southern California*. Doctoral dissertation, University of California, Los Angeles. University Microfilms, Ann Arbor, Michigan.

1970 *Investigation of a Late Prehistoric Complex in Cuyamaca Rancho State Park, San Diego County, California*. Department of Anthropology Publications, University of California, Los Angeles.

True, D. L., and G. Waugh
1981 Archaeological Investigations in Northern San Diego County, California: Frey Creek. *Journal of California and Great Basin Anthropology* 3(1):84-115.

True, D. L., C. W. Meighan, and H. Crew
1974 *Archaeological Investigations at Molpa, San Diego County, California*. University of California Press, Berkeley, California.

U.S. Department of Agriculture
1973 Soil Survey, San Diego Area, California. Edited by Roy H. Bowman. Soil Conservation Service and Forest Service. December.

U.S. Geological Survey (USGS)
1996 7.5-minute topographic map series, San Marcos Quadrangle, Los Vallecitos de San Marcos Land Grant.

Wallace, William J.
1955 A Suggested Chronology for Southern California Coastal Archaeology. *Southwestern Journal of Anthropology*, Vol. 11, No. 3 (Autumn, 1955), pp. 214-230. University of New Mexico.

Warren, Claude N.
1961 The San Dieguito Complex and Its Place in California Prehistory. *Archaeological Survey Annual Report* (1960-1961). Department of Anthropology and Sociology, University of California, Los Angeles.

1964 *Cultural Change and Continuity on the San Diego Coast*. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Los Angeles.

1966 The San Dieguito Type Site: M. J. Rogers 1938 Excavation on the San Dieguito River. *San Diego Museum of Man Papers* 5.

1967 The San Dieguito Complex: A Review and Hypothesis. *American Antiquity* 32(2):168-185. Society for American Archaeology, Salt Lake City.

Warren, Claude N., Gretchen Siegler, and Frank Dittmer
1993 Paleoindian and Early Archaic Periods in *Historic Properties Background Study* by Brian F. Mooney and Associates. Document on file with the City of San Diego Clean Water Program.

White, Raymond
1963 Luiseno Social Organization. *University of California Publications in American Archaeology and Ethnology* 48(2):91-194.

ATTACHMENT 1

Native American Heritage Commission Request Letter

Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION
915 Capitol Mall, RM 364
Sacramento, CA 95814
(916) 653-4082
(916) 657-5390 – Fax
nahc@pacbell.net

Information Below is Required for a Sacred Lands File Search

Project: Santa Fe Flores

County: San Diego County

USGS Quadrangle

Name: San Marcos

Township: **Range:** **Section(s):** unsectioned Los Vallecitos de San Marcos

Contact Information

Company/Firm/Agency: RECON Environmental, Inc.

Contact: Carmen Zepeda-Herman

Street Address: 3111 Camino del Rio North, Suite 600

City: San Diego **ZIP:**92108

Phone: 619-308-9333

Fax: Click here to enter text.

Email: czepeda@reconenvironmental.com

Project Description:

The project proposes to construct multifamily housing within vacant parcels equaling 2.23 acres.

CONFIDENTIAL ATTACHMENT

Not for Public Review

APPENDIX D

Geotechnical Report

July 1, 2020

Paul Mayer
P.O. Box 903
Rancho Santa Fe, California

Project No. 19-2118C

Dear Mr. Mayer

Attached herewith is the Limited Geotechnical Investigation report prepared for the proposed San Marcos Residences Project to be located at 2972 South Santa Fe Avenue, San Marcos, California.

We appreciate this opportunity to provide geotechnical services for this project. If you have questions or comments concerning this report, please contact us at your convenience.

Respectfully submitted,
GHOSTRIDER, INC.

Jerry L. Michal
Senior Geotechnical Engineer

Distribution: Mr. Paul Mayer

LIMITED GEOTECHNICAL INVESTIGATION
SAN MARCOS RESIDENCES PROJECT
2972 SOUTH SANTA FE AVENUE
SAN MARCOS, CALIFORNIA
PREPARED FOR
MR. PAUL MAYER

INTRODUCTION

On May 6, 2020, a limited geotechnical investigation was performed by this firm for the proposed three-story accessory San Marcos Residences project to be located at 2972 South Santa Fe Avenue, San Marcos, California. The purposes of this investigation were to explore and evaluate the geotechnical engineering conditions at the subject site and to provide appropriate geotechnical engineering recommendations for design of foundation support and below grade walls, as well as recommendations for construction of the proposed development.

The location of the site is depicted on the Index Map (Enclosure A-1). Aerial imagery was used as a base map for our Site Plan (Enclosure A-2).

The results of our investigation, together with our conclusions and recommendations, are presented in this report.

SCOPE OF SERVICES

The scope of services provided during this limited geotechnical investigation included the following:

- A field reconnaissance of the site and surrounding area
- Logging and sampling of exploratory borings for testing and evaluation
- Laboratory testing on selected samples
- Evaluation of the geotechnical engineering/geologic data to develop site-specific recommendations for site grading and foundation design.
- Preparation of this limited report summarizing our findings, professional opinions and recommendations for the geotechnical aspects of project design and construction

PROJECT CONSIDERATIONS

Information furnished to this office indicates that the site is planned to be developed to include a 3-story multi-family residential structure with one to two (2) underground levels of parking. Light to moderate foundation loads are expected. Additional details were not provided during preparation of this report.

The final project grading and foundation plans should be reviewed by the geotechnical engineer.

SITE DESCRIPTION

The subject site is located at 2972 South Santa Fe Avenue in the City of San Marcos, California. The property, San Diego County Assessor's Parcel Number 217611900, is currently undeveloped and is about 0.8 acres in size. The highest elevation on the subject site is about 530 MSL in the northeast corner and the lowest is about 495 MSL in the southwest corner. The site is situated in northwest quarter of projected Section 20, Range 3 West, Township 11 South, San Bernardino Principal Meridian, at latitude 33.157418 ° north, longitude 117.200068 ° west.

FIELD INVESTIGATION

The soil conditions underlying the subject site were explored by means two (2) Hollow Stem Auger (HSA) exploratory borings (B-1 and B-2) drilled to a maximum depth of about 51 feet below ground surface (bgs) using a limited access rig, and three (3) hand augering borings (B-3 through B-5) drilled to depths of about 5 to 15 feet bgs. Samples were obtained with Modified California (MC) Split Spoon and Standard Penetration Tests (SPT) at intervals between 2.5 and 5 feet. The approximate locations of our exploratory borings are indicated on Enclosure A-2.

Continuous logs of the subsurface conditions, as encountered within the exploratory borings, were recorded at the time of drilling by a representative of this firm. Both relatively undisturbed and bulk

samples of typical soil types obtained were returned to the laboratory in sealed containers for testing and evaluation.

The exploratory boring logs, together with the in-place density data, are presented in Appendix B.

The exploratory borings were backfilled with excavated soils using reasonable effort to restore the areas to their initial condition prior to leaving the site, but they were not compacted to a relative compaction of 90 percent or greater. In an area as small and deep as a boring, consolidation and subsidence of soil backfill may occur over time causing a depression. The client is advised to observe exploratory boring areas occasionally and, when needed, backfill noted depressions.

LABORATORY INVESTIGATION

Included in the laboratory testing program were field dry density and moisture content tests on relatively undisturbed samples. The results are included on the exploratory boring logs. Sieve analysis and Atterberg limits were performed for classification purposes. Direct shear testing was performed for material strength evaluation and consolidation testing was performed to estimate amount of settlement of the cohesive materials. Preliminary corrosivity testing was performed by Project X Corrosion Engineering of Murrieta.

Laboratory test results appear in Appendix C. Soil classifications provided in our geotechnical investigation are in general accordance with the Unified Soil Classification System (USCS).

FAULTING AND GROUND RUPTURE

The site does not lie within an Alquist-Priolo (AP) Special Studies zone.

As with most of southern California, the subject site is situated in an area of active and potentially active faults. Active faults present several potential risks to structures, the most common of which

are strong ground shaking, dynamic densification, liquefaction, mass wasting, and surface rupture at the fault plane. The following four factors are the principal determinants of seismic risk at a given location:

- Distance to seismogenically capable faults.
- The maximum or "characteristic" magnitude earthquake for a capable fault.
- Seismic recurrence interval, in turn related to tectonic slip rates.
- Nature of earth materials underlying the site.

Based upon proximity to regionally significant, active faults, ground shaking is considered to be the primary hazard most likely to affect the site. Characteristics of the major active fault zones selected for inclusion in analysis of strong ground shaking are listed in the following table. Numerous significant fault zones are located at distances exceeding 40 kilometers from the site, as shown in Enclosure A-6, but greater distances, lower slip rates, and/or lesser maximum magnitudes indicate much lower risk to the site from the latter fault zones than those listed below.

Fault Zone[1,3,5]	Distance from Site (km)	Fault Length (km)[1,2]	Slip Rate (mm/yr)[1]	Reference Earthquake $M_{(Max)}$4	Fault Type[1]
Elsinore [Julian] (rl-ss)	26.9	75	3±1	7.3	A
Elsinore [Temecula] (rl-ss)	26.9	52	2.5±2	7.5	A
Rose Canyon [Del Mar] (rl-ss)	19.5	70	1.5±0.5	7.2	B
Rose Canyon (Oceanside) (rl-ss)	18.4	70	1.5±0.5	7.2	B
Newport Inglewood [Offshore] (rl-ss)	21.5	150	1.5±0.5	7.0	B
San Andreas [Coachella Segment] (rl-ss)	139	96	25.0±5.0	7.2	A

1. **California Department of Conservation, Geological Survey**, 2007 (Appendix A), *California Fault Parameters for the National Seismic Hazard Maps and Working Group on California Earthquake Probabilities*, CGS Special Report 203A, USGS Open File Report 2007-1437A.
2. **U.S. Department of the Interior, Geological Survey, 2008**, website: *2008 National Seismic Hazards Maps – Source Parameters*,.
3. **Southern California Earthquake Data Center**, website: *Significant Earthquakes and Faults*, http://scedc.caltech.edu/significant/fault-index.html
4. **U.S. Department of the Interior, Geological Survey, BSSC2014 (Scenario Catalog)**, website: https://earthquake.usgs.gov/scenarios/catalog/bssc2014/
5. Fault Geometry: (ss) strike slip; (r) reverse; (n) normal; (rl) right lateral; (ll) left lateral; (O) oblique; (45 N) direction.

REGIONAL GEOLOGIC SETTING

The subject site is situated in the Peninsular Ranges Geomorphic Province, one of eleven such provinces recognized in the California Geological Survey Note 36. The geomorphic provinces are topographic-geologic groupings of convenience based primarily on landforms, characteristic lithologies, and late-Cenozoic structural and geomorphic history. The northern portion of the Peninsular Ranges province encompasses southwestern California west of the Imperial-Coachella

Valley trough including the California coast and Santa Catalina and San Clemente Islands, and south of the major portion of the Transverse Ranges geomorphic province, which includes the Santa Monica, San Gabriel, and San Bernardino mountains. Most of the Peninsular Ranges province lies outside California, continuing south to include the Baja California Peninsula.

The province is characterized by youthful, steeply sloped, northwest-trending elongated ranges and intervening valleys whose general northwesterly trend is terminated abruptly on the north by the east-west grain of the Transverse Ranges. Average elevations across the province rise slowly to the east, culminating in generally abrupt escarpments and steep slopes near the eastern margin. Near the northern edge of the province lie several anomalously flat and low basins that stretch from the San Bernardino region to western Los Angeles. These basins generally result from fault junctures and tectonic interaction with the adjacent Transverse Ranges.

Structurally, the bulk of the Peninsular Ranges are composed of a number of relatively stable crustal blocks bounded by active strike-slip faults of the San Andreas transform system. Although some folding and minor faulting has occurred within the blocks, intense structural deformation and earthquake activity are generally restricted to block margins.

The province contains a diverse array of metamorphic, sedimentary, volcanic, and intrusive igneous rocks. Near the coastline, younger rocks include thick sequences of marine and non-marine clastic and pelitic sedimentary rocks of Mesozoic and Tertiary age, ranging from claystones to conglomerate. Inland, the province is dominated by large masses of chronologically correlative, granitic rock of varying composition belonging to the Southern California batholith. In general, metamorphic rocks of this province, which are found in close association with batholithic basement rocks, represent highly-altered host rocks for magmatic emplacement of the batholith during the Mesozoic Era.

The subject site is located in the San Diego coastal plain. The area of the subject site is underlain by Tertiary marine and non-marine, clastic sedimentary bedrock, which overlies crystalline basement

rock of the Southern California Batholith. A regional geology map (Ken and Tan, 2007) indicates the project site is located on the Eocene Santiago Formation, as shown in the Enclosure A-3.

SUBSURFACE SOIL CONDITIONS

Native soils consisting mainly of sandy clay and lean clay (CL) were observed during the field exploration at the proposed project site to the maximum explored depth of 50 ½ feet. Generally, clayey soils were grayish to dark brown in color, moist, and stiff to very stiff in consistency. Our exploratory logs are provided in Appendix B.

2019 CALIFORNIA BUILDING CODE - SEISMIC PARAMETERS

Based on the geologic setting and anticipated earthwork for construction of the proposed project, the soils underlying the site are classified as Site Class "D, stiff soil profile", according to the 2019 California Building Code (CBC). The seismic parameters according to the 2019 CBC are summarized in the following table.

2019 CBC - Seismic Parameters	
Mapped Spectral Acceleration Parameters	$S_s = 0.901$ and $S_1 = 0..331$
Site Coefficients	$F_a = 1.14$ and $F_v = 1.969$
Adjusted Maximum Considered Earthquake Spectral Response Parameters	$S_{MS} = 1.027$ and $S_{M1} = 0.652$
Design Spectral Acceleration Parameters	$S_{DS} = 0.685$ and $S_{D1} = 0.434$
Peak Ground Acceleration	$PGA_M = 0.471$
Seismic Design Category	D

GROUNDWATER

No groundwater was encountered within any hand auger boring to the maximum explored depth of 50 ½ feet. There are no water wells in the close vicinity of the project site from the State of California Department of Water Resources, Water Data Library. The nearest water well for which information was available through this water library, was well No. Station 331103N1171048W001, which is located about 8 miles southeast of the site. Groundwater information from this well indicated groundwater elevation was about 628 MSL in 1987, just 9 feet below ground surface at the subject site.

An inquiry to Geotracker located a report for a property within 200 feet east to the project site, as shown in Enclosure A-9. A total of 23 relevant water wells were installed between 2005 and 2016 and groundwater was encountered ad depths between 10 and 36 feet below ground surface at the site.

Based on these data, a design groundwater level is adopted at 10 feet below ground surface.

LIQUEFACTION POTENTIAL

The subject site does not lie within a zone of potential, seismically induced seismically-induced liquefaction (Enclosure A-5). Based on the type of soil, mapped shallow depth to bedrock, and groundwater depth greater than 50 feet, liquefaction is not considered to be a geologic constraint.

LANDSLIDES AND SLOPE STABILITY

There was no visual evidence of landslides on or near the subject property noted during the field investigation. There are no mapped landslides on or near the subject site as shown in Enclosure A-4. Landslides are not considered to be a geologic constraint at the subject site.

FLOODING POTENTIAL

According to FEMA, the subject site is within flood hazard zone "X" (2019), which is defined here as an area outside of the 0.2% annual flood risk zone, as presented in Enclosure A-7. Flooding is not considered to be a geologic constraint at the subject site.

Seiching:

Seiching is the oscillation of an enclosed body of water, usually due to strong groundshaking following a seismic event. Seiching can affect lakes, water towers, swimming pools. There were no enclosed bodies of water observed in close enough proximity to affect the project site. Seiching should not be considered to be a geologic constraint at this site.

Tsunamis:

Tsunamis are not considered to be a geologic hazard at the subject site due to its elevation and inland location.

EXPANSION POTENTIAL

A sample of the near surface soils was tested and indicated an Expansion Index (EI) of 155 which indicates a very high expansion potential. Specialized construction procedures to specifically resist expansive soil forces are anticipated for this site. Requirements for reinforcing steel to satisfy structural criteria are not affected by this recommendation. Additional evaluation of soils for expansion potential should be conducted by the geotechnical engineer during the grading operation.

CHEMICAL/CORROSIVITY TESTING

A selected sample of material was delivered to Project X Corosion Engineers for preliminary corrosivity analysis. Laboratory testing consisted of pH, resistivity, chlorides and sulfates. The results of the laboratory tests appear in Appendix C.

The result from the resistivity test indicates a "very corrosive" condition to ferrous metals. Specific corrosion control measures, such as coating of the pipe with non-corrosive material or alternative non-metallic pipe material, are considered necessary.

Results of the soluble sulfate testing indicate a Class S2 (or "severe") anticipated exposure to sulfate attack. Based on the criteria from Table 19.3.2.1 of the American Concrete Institute Manual of Concrete Practice (2014), special measures, such as specific cement types or water-cement ratios, are considered necessary for this Class S2 exposure to sulfate attack.

The soluble chloride content of the soils tested indicates is considered "corrosive" to reinforcing steel. The results should be considered in combination with the soluble chloride content of the hardened concrete in determining the effect of chloride on the corrosion of reinforcing steel.

Ghostrider, Inc. does not practice corrosion engineering. If further information concerning the corrosion characteristics, or interpretation of the results submitted herein, is required, then a competent corrosion engineer could be consulted.

CONCLUSIONS

On the basis of our field and laboratory investigations, it is the opinion of this firm that the proposed development is feasible from geotechnical engineering and engineering geologic standpoints, provided the recommendations contained in this report are implemented during grading and construction.

Moderate to severe seismic shaking can be expected at the site. There are no known active faults on or trending toward the subject site; the site does not lie within an Alquist-Priolo Special Studies zone.

Groundwater was not encountered within any of our exploratory borings at the site. Groundwater data from nearby wells indicate levels can be up to 10 feet below ground surface and this value is adopted for design. Liquefaction is not considered to be a potential hazard to the site.

Landslides are not considered to be a geologic constraint on the subject site. Temporary excavations are anticipated to conform to local and State codes with regard to the subsurface materials present at the site.

Materials encountered during this investigation were found to be highly expansive. Specialized construction procedures to specifically resist expansive soil forces are required to be implemented at the site with additional testing during grading.

Based upon our field investigation and test data, it is our opinion that for the proposed structure, deep foundations are an adequate option to support the proposed 3-story structure with one to two (2) underground levels due to the existence of highly compressive soils. The proposed structure can be also supported on a mat foundation following proper site development grading/excavation and if designed to accommodate total and differential settlement, as discussed in this report.

The final project grading and foundation plans should be reviewed by the geotechnical engineer.

FOUNDATION RECOMMENDATIONS

Based on a review of the conceptual plans, the proposed development is feasible from a geotechnical standpoint, provided that the recommendations presented in this report are implemented.

Deep foundations are an adequate option to support the proposed 3-story structure with one to two (2) underground levels. Foundation loads are not available at the time of preparing this report. Considering the subsurface conditions and anticipated large column loads, it is recommended the use of deep foundations consisting of grouped 24-inch diameter auger displacement piles (ACD). Driven piles are not recommended due to noise and vibration which may disturb surrounding neighbors during pile driving. We recommend 24-inch-diameter ACD piles to be tipped in the very dense layer found at a depth of approximately 50 feet below existing ground surface or deeper. Recommendations for allowable pile loads, settlements, and pile lengths are provided in the following subsections.

AXIAL CAPACITY

Pile axial resistance has been determined for 24-inch-diemeter ACD piles. Two different pile cut-off elevations have been considered to represent the portion of the structures with one basement level and (approximately 10 feet below existing ground surface) and the portion of the structure with two basement levels (approximately 20 feet below existing ground surface). The ultimate axial capacities with no factor of safety applied are presented in Enclosure A-8a. The allowable downward axial capacities have considered a factor of safety of 2 and are presented in Enclosure A-8b. Pile capacities shown in Enclosures A-8a and A-8b are for dead-plus-live load capacities; a one-third increase may be used for wind or seismic loads. The allowable upward axial capacities have considered a factor of safety of 3 and are presented in Enclosure A-8c. Uplift due to wind or seismic loading may use a reduced factor of safety of 2. The capacities presented in this report are based on the strength of the soils; the compressive and tensile strengths of the pile sections should be checked to verify the structural capacity of the piles.

LATERAL CAPACITY

The lateral capacity of the recommended piles was evaluated using the computer program LPILE v2016 (Ensoft, 2016) for head deflections of 0.25, 0.5 and 1 inches and for fixed head and free head conditions. Lateral capacities are summarized in the table below and shall be reviewed by the structural engineer to confirm the structural capacity of the pile.

Lateral Capacity of 24-inch ACD Single Pile				
Pile Head Condition	**Pile Head Deflection (inch)**	**Max. Shear (kips)**	**Max. Moment (kip-ft)**	**Depth to Max. Moment (feet)**
Free	0.25	14	68	8.4
	0.5	20	108	9.6
	1.0	27	172	10.8
Fixed	0.25	29	172	0.0
	0.5	41	271	0.0
	1.0	57	427	0.0

For grouped piles, the lateral pile capacity can be reduced based on a p-multiplier of 0.55, assuming a 3 by 3 pile group arrangement and a pile center-to-center spacing of 3D (where D is the pile diameter). In case piles are spaced at a center to center spacing of 7D or greater, no reduction in lateral pile capacity is needed and a single pile system can be used.

PILE SETTLEMENT

The amount of settlement estimated for the pile foundation is less than ½ inch. Once foundation details are completed, details should be provided to the geotechnical engineer for additional settlement estimates.

MAT FOUNDATIONS

The proposed structure can be supported on a mat foundation following proper site development grading/excavation and designed to accommodate total and differential settlement, as discussed in this report.

Subgrade Reaction

The modulus of subgrade reaction concept is used in the design of the mat foundations and slabs-on-grade. This modulus is not an intrinsic property of the soil as depends on the dimensions and stiffness of the slab and the stress level. The mat slab foundation should be designed for bending moments using a value of 200 pounds per cubic inch (pci) for the normalized modulus of subgrade reaction coefficient K_{v1} (namely, corresponding to a 1-foot square bearing plate). Following Terzaghi (1955), the subgrade reaction coefficient, K_v, can be defined as:

$$K_v = K_{v1} * [(m + 0.5)/1.5m] * [(B+1)/2B]^2$$

where "B" is the width of the foundation measured in feet, and "m" is the ratio of length over width of a rectangular foundation.

The flat concrete slab of the mat system should, at a minimum, have continuous two-way reinforcing at the top and the bottom and be designed by the project structural engineer.

Bearing Capacity and Settlement

An allowable bearing pressure of 1,000 psf may be used for design. The allowable bearing pressure may be increased by one-third for short term wind or seismic loads. The expected total post-construction settlement of the mat slab is expected to be on the order of 2 inches. The differential settlement is expected to be less than one half of the total settlement.

Lateral Resistance

Resistance to lateral loads can be provided by friction developed between the bottom of foundation and the supporting soil, and by the passive soil pressure developed on the face of the footing. For design purposes, an allowable passive resist of 300 pounds per cubic foot (pcf) and a coefficient of friction of 0.40 may be used for lateral sliding resistance of foundation.

CONSTRUCTION RECOMMENDATIONS

GENERAL SITE GRADING:

It is imperative that no clearing and/or grading operations be performed without the presence of a representative of the geotechnical engineer. An on-site, pre-job meeting with the developer, the contractor and the geotechnical engineer should occur prior to all grading-related operations. Operations undertaken at the site without the geotechnical engineer present may result in exclusions of affected areas from the final compaction report for the project.

Grading of the subject site should be performed, at a minimum, in accordance with these recommendations and with applicable portions of the current California Building Code (CBC). The following recommendations are presented for your assistance in establishing proper grading criteria.

INITIAL SITE PREPARATION:

All areas to be graded should be stripped or cleaned of significant vegetation and other deleterious materials. Deleterious materials include slabs, trees, vegetation, trash, and demolition debris. These materials should be removed from the site for disposal. The cleaned soils may be reused as properly compacted fill. Rocks or similar irreducible material with a maximum dimension greater than 8 inches should not be used in compacted fills. If encountered, existing utility lines should be traced, removed and rerouted from areas to be graded.

MINIMUM MANDATORY REMOVAL AND RECOMPACTION OF EXISTING SOILS:

The field exploration indicated the site is underlain by native soils generally consisting stiff to very stiff clays. These soils are considered potentially compressible. The preliminary plans indicated that a portion of the building would have one and two basement levels at about 10 to 20 feet below the exiting grade.

Based on these considerations, we recommend the following removals for the different foundation systems:

- Structures supported on pile foundation do not require removal of soils if prepared following recommendations on this report
- Structures supported on mat foundations or slabs on grade require removal of at least 2 feet of soil below the bottom of the footing. The areas should extend at least 3 feet laterally beyond the footing lines. For general areas (excluding the unit footprint), surface improvements such as sidewalks and exterior flatwork, removal and recompaction should be a minimum of 1 feet below existing grade.

The open excavation bottoms observed by our engineer/ geologist to verify and document in writing that all undocumented fill is removed prior to refilling with properly tested and documented compacted fill. The removed and cleaned soils are not suitable to be reused as compacted fill material due to the cohesive material content. Import fill sources should be observed and tested prior to hauling onto the site to evaluate the suitability for use. Imported fill materials should consist of granular soil with less than 35 percent passing the No. 200 sieve based on ASTM D1140 and an EI less than 20 based on ASTM D489.

Further subexcavation may be necessary depending on the conditions of the underlying soils. The actual depth of removal should be determined at the time of grading by the project geotechnical engineer/geologist. The determination will be based on soil conditions exposed within the excavations. At minimum, any undocumented fill, topsoil or other unsuitable materials should be removed and replaced with properly compacted fill.

In-place density tests may be taken in the removal bottom areas where appropriate to provide data to help support and document the engineer/geologist's decision.

EXCAVATION ADJACENT TO EXISTING STRUCTURES:

Removal and recompaction of the soils adjacent to existing structures may result in unacceptable distress by the removal of bearing and lateral support. The following precautionary measures should be utilized during proposed subexcavation/recompaction operations to reduce the potential for distress to existing adjacent structures.

During compacted fill mat construction for the proposed structure, the excavation and replacement of soils adjacent to any existing structures should be accomplished in the shortest period of time possible. Sufficient forces and equipment should be available to accomplish any removal and replacement of soils adjacent to existing structures within one 8-hour working day. The excavation should not be performed during periods of rain or threat of rain. During the excavation operation, the moisture content of the soils near existing structures should be monitored. If excessive moisture contents or excessively dry soils are encountered, the geotechnical engineer should be notified immediately.

The actual excavation and recompaction of soils near existing structures should be performed in alternating sections. A checkerboard-type (A-B) system should be utilized by initially removing and recompacting every other square and thereupon going back and removing and recompacting the remaining squares. The width of these excavations is usually equal to the blade or bucket size of the available equipment but should not exceed 6 feet.

PREPARATION OF FILL AREAS:

Prior to placing fill, and after the mandatory subexcavation operation, the surfaces of all areas to receive fill should be scarified and moisture treated to a depth of 6 inches or more. The soils should be brought to near optimum moisture content and compacted to a minimum relative compaction of 90 percent in accordance with ASTM D1557.

PREPARATION OF FOOTING AREAS:

All footings should rest upon at least 2 feet of properly compacted fill material. In areas where the

required thickness of compacted fill is not accomplished by the mandatory removal operation, the footing areas should be overexcavated to a depth of 12 inches or more below the lowest proposed footing base grade. The required overexcavation should extend at least 3 feet laterally beyond the footing lines, where reasonably possible. In instances where the 3-foot lateral overexcavation may not be accomplished, this firm should be contacted to evaluate the effect. The bottom of this excavation should then be scarified, and moisture treated to a depth of at least 6 inches, brought to near optimum moisture content and compacted to a minimum of 90 percent relative compaction in accordance with ASTM D1557 prior to refilling the excavation to the required grade as properly compacted fill.

All footing excavations should be observed by a representative of the project geotechnical engineer to verify that they have been excavated into compacted fill prior to placement of forms, reinforcement, or concrete. The excavations should be trimmed neat, level, and square. All loose, sloughed or moisture-softened soils should be removed from the excavations prior to placing of concrete. Excavated soils derived from the footing and/or utility trenches should not be placed in building slab-on-grade areas or exterior concrete flatwork areas unless the soils are brought to near optimum moisture content and compacted to at least 90 percent of the maximum dry density.

COMPACTED FILLS:

The on-site soils are not considered suitable for reuse as compacted fill. Import fill should be inorganic, non-expansive granular soils free from rocks or lumps greater than 6 inches in maximum dimension. The contractor shall notify the geotechnical engineer of import sources sufficiently ahead of their use so that the sources can be observed and approved as to the physical characteristic of the import material. For all import material, the contractor shall also submit current verified reports from a recognized analytical laboratory indicating that the import has a "not applicable" potential for sulfate attack based upon current American Concrete Institute (ACI) criteria and is "mildly corrosive" to ferrous metal and copper. The reports shall be accompanied by a written statement from the contractor that the laboratory test results are representative of all import material that will be brought to the job.

Fill should be spread in near-horizontal layers, approximately 8 inches thick. Thicker lifts may be approved by the geotechnical engineer if testing indicates that the grading procedures are adequate to achieve the required compaction. Each lift should be spread evenly, thoroughly mixed during spreading to attain uniformity of the material and moisture in each layer, brought to near optimum moisture content and compacted to a minimum relative compaction of 90 percent in accordance with ASTM D1557.

TEMPORARY EXCAVATION AND SHORING

Excavations for construction of basement levels are anticipated to be as deep as 10 feet below existing grade to the front of the proposed building and 20 feet to the back of the building. The contractor is responsible for excavation safety, and all excavations should comply with the current California and Federal Occupational Safety and Health Administration (CALOSHA) requirements (29 CFR-Part 1926, Subpart P), as applicable. Temporary slopes, up to 20 feet high, may be cut at a gradient of 3/4H:1V (horizontal:vertical) with the bottom 4 feet is permitted to be cut vertically.

If sloping or benching is not practical due to space constraints, temporary shoring may be used. Vertical temporary excavations deeper than 5 feet should be shored. No surcharge loads should be permitted within a horizontal distance equal to the height of cut or 5 feet, whichever is greater from the top of the excavation, unless the shoring is designed for surcharge loading. All shoring should comply with OSHA regulations and 29 CFR Part 1926 guidelines and be observed and deemed safe by the designated competent person on site. The designated competent person should observe all excavations to determine the safety prior to excavation.

For design of cantilevered temporary shoring, where the surface of the backfill is level, it can be assumed that drained soils will exert a lateral pressure equal to that developed by a fluid with a density of 37 pcf. Surcharge loads from equipment or stockpiled material should be kept behind the top of the temporary excavations a horizontal distance of at least twice the depth of the excavation, or the shoring should be designed for the additional pressure. Foundation and traffic loads from adjacent

areas should also be added to the lateral earth pressures.

For design of temporary rigid shoring such as braced shoring or trench shields in sandy soils, we recommend the use of a rectangular lateral pressure of 24H psf, where H is the height of the shoring in feet. In addition, 46 percent of any surcharge load should be included as a uniform rectangular loading on the shoring. For traffic loads no larger than highway trucks, the surcharge may be taken as a uniform lateral pressure of 100 psf. Other surcharge loads may be evaluated by Ghostrider on a case-by-case basis.

Surface drainage should be controlled and prevented from running down the temporary excavations or down the face of the shoring. Ponding water should not be allowed within the excavation.

To provide adequate support, concrete slabs-on-grade should bear on a minimum of 24 inches of compacted soil. The final pad surfaces should be rolled to provide smooth, dense surfaces. Concrete slabs-on-grade should be a minimum of 4 inches in thickness and should consist of at least No. 3 reinforcing bars spaced at 16 inches on center each way. Additional reinforcement may be required by the structural engineer.

Slabs to receive moisture-sensitive coverings should be provided with a moisture vapor retarder/barrier. We recommend that a vapor retarder/barrier be designed and constructed according to the American Concrete Institute 302.1R, Concrete Floor and Slab Construction, which addresses moisture vapor retarder/barrier construction. At a minimum, the vapor retarder/barrier should comply with ASTM E1745 and have a nominal thickness of at least 10 mils. The vapor retarder/barrier should be properly sealed, per the manufacturer's recommendations, and protected from punctures and other damage. Per the Portland Cement Association (www.cement.org/tech/cct_con_vapor_retarders.asp), for slabs with vapor-sensitive coverings, a layer of dry, granular material (sand) should be placed under the vapor retarder/barrier. For slabs in humidity-controlled areas, a layer of dry, granular material (sand) should be placed above the vapor retarder/barrier.

EXCAVATIONS:

The soils encountered within our exploratory borings are generally classified as a Type "A" soil in accordance with the CAL/OSHA excavation standards. Unless specifically evaluated by our engineering geologist, all the trench excavations should be performed following the recommendation of CAL/OSHA (State of California, 2013) for Type "A" soil. Based upon a soil classification of Type "A", the temporary excavations should not be inclined steeper than ¾ horizontal to 1 vertical for maximum trench depth of less than 20 feet. For trench excavations deeper than 20 feet or for conditions that differ from those described for Type "A" in the CAL/OSHA excavation standards, this firm should be contacted.

BASEMENT WALLS:

Basement walls below grade must be designed to resist at-rest earth pressures. Where the grade is level behind the walls, this pressure corresponds to a triangular distribution of lateral earth pressure equivalent to that developed by a fluid with a density of 46 pcf. This earth pressure assumes that all walls are constructed with a properly designed drainage system to prevent buildup of hydrostatic pressures behind the wall. Any surcharge loadings such as heavy crane loads, stockpiled materials or traffic shall be added to this pressure.

Basement walls should also be designed for seismic earth pressure. Basement walls should be designed to resist, an active pressure combined with a seismic increment of lateral active earth pressure. To compute this, a horizontal acceleration coefficient k_h of 0.16g based on one-half of two-third of PGA_M is used. The combination of active static and seismic lateral earth pressure is equivalent to a fluid with a density of 37 pcf. Therefore, a seismic increment of 12 pcf may be used for design of seismic earth pressure.

Lateral earth pressures recommended in this report assume that adequate drainage is provided behind the walls to prevent the buildup of hydrostatic pressures. Basement wall should have backdrains to adequately prevent the buildup of hydrostatic pressure behind the walls.

POTENTIAL EROSION AND DRAINAGE:

The potential for erosion should be mitigated by proper drainage design. The site should be graded so that surface water flows away from structures at a minimum gradient of 5 percent for a minimum distance of 10 feet from structures. Impervious surfaces within 10 feet of structures should be sloped a minimum of 2 percent away from structures. Water should not be allowed to flow over graded areas or natural areas so as to cause erosion. Graded areas should be planted or otherwise protected from erosion by wind or water.

Water should not be permitted to collect or pond in yard areas. This water will either seep into the ground (loosening the soils) or will overflow onto the slope. Once erosion is started, it is difficult to control, and severe damage can occur quickly.

Homes should be provided with roof drains, gutters, and downspouts connected to subsurface pipes. Roof water should not be allowed to discharge onto the ground surface without collecting into surface drains and pipes. Water should not be allowed to collect against foundations or retaining walls. These walls are typically built to withstand the effects of normal soil moisture and may require subsurface drains to collect and transfer excessive water away from the structures.

All drainage devices should be checked at least twice per year to ensure that they are not blocked. All blockages should be cleared.

Drains at the top of slopes should not allow water to overflow onto the slope.

Terrace drains and brow ditches on slopes or at the tops of slopes are designed to carry runoff water to an appropriate discharge point. These drains should be checked at least twice per year and cleaned of any accumulation of dirt and other debris. Water that backs up in surface drains will overflow and seep into the slope, creating instability.

Loose soil or debris should not be left on slopes. Loose soils soak up water more readily than compacted fill and will often slide downslope. This material may clog terrace drains and may cause additional slope damage.

Slopes should not be over-irrigated. Naturally, ground cover will require some moisture during the hot summer months, but during the wet season, irrigation can cause heavy ground cover to move, which not only destroys the cover, but also may begin slope surface erosion. Heavy ground cover can cause surface sloughing when saturated due to the increased weight and weakening of the near surface soil.

Irrigation systems should not be left running on or near a slope, particularly during the rainy season.

Swales that have been graded around the home or on the lot should not be blocked. These swales are typically constructed to provide drainage toward the driveways, street or other positive outlet.

SLOPE SETBACK:

As per section 1808.7.2 of the 2019 CBC, which references Figure 1808.7.1 of the 2019 CBC, the distance between the face of the footing from the face of descending slopes should be at least the smaller of H/3 and 40 feet, where H is the height of the slope. The distance between the face of the structure and the toe of ascending slopes should be the smaller of 15 feet and H/2. Footings should be deepened as necessary to meet this requirement.

SLOPE CONSTRUCTION:

Slopes for the project should be inclined at 2H:1V or shallower. Fill slopes should be overfilled during construction and then cut back to expose fully compacted soil. A suitable alternative would be to compact the slopes during construction and then roll the final slopes to provide dense, erosion-resistant surfaces.

Where fills are to be placed against existing slopes steeper than 5(h):1(v), and the depth of fill exceeds 5 feet, the existing slopes should be benched into competent bedrock or native materials to provide a series of level benches to seat the fill and to remove potential undocumented fill. The benches should be a minimum of 4 feet in width, constructed at approximately 4-foot vertical intervals. In addition, a shear key should be constructed across the toe of slopes. The shear key should be a minimum of 10 feet wide and should penetrate a minimum of 2 feet beneath the toe of the slope into competent bedrock or native materials.

SLOPE PROTECTION:

Inasmuch as the on-site materials are susceptible to erosion by wind and running water, it is our recommendation that the slopes at the project be planted as soon as possible after completion, where possible. The use of succulent ground covers, such as iceplant or sedum, is not recommended. If watering is necessary to sustain plant growth on slopes, then the watering operation should be monitored to assure proper operation of the water system and to prevent over watering.

Measures should be provided to prevent surface water from flowing over slope faces.

Rodent infestation can also be a serious issue with respect to slope stability. Rodent tunneling and burrowing alters the strength of the soil and can allow water to infiltrate the soil, resulting in slope failure. Rodent burrows can also provide direct access for surface water to the slope face, causing surficial slope "blowouts". Although a maintenance issue, we recommend that measures be taken to prevent rodent infestation in slopes.

FOUNDATION PLAN REVIEW

It is recommended that we review the foundation plans for the proposed structure as they become available. The purpose of this review is to determine if these plans have been prepared in accordance with the recommendations contained in this report. This review will also provide us an opportunity to submit additional recommendations as conditions warrant.

GRADING PLAN REVIEW

The project civil engineer should review this report, incorporate critical information on to the grading plan and reference this geotechnical study, by company name, project number and report date, on the grading plan. Final grading plans should be reviewed by us when they become available to address the suitability of our grading recommendations with respect to the proposed development.

CONSTRUCTION OBSERVATION:

All grading operations, including site clearing and stripping, should be observed by a representative of the geotechnical engineer. The geotechnical engineer's field representative will be present to provide observation and field testing and will not supervise or direct any of the actual work of the contractor, his employees or agents. Neither the presence of the geotechnical engineer's field representative nor the observations and testing by the geotechnical engineer shall excuse the contractor in any way for defects discovered in his work. It is understood that the geotechnical engineer will not be responsible for job or site safety on this project, which will be the sole responsibility of the contractor.

LIMITATIONS

Ghostrider, Inc. has striven to perform our services within the limits prescribed by our client, and in a manner consistent with the usual thoroughness and competence of reputable geotechnical engineers and engineering geologists practicing under similar circumstances. No other representation, express or implied, and no warranty or guarantee is included or intended by virtue of the services performed or reports, opinion, documents, or otherwise supplied.

This report reflects the testing conducted on the site as the site existed during the investigation, which is the subject of this report. However, changes in the conditions of a property can occur with the passage of time, due to natural processes or the works of man on this or adjacent properties. Changes in applicable or appropriate standards may also occur whether as a result of legislation, application or the broadening of knowledge. Therefore, this report is indicative of only those conditions tested at

the time of the subject investigation, and the findings of this report may be invalidated fully or partially by changes outside of the control of Ghostrider, Inc. This report is therefore subject to review and should not be relied upon after a period of one year.

The conclusions and recommendations in this report are based upon observations performed and data collected at separate locations, and interpolation between these locations, carried out for the project and the scope of services described. It is assumed and expected that the conditions between locations observed and/or sampled are similar to those encountered at the individual locations where observation and sampling was performed. However, conditions between these locations may vary significantly. Should conditions that appear different than those described herein be encountered in the field by the client or any firm performing services for the client or the client's assign, this firm should be contacted immediately in order that we might evaluate their effect.

If this report or portions thereof are provided to contractors or included in specifications, it should be understood by all parties that they are provided for information only and should be used as such.

The report and its contents resulting from this investigation are not intended or represented to be suitable for reuse on extensions or modifications of the project, or for use on any other project.

CLOSURE

We appreciate this opportunity to be of service and trust this report provides the information desired at this time. Should questions arise, please do not hesitate to contact this office.

Respectfully submitted,

GHOSTRIDER, INC.

Jerry L Michal

Jerry L. Michal, GE 2515
Geotechnical Engineer

REFERENCES

American Concrete Institute, 2014, Building Code Requirements for Structural Concrete (ACI 318-14), Commentary on Building Code Requirements for Structural Concrete (ACI 318R-14), American Concrete Institute

California Building Code (CBC), California Code of Regulations, Title 24, Part 2, Volume 2 of 2, California Building Standards Commission, Sacramento, California, 2019.

California Department of Conservation, Geological Survey, 2008, Kennedy, M.P., and Tan, S.S., Geologic Map of the Oceanside 30' x 60' Quadrangle, California, Regional Geologic Map Series, Scale: 1:100,000.

California Department of Water Resources, Interactive Web Site, http://www.water.ca.gov/waterdatalibrary/groundwater/

California Department of Water Resources, Control Board, Geotracker Website, https://geotracker.waterboards.ca.gov

Coduto, Donald P., 2001, Foundation Design, Principles and Practices 2nd Edition, Prentice-Hall.

Coduto, Donald P., et.al., 2011, Geotechnical Engineering Principles and Practices, 2nd edition, Pearson.

Das, Braja, M., 2007, Principles of Foundation Engineering, 6th edition, Thomson.

Day, R. W., 2012, Geotechnical Engineer's Portable Handbook, Second Edition, McGraw-Hill, New York

Ensoft, 2019, LPile Software

Harden, D.R., 1997, California Geology: Prentice Hall.

SEAOC/OSHPD Seismic Design Maps, https://seismicmaps.org/

Terzaghi, K., "Evaluation of Coefficients of Subgrade Reaction", Journal of Geotechnique, Vol. 5, 1955.

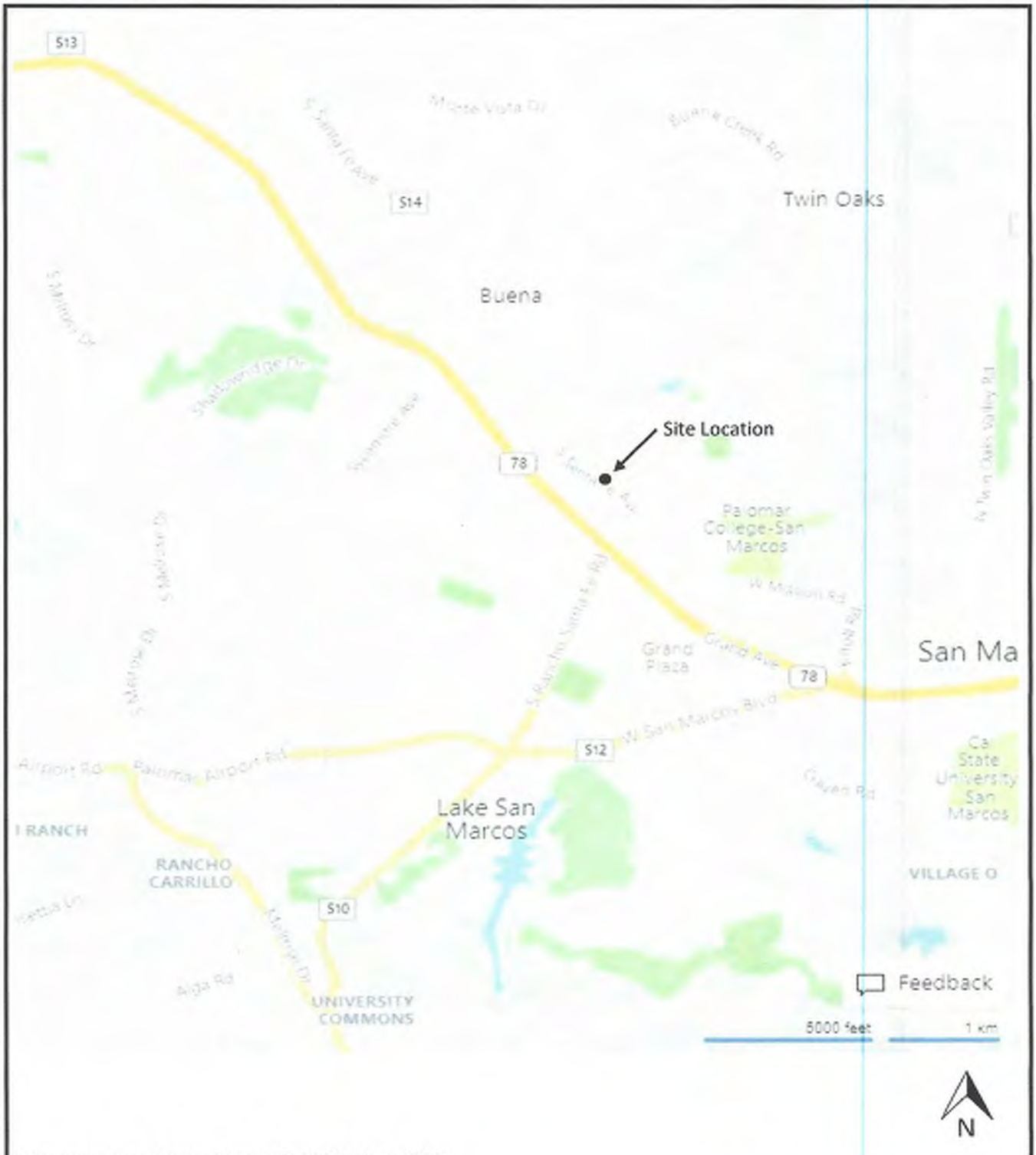
U.S. Department of Homeland Security, Federal Emergency Management Administration, 2012, Flood Insurance Rate Map 06073C0787H, Scale 1:6,000.

U.S. Department of the Interior, Geological Survey, 2019, Landslide Inventory Hazard Program, ESRI. https://www.usgs.gov/news/landslide-risks-highlighted-new-online-tool

This Page Intentionally Left Blank

Appendix A

Maps and Pile Calculations



Reference: Bing Maps, Microsoft 2020, Here 2020

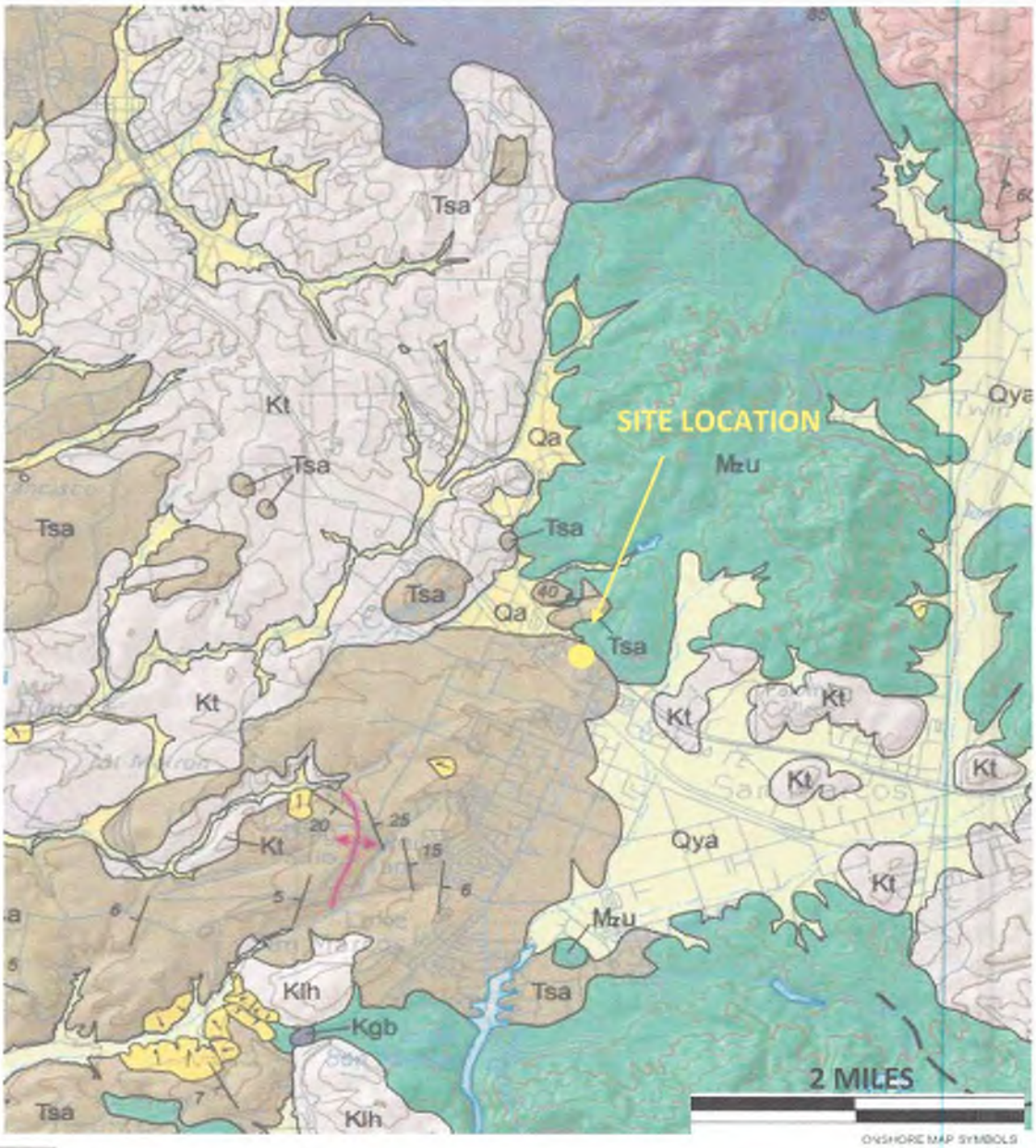
Date:	Index Map	GHOSTRIDER	Figure
5/29/2020	South Santa Fe Ave.		A-1
Drawn By:	San Marcos, CA 92069		
L.B.			

Appx. Boring Location

N

Reference: Bing Maps, Microsoft 2020, Here 2020

Date:	Boring Locations		Figure
5/29/2020	South Santa Fe Ave.	GHOSTRIDER	A-2
Drawn By:	San Marcos, CA 92069		
L.B.			



Kt — Tonalite, undivided (mid-Cretaceous)

Mzu — Metasedimentary and metavolcanic rocks, undivided (Mesozoic)

Qya — Young alluvial flood-plain deposits (Holocene and late Pleistocene)

Tsa — Santiago Formation (middle Eocene)

Qa — Alluvial flood-plain deposits (late Holocene)

ONSHORE MAP SYMBOLS

Reference: Oceanside 30'x60' Quadrangle, Kennedy and Tan, 2007

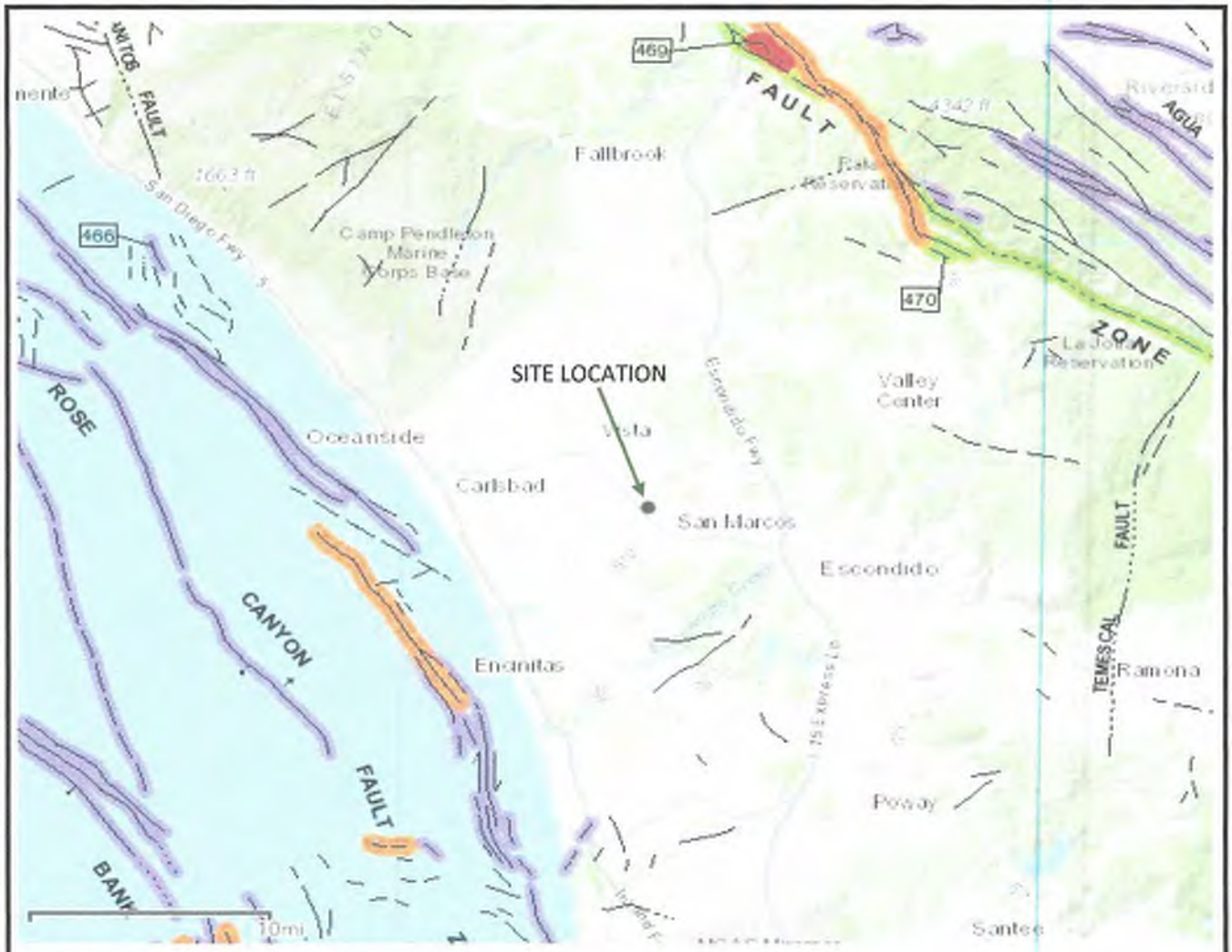
Date:	Geologic Map	GHOSTRIDER	Figure
5/29/2020	South Santa Fe Ave.		A-3
Drawn By:	San Marcos, CA 92069		
L.B.			

Reference: USGS U.S. Landslide Inventory Hazard Program, ESRI, HERE

Date:	Landslide Hazards	GHOSTRIDER	Figure
5/29/2020	South Santa Fe Ave.		A-4
Drawn By:	San Marcos, CA 92069		
L.B.			

Reference: Google Earth, Google 2019, SD County, SANDAG, LUEG-GIS, National Earthquake Hazards Reduction Program

Date:	Liquefaction Hazards	GHOSTRIDER	Figure
5/29/2020	South Santa Fe Ave.		A-5
Drawn By:	San Marcos, CA 92069		
L.B.			

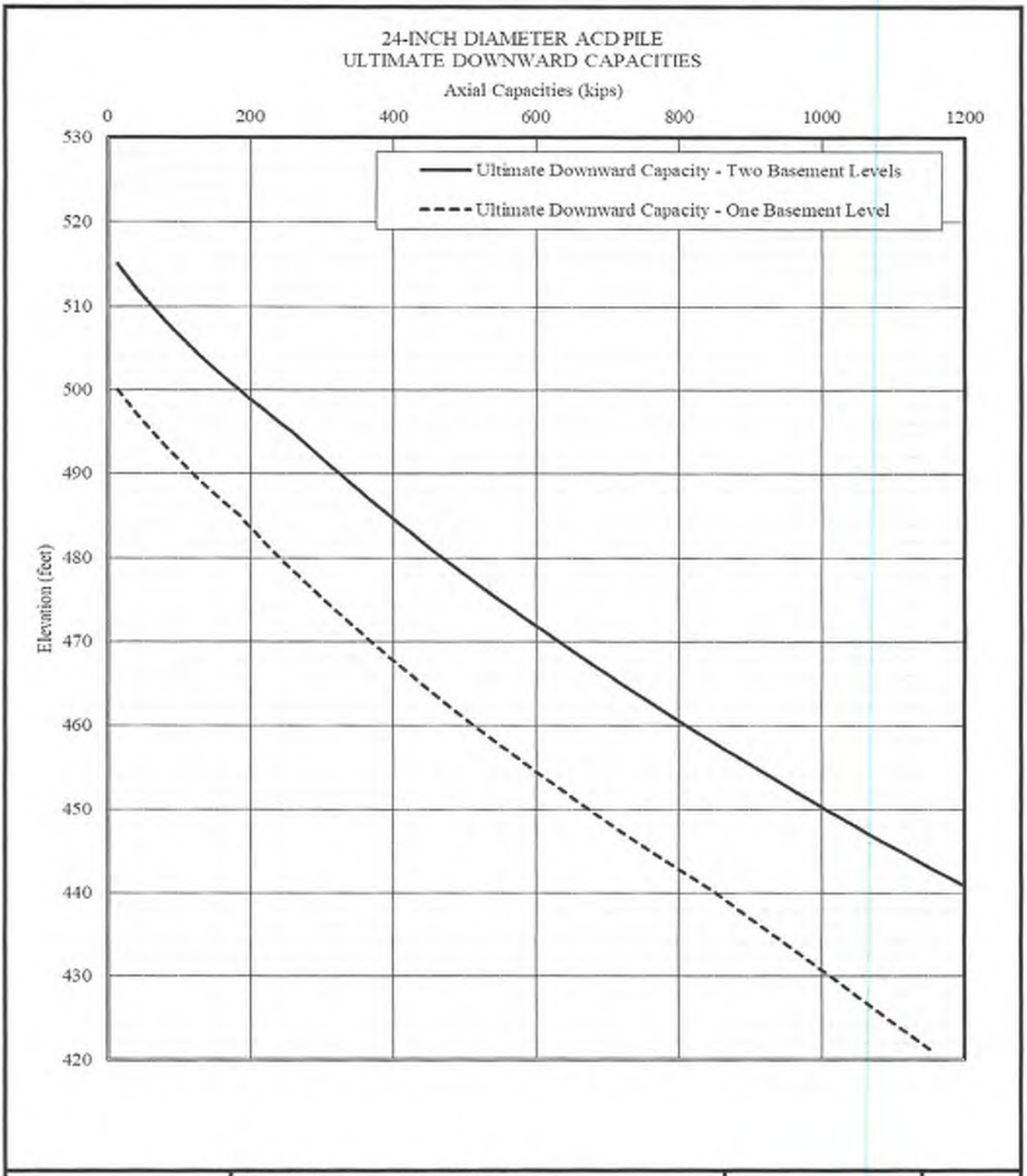


Reference: Esri, HERE, USGS, NGA, USDA, California Geologic Survey, Fault Activity Map

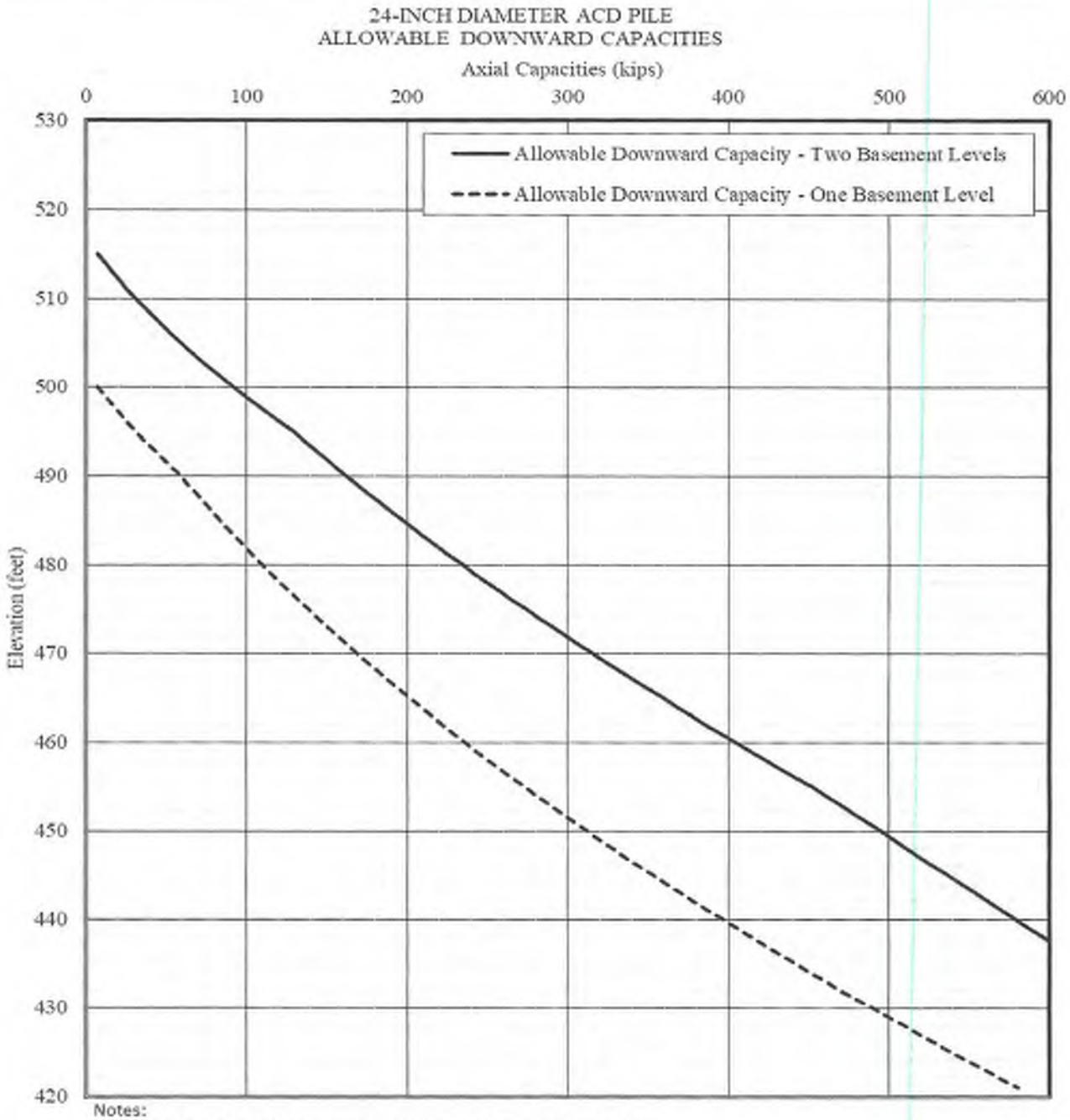
Date:	Fault Zones	GHOSTRIDER	Figure
6/25/2020	South Santa Fe Ave.		A-6
Drawn By:	San Marcos, CA 92069		
L.B.			

Reference: FEMA Flood Map Service Center

Date:	FEMA Flood Zone	GHOSTRIDER	Figure
6/28/2020	South Santa Fe Ave.		A-7
Drawn By:	San Marcos, CA 92069		
L.B.			

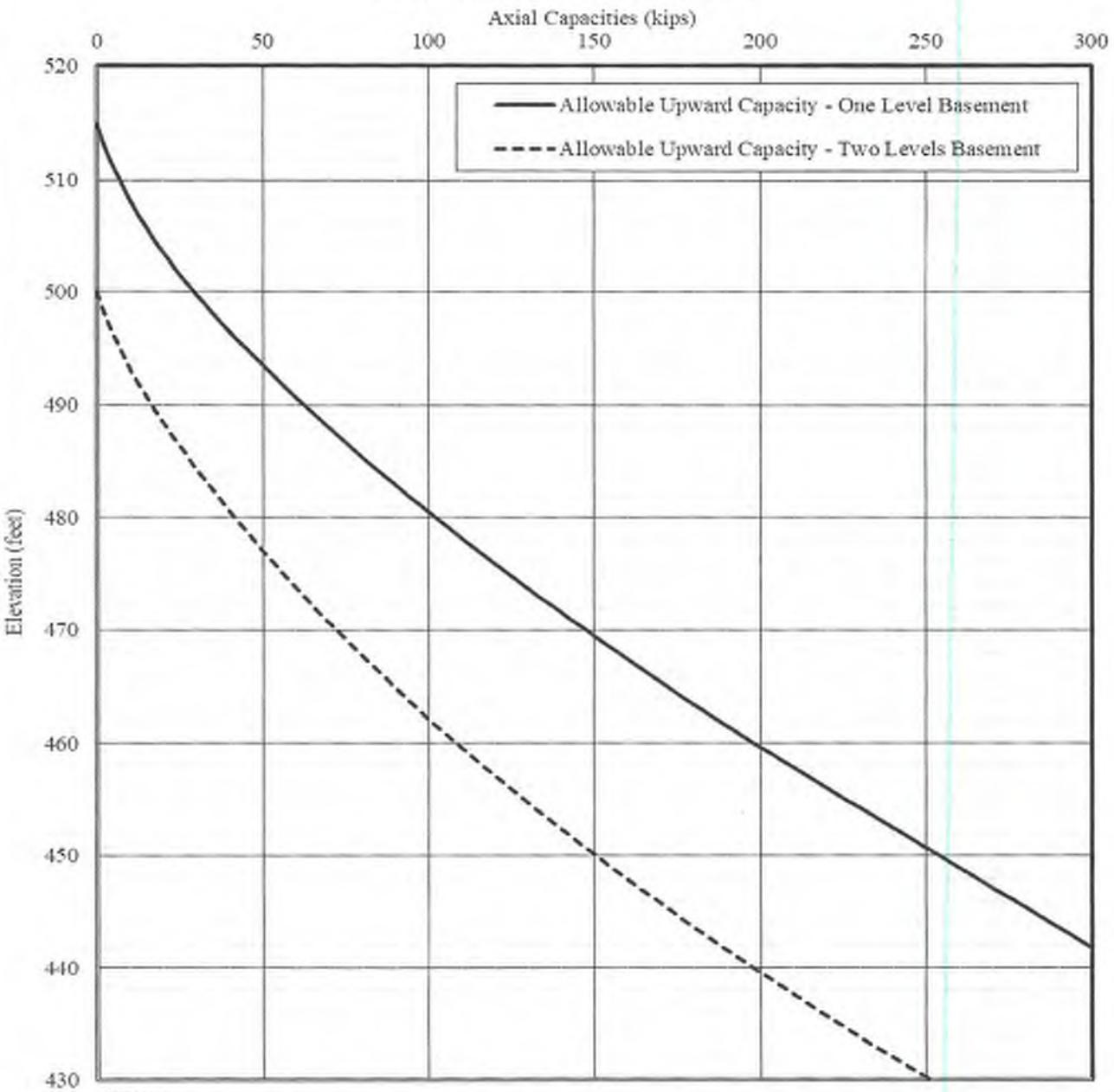


Date:	Ultimate Downward Axial Pile Capacity		Figure
6/28/2020	South Santa Fe Ave.	GHOSTRIDER	A-8a
Drawn By:	San Marcos, CA 92069		
L.B.			



Notes:
1) Allowable pile capacities are calcualted using a Factor of Safety of 2
2) Capacities are based on the strength of the soils
3) Compressive and tensile strengths of the pile section should be checked to verify the structural capacities.

Date:	Allowable Downward Axial Pile Capacity		Figure
6/28/2020	South Santa Fe Ave.	GHOSTRIDER	A-8b
Drawn By:	San Marcos, CA 92069		
L.B.			



Notes:
1) Allowable pile capacities are calcualted using a Factor of Safety of 3
2) Capacities are based on the strength of the soils
3) Compressive and tensile strengths of the pile section should be checked to verify the structural capacities.

Date:	Allowable Upward Axial Pile Capacity	GHOSTRIDER	Figure
6/28/2020	South Santa Fe Ave.		A-8c
Drawn By:	San Marcos, CA 92069		
L.B.			

Reference: California Geotracker, Google Maps

Date:	Geotracer Borings and LUST site	GHOSTRIDER	Figure
6/13/2020	South Santa Fe Ave.		A-9
Drawn By:	San Marcos, CA 92069		
L.B.			

Appendix B

Exploratory Logs

SUBSURFACE EXPLORATION LEGEND

UNIFIED SOIL CLASSIFICATION SYSTEM Visual-Manual Procedure (ASTM D2488)					CONSISTENCY / RELATIVE DENSITY
MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES	CRITERIA
Coarse-Grained Soils* More than 50 % Retained on No. 200 Sieve	Gravels 50 % or more of Coarse Fraction Retained on No. 4 Sieve	Clean Gravels	GW	Well Graded Gravels and Gravel-Sand Mixtures, Little or no Fines	Reference: 'Foundation Engineering', Peck, Hanson, Thornburn, 2nd Edition.
			GP	Poorly Graded Gravels and Gravel-Sand Mixtures, Little or no Fines	Standard Penetration Test Granular Soils
		Gravels with Fines	GM	Silty Gravels, Gravel-Sand-Silt Mixtures**	Penetration Resistance, N, (Blows / Foot) / Relative Density
			GC	Clayey Gravel, Gravel-Sand-Clay Mixtures**	0 - 4 Very Loose
	Sands More than 50 % of Coarse Fraction Passes No. 4 Sieve	Clean Sands	SW	Well Graded Sands and Gravely Sands, Little or no Fines	4 - 10 Loose
			SP	Poorly Graded Sands and Gravely Sands, Little or no Fines	10 - 30 Medium
		Sands with Fines	SM	Silty Sands, Sand-Silt Mixtures**	30 - 50 Dense
			SC	Clayey Sands, Sand-Clay Mixtures**	> 50 Very Dense
Fine-Grained Soils* 50 % or more Passes No. 200 Sieve	Silts and Clays Liquid Limit 50 % or less		ML	Inorganic Silts, Sandy Silts, Rock Flour	Standard Penetration Test Cohesive Soils
			CL	Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays	Penetration Resistance, N, (Blows / Foot) / Consistency / Unconfined Compressive Strength, (Tons / Sq. Ft.)
			OL	Organic Silts and Organic silty Clays of Low Plasticity	< 2 Very Soft < 0.25
	Silts and Clays Liquid Limit Greater than 50 %		MH	Inorganic Silts, Micaceous or Diatomaceous silts, Plastic Silts	2 - 4 Soft 0.25 - 0.5
			CH	Inorganic Clays of High Plasticity, Fat Clays	4 - 8 Medium 0.5 - 1.0
			OH	Organic Clays of Medium to High Plasticity	8 - 15 Stiff 1.0 - 2.0
					15 - 30 Very Stiff 2.0 - 4.0
					> 30 Hard > 4.0
Highly Organic Soils			PT	Peat, Muck, or Other Highly Organic Soils	

* Based on material passing the 3-inch sieve.

** More than 12% passing the No. 200 sieve: 5% to 12% passing No. 200 sieve requires use of duel symbols (i.e., SP-SM GP-GM, SP-SC, GP-GC, etc.); Border line classifications are designated as CH/CL, GM/SM, SP/SW, etc.

U.S. Standard Sieve Size	12"	3"	3/4"	#4	#10	#40	#200

Unified Soil Classification Designation	Boulders	Cobbles	Gravel		Sand			Silt and Clay
			Coarse	Fine	Coarse	Medium	Fine	

Moisture Condition		Material Quantity		Other Symbols
Dry	Absence of moisture, dusty, dry to the touch.	Trace	< 5 %	C - Core Sample
		Slightly	5 - 12%	S - SPT Sample
Moist	Damp but no visible moisture.	Little	12 - 25%	B - Bulk Sample
Wet	Visible free water, usually below the water table.	Some	25 - 50 %	CK - Chunk Sample
				R - Ring Sample
				N - Nuclear Gauge Test
				∇ - Water Table

Date:	Simplified USCS Soils Classification Chart		Figure
3/26/2019		ETERNIA	B-1
Drawn By:			
L.B.			

GHOSTRIDER

SUBSURFACE EXPLORATION LOG
BORING NO. 1

Project Name:	San Marcos Apts.	Date: 5/6/2020	Logged By: D.J. / Gostrider
Type of Rig:	Drill Rig	Drive Wt.: 140 lbs.	Elevation: From Surface
Drill Hole Dia.:	6"	Drop: 30"	Depth of Boring (ft.): 50.5

Depth (ft.)	Sample Type	No. of Blows per 6"	Soil Classification	Dry Density (lb/ft3)	Moisture Content (%)	Lithology	Groundwater	Description
			SC					**0'-3' - Dark Brown Clayey Sand with Gravel, Moist, Loose**
0.0								
2.5								
5.0	R	5,13,15	CL	97.4	16.0			Yellowish Brown Sandy Clay, Moist, Stiff
7.5	R	7,12,17	CL	100.3	25.3			Grayish Brown Clay, Moist, Stiff
10.0	R	4,15,29	CL	102.6	21.4			Grayish Brown Sandy Clay, Moist, Very Stiff
12.5								
15.0	R	10,20,32	CL	100.7	23.7			Yellowish Brown Sandy Clay, Moist, Very Stiff
17.5								
20.0	R	10,19,18	CL	100.5	23.0			Dark Brown Clay with Yellowish Streaking, Moist, Very Stiff
22.5								
25.0	R	11,23,44	CL	102.3	23.4			Light Grayish Brown Sandy Clay, Moist, Very Stiff
27.5								
30.0	S	10,20,39	CL		23.7			Grayish Brown Clay with Sand, Moist, Very Stiff
32.5								
35.0	S	9,17,24	CL		21.4			Grayish Brown Clay with Sand, Moist, Very Stiff
37.5								
40.0	S	9,24,34	CL		18.0			Grayish Brown Clay with Sand, Moist, Very Stiff
42.5								
45.0	S	10,21,31	CL		20.8			Greenish Brown Sandy Clay, Moist, Very Stiff
47.5								
50.0	S	18,50,-	CL		24.8			Greenish Brown Sandy Clay, Moist, Hard
52.5								Hole Refusal at 51', Backfilled with Slurry

S - SPT Sample R - Ring Sample B - Bulk Sample D - Disturbed Sample

GHOSTRIDER

SUBSURFACE EXPLORATION LOG
BORING NO. 2

Project Name: San Marcos Devlop. Date: 5/6/2020 Project No.:
Type of Rig: Drill Rig Drive Wt.: 140 lbs. Logged By: D.J. / Ghostrider
Drill Hole Dia.: 6" Drop: 30" Elevation: From Surface
Depth of Boring (ft.): 20.5'

Depth (ft.)	Sample Type	No. of Blows per 6"	Soil Classification	Dry Density (lb/ft3)	Moisture Content (%)	Lithology	Groundwater	Description
			SC					**0'-3' - Dark Brown Clayey Sand with Gravel, Moist, Loose**
1								
2								
3	R	2,3,6	CL	96.5	25.0			Yellowish Brown Sandy Clay, Moist, Stiff
4								
5								
6	R	14,20,26	CL	112.2	16.8			Yellowish Brown Sandy Clay, Moist, Very Stiff
7								
8								
9								
10	B	7,13,19	CL		17.7			Olive Green Brown Sandy Clay, Moist, Stiff
11								
12								
13								
14								
15	R	9,21,22	CL	107.9	19.3			OliveGreen Brown Sandy Clay, Moist, Very Stiff
16								
17								
18								
19								
20	B	9,17,23	CL		18.4			Olive Reddish Brown Sandy Clay, Moist, Very Stiff
21								Hole Abandoned at 20' - Backfilled with Cuttings
22								

S - SPT Sample R - Ring Sample B - Bulk Sample D - Disturbed Sample

SUBSURFACE EXPLORATION LOG
BORING NO. 3

Project Name: San Marcos Devlop. Date: 5/6/2020
Type of Rig: Drill Rig Drive Wt.:
Drill Hole Dia.: 6" Drop:

Project No.:
Logged By: D.J. / Ghostrider
Elevation: From Surface
Depth of Boring (ft.): 20.5'

Depth (ft.)	Sample Type	No. of Blows per 6"	Soil Classification	Dry Density (lb/ft3)	Moisture Content (%)	Lithology	Groundwater	Description
			SC					**0'-3' - Dark Brown Clayey Sand with Gravel, Moist, Loose**
1								
2								
3	R	6,6,7	SC	103.8	20.6			Dark Brown Clayey Sand with Grave, Moist, Loose
4								4'-5.5' - Dark Brown Sandy Clay, Moist, Loose
5	R	4,6,10	CL	115.6	12.8			Dark Brown Sandy Clay, Moist Loose
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								

S - SPT Sample R - Ring Sample B - Bulk Sample D - Disturbed Sample

GHOSTRIDER

SUBSURFACE EXPLORATION LOG
BORING NO. 4

Project Name: San Marcos Devlop. Date: 5/10/2020 Logged By: L.B. / Ghostrider
Type of Rig: Hand Auger Drive Wt.: N/A Elevation: From Surface
Drill Hole Dia.: 3" Drop: N/A Depth of Boring (ft.): 15'

Depth (ft.)	Sample Type	No. of Blows per 6"	Soil Classification	Dry Density (lb/ft3)	Moisture Content (%)	Lithology	Groundwater	Description
			SC					**0'-4.5' - Dark Brown Clayey Sand with Gravel, Moist, Loose**
1								
2								
3	R	N/A	SC	110.5	13.1			Dark Brown Clayey Sand with Gravel, Moist, Loose
4								
5								
6	R	N/A	CL	101.5	15.7			Gryaish Brown Sandy Clay, Moist, Dense
7								
8								
9								
10	R	N/A	CL	103.5	20.1			Yellowish Brown Clay with Sand, Moist, Stiff
11								
12								
13								
14								
15	R	N/A	CL	100.1	22.3			Yellowish Brown Sandy Clay, Moist, Very Stiff Hole Abandoned at 15', Backfilled with Cuttings
16								
17								
18								
19								
20								
21								
22								

S - SPT Sample R - Ring Sample B - Bulk Sample D - Disturbed Sample

GHOSTRIDER

SUBSURFACE EXPLORATION LOG
BORING NO. 5

Project Name: San Marcos Devlop. Date: 5/10/2020 Logged By: L.B. / Ghostrider
Type of Rig: Hand Auger Drive Wt.: N/A Elevation: From Surface
Drill Hole Dia.: 3" Drop: N/A Depth of Boring (ft.): 15'

Depth (ft.)	Sample Type	No. of Blows per 6"	Soil Classification	Dry Density (lb/ft3)	Moisture Content (%)	Lithology	Groundwater	Description
			SC					**0'-6' - Dark Brown Clayey Sand with Gravel, Moist, Loose**
1								
2								
3	R	N/A	SC	109.9	10.1			Dark Brown Clayey Sand with Gravel, Moist, Loose
4								
5	R	N/A	SC	110.3	13.5			Dark Brown Clayey Sand, Moist, Loose
6								
7								
8								
9								
10	R	N/A	CL	100.1	20.0			Yellowish Brown Sandy Clay, Moist, Stiff
11								Hole Abandoned at 10.5', Backfilled with Cuttings
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								

S - SPT Sample R - Ring Sample B - Bulk Sample D - Disturbed Sample

Appendix B

Exploratory Logs

Appendix C

Laboratory Testing

Dry Density and Moisture Content

Date Tested: 5/20/2020

Boring #	Sample #	Depth (ft)	Dry Density (pcf)	Moisture Content (%)	Description
B-1	2	5'	97.4	16.0%	Yellowish Brown Sandy Clay
B-1	3	7.5'	100.3	25.3%	Grayish Brown Clay
B-1	4	10'	102.6	21.4%	Grayish Brown Sandy Clay
B-1	5	15'	100.7	23.7%	Yellowish Brown Sandy Clay
B-1	6	20'	100.5	23.0%	Dark Brown Clay with Yellowish Streaks
B-1	7	25'	102.3	23.4%	Light Gray Brown Sandy Clay
B-2	1	3'	96.5	25.0%	Yellowish Brown Clay with Sand
B-2	2	6'	112.2	16.8%	Yellowish Brown Sandy Clay
B-2	4	15'	107.9	19.3%	Olive Green Brown Clay with Sand
B-3	1	2.5'	103.8	20.6%	Dark Brown Clayey Sand with Gravel
B-3	2	5'	115.6	12.8%	Dark Brown Sandy Clay

Performed in General Accordance with ASTM D7263 B and D2216

GHOSTRIDER	Project Name	FIGURE
TECH: L.B.	Santa Fe Apartments	C-1
DATE: 11-Jun-20		

Dry Density and Moisture Content

Date Tested: 5/20/2020

Boring #	Sample #	Depth (ft)	Dry Density (pcf)	Moisture Content (%)	Description
B-4	1	3'	110.5	13.1%	Dark Brown Clayey Sand with Gravel
B-4	2	6'	101.5	15.7%	Grayish Brown Sandy Clay
B-4	3	10'	103.5	20.1%	Yellowish Brown Clay with Sand
B-4	4	15'	100.1	22.3%	Yellowish Brown Sandy Clay
B-5	1	2.5'	109.9	10.1%	Dark Brown Clayey Sand with Gravel
B-5	2	5'	110.3	13.5%	Dark Brown Clayey Sand
B-5	3	10'	100.1	20.0%	Yellowish Brown Sandy Clay

Performed in General Accordance with ASTM D7263 B and D2216

GHOSTRIDER	Project Name	FIGURE
TECH: L.B.	Santa Fe Apartments	C-2
DATE: 11-Jun-20		

Materials Finer than No. 200 Sieve

Date Tested	5/15/2020	5/15/2020	5/15/2020	5/15/2020	5/15/2020	5/15/2020
Boring No	B-1	B-1	B-1	B-1	B-1	B-1
Sample No.	2	3	4	5	6	7
Depth, ft.	5'	7.5'	10'	15'	20'	25'
Dry Weight before wash, g	94.1	127.4	122.5	114.9	147.2	104.5
Dry Weight After Wash, g	29.3	3.9	16.5	18.5	61.8	21.5
Weight Loss, No. 200, g	64.8	123.5	106	96.4	85.4	83
Passing No. 200, %	68.9	96.9	86.5	83.9	58.0	79.4
Sample Description	Yellowish Brown Sandy Clay	Grayish Brown Clay	Grayish Brown Sandy Clay	Yellowish Brown Sandy Clay	Dark Brown Clay with Yellowish Streaks	Light Gray Brown Sandy Clay

Date Tested	5/15/2020	5/15/2020	5/15/2020			
Boring No	B-1	B-1	B-1			
Sample No.	9	10	11			
Depth, ft.	35'	40'	45'			
Dry Weight before wash, g	163.3	145.3	233.6			
Dry Weight After Wash, g	12.4	10.6	40.2			
Weight Loss, No. 200, g	150.9	134.7	193.4			
Passing No. 200, %	92.4	92.7	82.8			
Sample Description	Grayish Brown Clay with Sand	Grayish Brown Clay with Sand	Greenish Brown Sandy Clay			

TEST PERFORMED IN ACCORDANCE WITH ASTM D 1140

GHOSTRIDER	Project Name	FIGURE
Tech: LB	Santa Fe Apartments	C-3
DATE: 6/11/2020		

Materials Finer than No. 200 Sieve

Date Tested	5/16/2020	5/16/2020	5/16/2020	5/16/2020	5/16/2020	
Boring No	B-2	B-2	B-2	B-2	B-2	
Sample No.	1	2	3	4	5	
Depth, ft.	3'	6'	10'	15'	20'	
Dry Weight before wash, g	156.5	97.4	159.5	145	185.8	
Dry Weight After Wash, g	14.3	9.9	5.1	5.2	22.7	
Weight Loss, No. 200, g	142.2	87.5	154.4	139.8	163.1	
Passing No. 200, %	90.9	89.8	96.8	96.4	87.8	
Sample Description	Yellowish Brown Clay with Sand	Yellowish Brown Sandy Clay	Olive Green Brown Clay with Sand	Olive Green Brown Clay with Sand	Olive Reddish Brown Sandy Clay	

Date Tested	5/16/2020	5/16/2020				
Boring No	B-3	B-3				
Sample No.	1	2				
Depth, ft.	2.5'	5'				
Dry Weight before wash, g	161.9	144.3				
Dry Weight After Wash, g	82.4	54.9				
Weight Loss, No. 200, g	79.5	89.4				
Passing No. 200, %	49.1	62.0				
Sample Description	Dark Brown Clayey Sand with Gravel	Dark Brown Sandy Clay				

TEST PERFORMED IN ACCORDANCE WITH ASTM D 1140

GHOSTRIDER	Project Name	FIGURE
Tech: AE	Santa Fe Apartments	C-4
DATE: 6/11/2020		

Materials Finer than No. 200 Sieve

Date Tested	5/16/2020	5/16/2020	5/16/2020	5/16/2020		
Boring No	B-4	B-4	B-4	B-4		
Sample No.	1	2	3	4		
Depth, ft.	3'	6'	10'	15'		
Dry Weight before wash, g	210.3	185.9	191.5	203.5		
Dry Weight After Wash, g	120.5	21.1	15.9	26.7		
Weight Loss, No. 200, g	89.8	164.8	175.6	176.8		
Passing No. 200, %	42.7	88.6	91.7	86.9		
Sample Description	Dark Brown Clayey Sand w/ Gravel	Grayish Brown Sandy Clay	Yellowish Brown Clay with Sand	Yellowish Brown Sandy Clay		

Date Tested	5/16/2020	5/16/2020	5/16/2020			
Boring No	B-5	B-5	B-5			
Sample No.	1	2	3			
Depth, ft.	2.5'	5'	10'			
Dry Weight before wash, g	265.5	220.1	189.3			
Dry Weight After Wash, g	193.5	131.5	21.3			
Weight Loss, No. 200, g	72	88.6	168			
Passing No. 200, %	27.1	40.3	88.7			
Sample Description	Dark Brown Clayey Sand w/ Gravel	Dark Brown Clayey Sand	Yellowish Brown Sandy Clay			

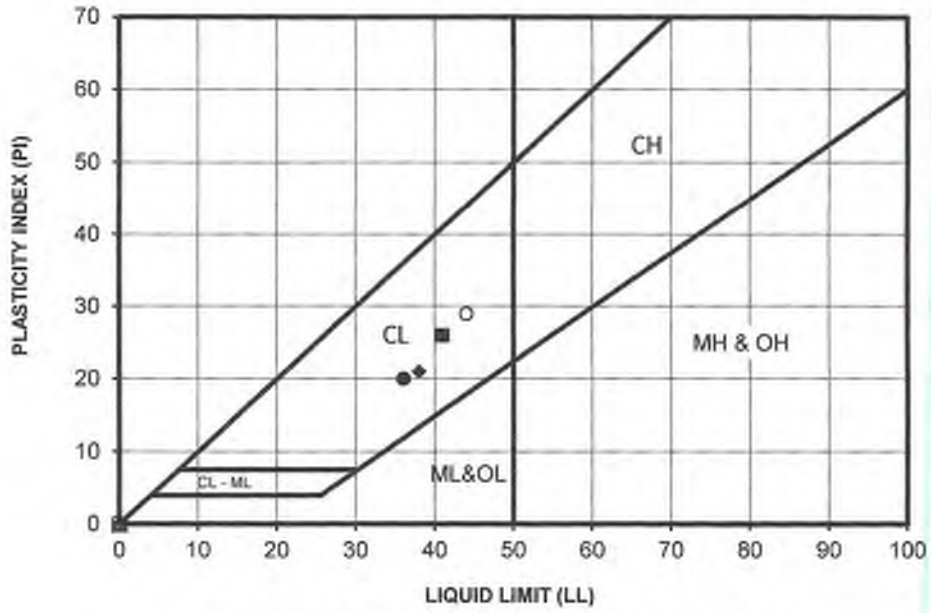
TEST PERFORMED IN ACCORDANCE WITH ASTM D 1140

GHOSTRIDER	Project Name	FIGURE
Tech: AE	Santa Fe Apartments	C-5
DATE: 6/11/2020		

ATTERBERG LIMITS TEST RESULTS

Date Tested : 5/17/2020

SYMBOL	SAMPLE NAME	DEPTH (ft)	LL	PL	PI	USCS CLASSIFICATION (Minus No. 40 Sieve Fraction)	USCS Entire Sample
●	B-1	5'	36	16	20	CL	CL
■	B-1	20'	41	15	26	CL	CL
◆	B-3	2.5'	38	17	21	CL	CL
○	B-4	15'	44	15	29	CL	CL
□							
△							
+							
◇							



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

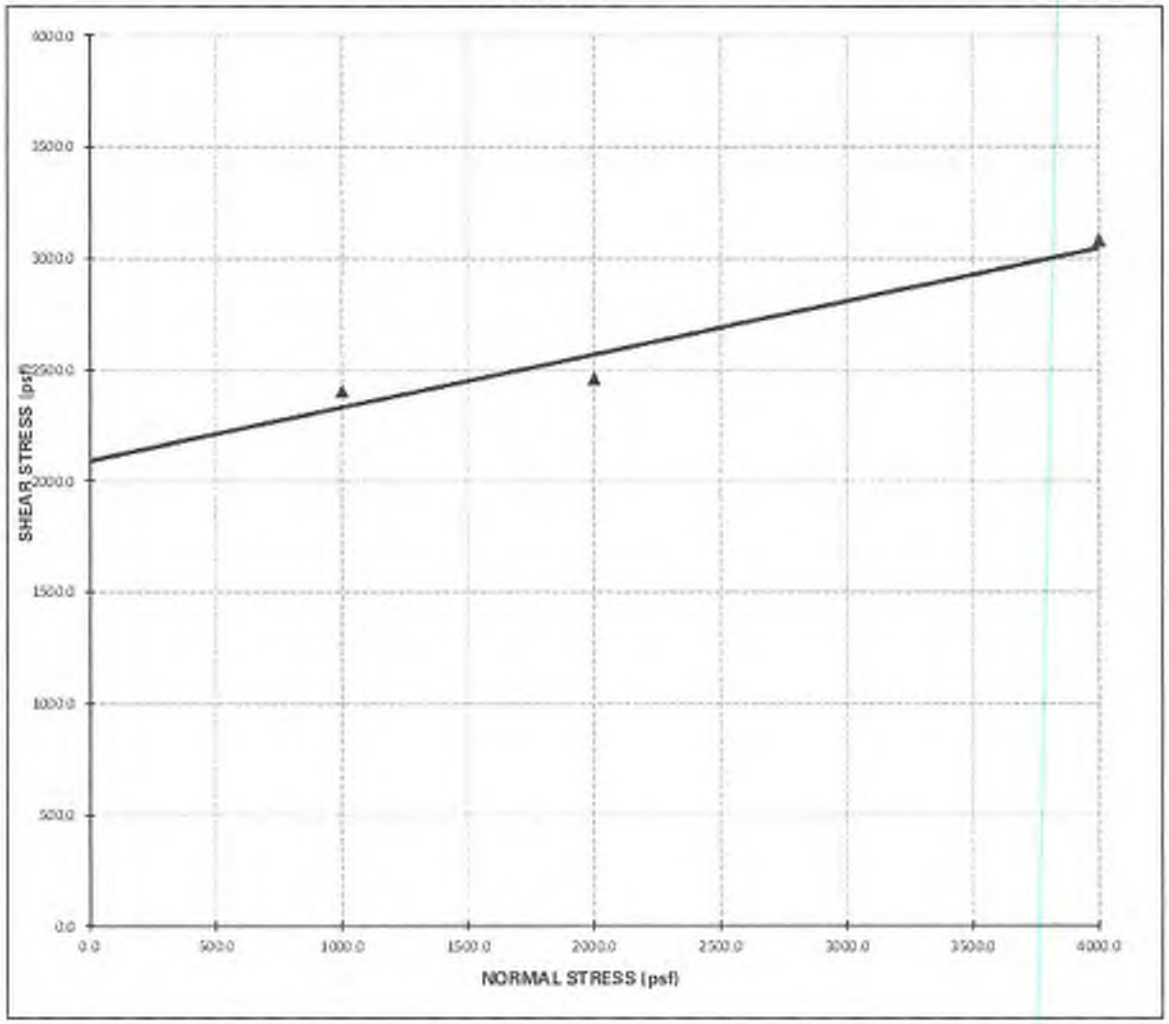
GHOSTRIDER	Project Name:	FIGURE
	Santa Fe Apartments	C-6
TECH:L.B.		
28-Jun-20		

GEOTEK

DIRECT SHEAR TEST

Project Name:	2972 Santa Fe, San Marcos	***Sample Location:***	B-1 @ 6
Project Number:	19-2118C	***Date Tested:***	6/8/2020

PEAK VALUE



Shear Strength: Φ = 13.5 ° C = 2088.00 psf

Notes: 1 - The soil specimens sheared were "undisturbed" ring samples.
2 - The above reflect direct shear strength at saturated conditions.
3 - The tests were run at a shear rate of 0.035 in/min.

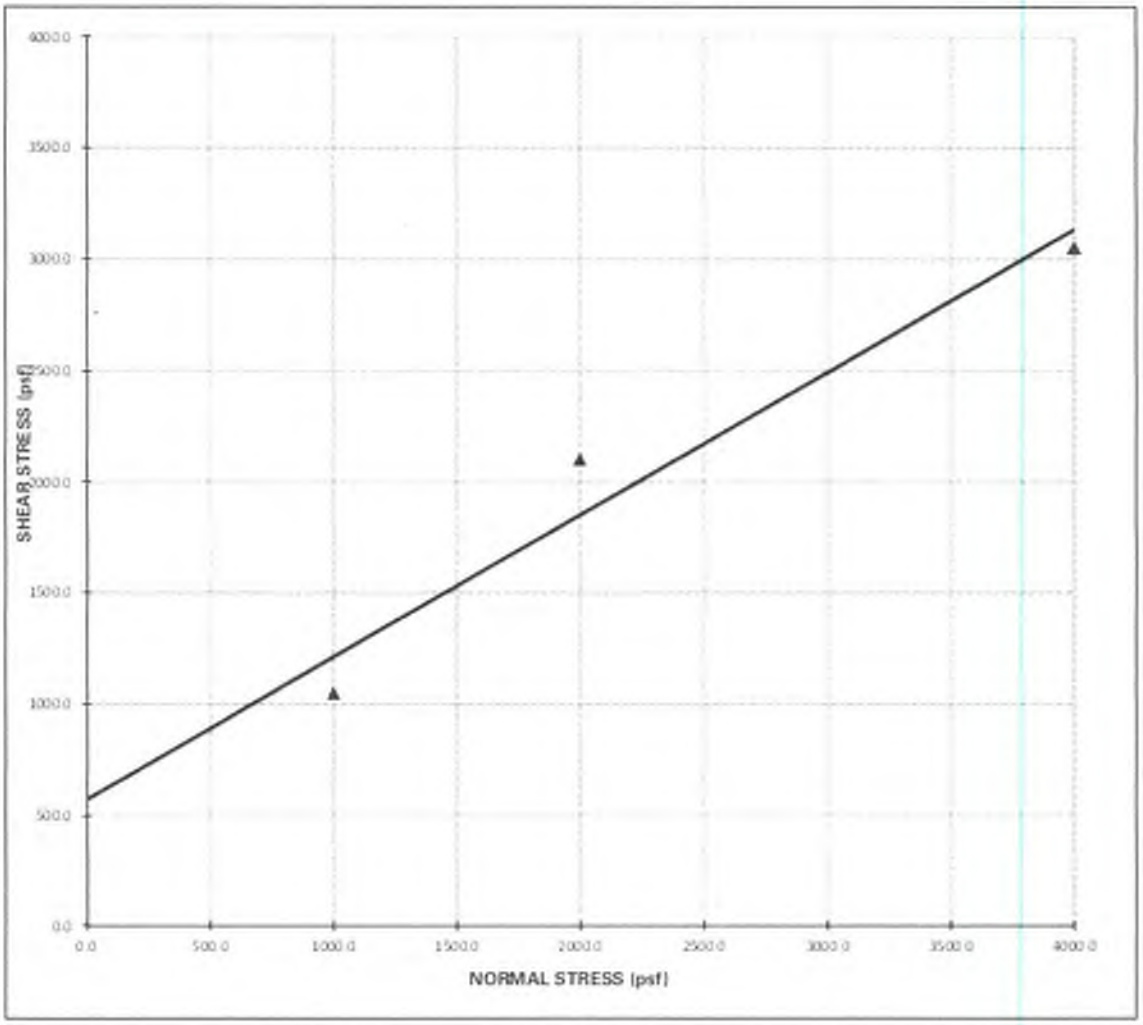
C-7

GEOTEK

DIRECT SHEAR TEST

Ultimate Value

Project Name:	2972 Santa Fe, San Marcos	***Sample Location:***	B-1 @ 6
Project Number:	19-2118C	***Date Tested:***	6/8/2020



Shear Strength: Φ = **32.6** ° **C = 570.00 psf**

Notes: 1 - The soil specimens sheared were "undisturbed" ring samples.
2 - The above reflect direct shear strength at saturated conditions.
3 - The tests were run at a shear rate of 0.035 in/min.

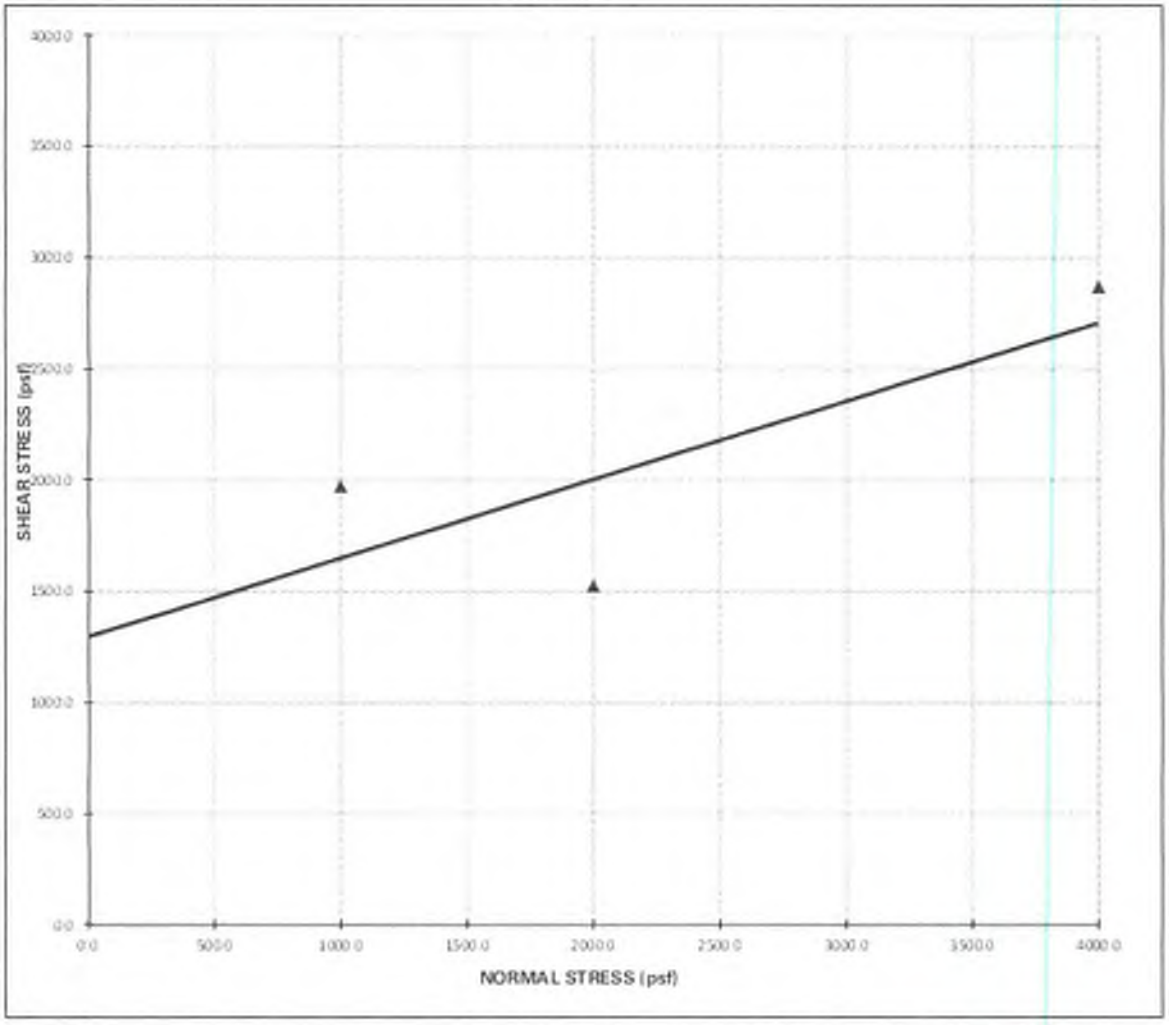
C-8

GEOTEK

DIRECT SHEAR TEST

Project Name:	2972 Santa Fe, San Marcos	*Sample Location:*	B-4 @ 15
Project Number:	19-2118C	*Date Tested:*	6/8/2020

Peak Value



Shear Strength: Φ = 19.4 ° C = 1296.00 psf

Notes: 1 - The soil specimens sheared were "undisturbed" ring samples.
2 - The above reflect direct shear strength at saturated conditions.
3 - The tests were run at a shear rate of 0.035 in/min.

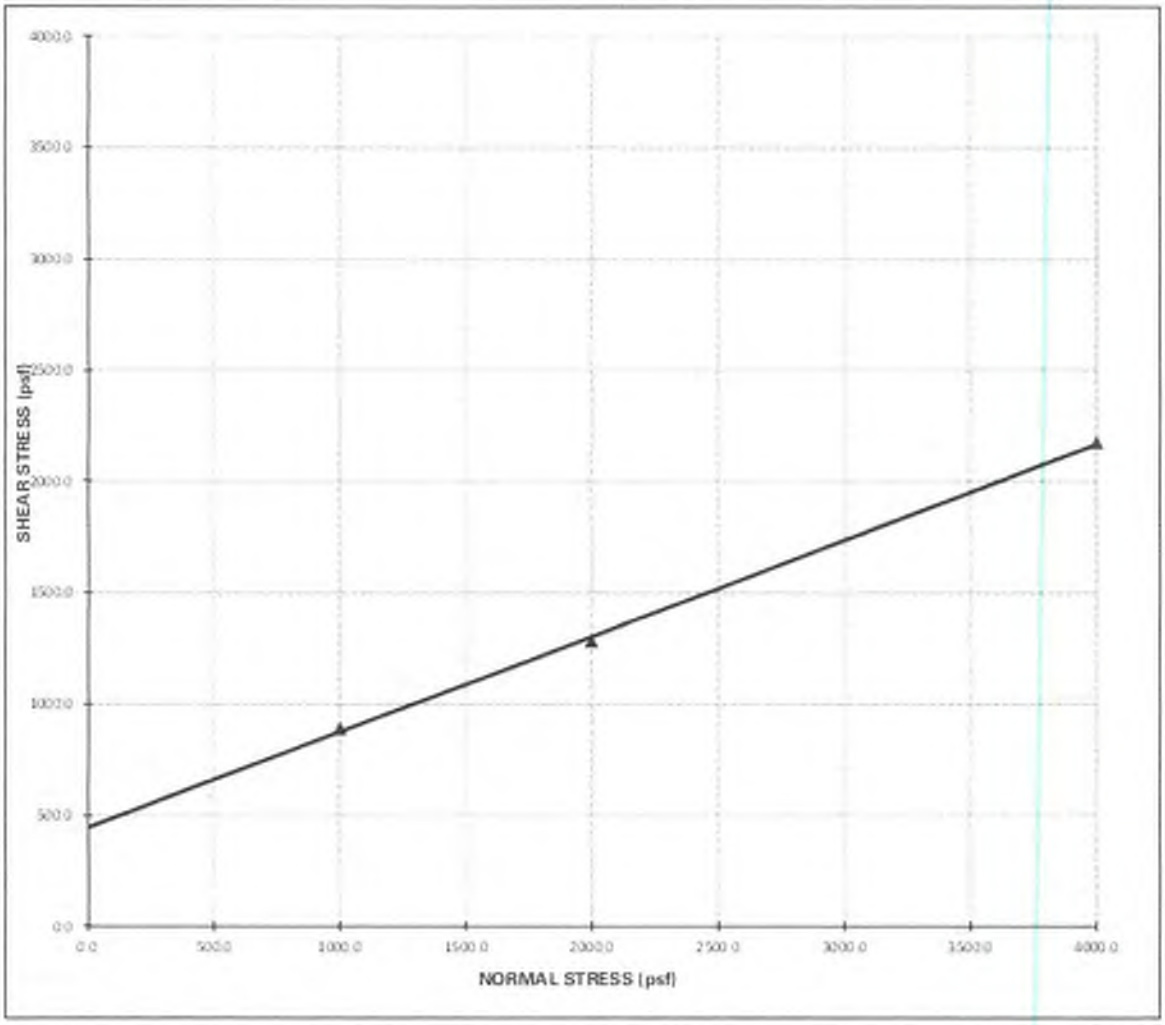
C-9

GEOTEK

DIRECT SHEAR TEST

Ultimate Value

Project Name:	2972 Santa Fe, San Marcos	***Sample Location:***	B-4 @ 15
Project Number:	19-2118C	***Date Tested:***	6/8/2020



Shear Strength: Φ = 23.3 ° C = 444.00 psf

Notes:
1 - The soil specimens sheared were "undisturbed" ring samples.
2 - The above reflect direct shear strength at saturated conditions.
3 - The tests were run at a shear rate of 0.035 in/min.

C-10

Expansion Index (ASTM D4829)

Location	Sample No.	Depth (ft)	Sample Description
B-1	Bulk	3'-8'	Yellowish Brown Clay with Sand

Density Determination	Trial #1	Trial #2
Weight Compacted Sample and Rir	724.7	
Weight of Ring	367.4	
Net Weight of Sample	357.3	
Wet Density, pcf	108.3	
Dry Density, pcf	94.3	

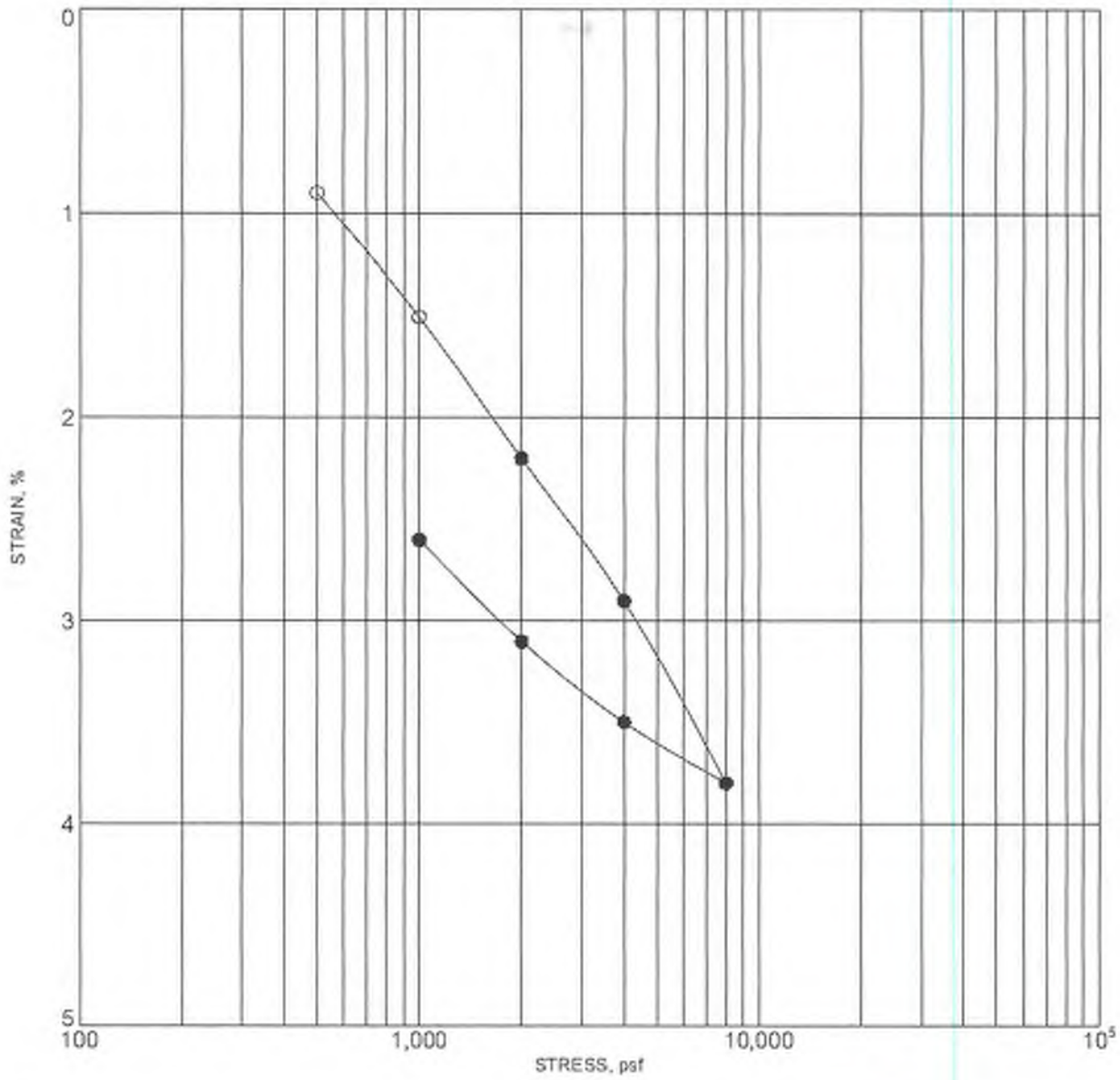
Moisture Determination		
Wet Weight of Sample, g	200.8	
Dry Weight of Sample, g	174.9	
Moisture Content, %	14.8%	

Expansion Index	154	
Corrected Expansion Index	**155**	**(VERY HIGH)**
% Saturation	50.8	

Expansion Readings			
DATE	TIME	READING	
5/20/2020	7:00 AM	0.1475	
5/20/2020	7:10 AM	0.1474	<< Add Water
5/22/2020	9:00 AM	0.3011	<< Final

Moisture Content after Test	
Wet+Ring	797.7
Dry	311.2
	38.3%

GHOSTRIDER		Project Name	FIGURE
	TECH: L.B.	Santa Fe Apartments	C-11
	DATE: 6/28/2020		



BORING NO. :	B-1	DEPTH (ft) :	6.0-7.5
DESCRIPTION :	SANDY CLAY (CL)		

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	21	106.43	97	0.569

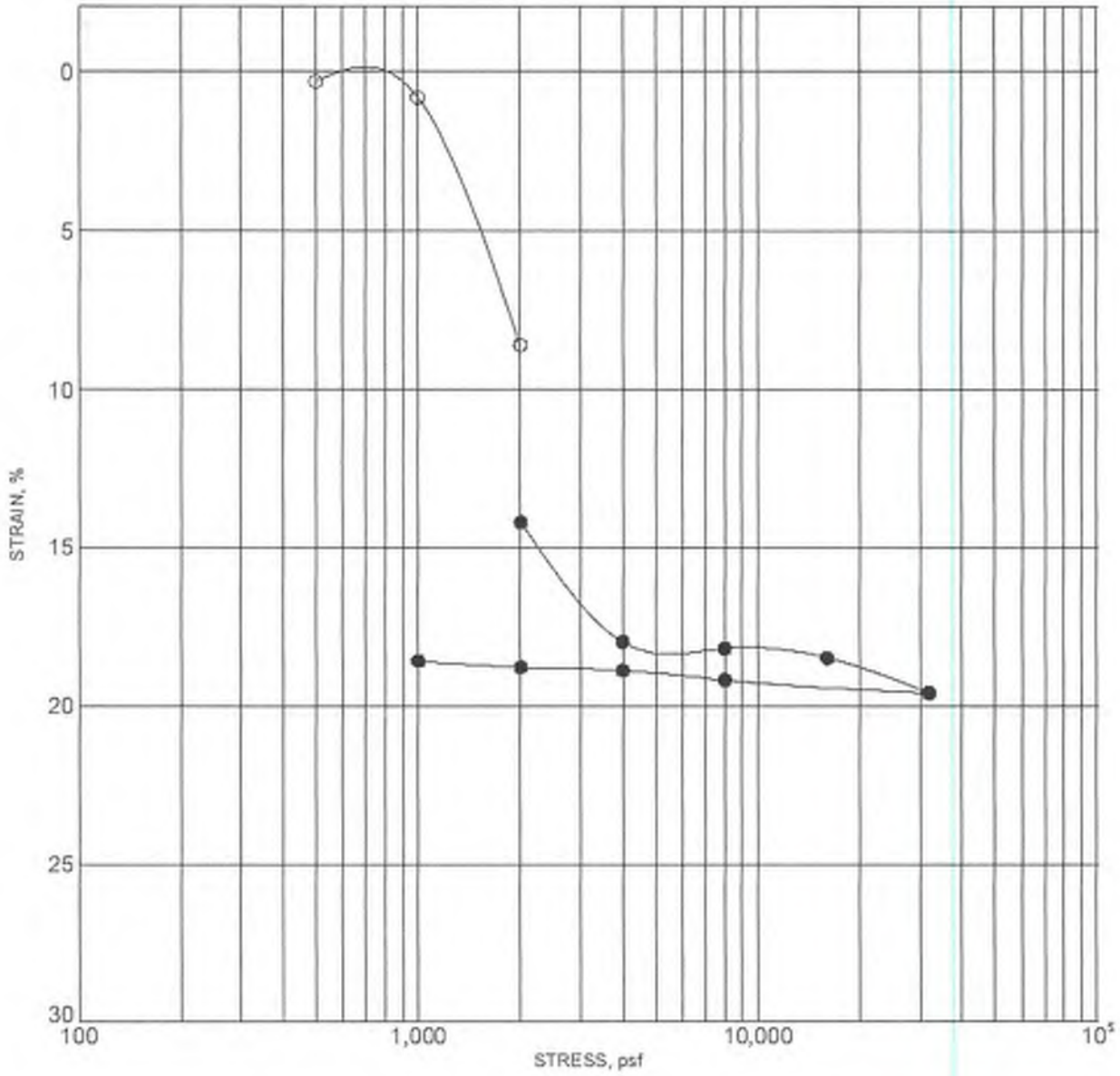
NOTE: SOLID CIRCLES INDICATE READINGS AFTER ADDITION OF WATER

CONSOLIDATION TEST RESULTS

Converse Consultants Santa Fe Apartments C-12

Project No. 20-81-188-01 Drawing No. B-1

Project ID: 20-81-188-01.GPJ; Template: CONSOLIDATION



BORING NO. :	B-4	DEPTH (ft) :	20.0-21.5
DESCRIPTION :	SANDY CLAY (CL)		

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	23	99.89	93	0.650
FINAL				

NOTE: SOLID CIRCLES INDICATE READINGS AFTER ADDITION OF WATER

CONSOLIDATION TEST RESULTS

Converse Consultants Santa Fe Apartments C-13

Project No. 20-81-188-01 Drawing No.

Project ID: 20-81-188-01.GPJ; Template: CONSOLIDATION

Soil Analysis Lab Results

Client: Ghostrider
Job Name: Santa Fe Apts
Client Job Number: 19-2118C
Project X Job Number:
S200602A June 4, 2020

	Method	ASTM D4327		ASTM D4327		ASTM G187		ASTM G51
Bore# / Description	**Depth**	**Sulfates** SO_4^{2-}		**Chlorides** Cl^-		**Resistivity** As Rec'd	Minimum	**pH**
	(ft)	(mg/kg)	(wt%)	(mg/kg)	(wt%)	(Ohm-cm)	(Ohm-cm)	
B-1, S-3	7.5	8,941.6	0.8942	625.2	0.0625	1,005	302	5.10

Cations and Anions, except Sulfide and Bicarbonate, tested with Ion Chromatography
mg/kg = milligrams per kilogram (parts per million) of dry soil weight
ND = 0 = Not Detected | NT = Not Tested | Unk = Unknown
Chemical Analysis performed on 1:3 Soil-To-Water extract

Appendix D

USDA – Natural Resources Conservation Service – Soil Resource Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Diego County Area, California

SANTA FE APARTMENTS

June 28, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface 2
How Soil Surveys Are Made 5
Soil Map 8
Soil Map (Santa Fe Apartments) 9
Legend 10
Map Unit Legend (Santa Fe Apartments) 11
Map Unit Descriptions (Santa Fe Apartments) 11
San Diego County Area, California 13
AwC—Auld clay, 5 to 9 percent slopes 13
AwD—Auld clay, 9 to 15 percent slopes 14
AyE—Auld stony clay, 9 to 30 percent slopes 15
DaC—Diablo clay, 2 to 9 percent slopes 16
DaD—Diablo clay, 9 to 15 percent slopes, warm MAAT 18
HrC—Huerhuero loam, 2 to 9 percent slopes 19
LeD—Las Flores loamy fine sand, 9 to 15 percent slopes 20
References 23

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map (Santa Fe Apartments)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 14, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 24, 2020—Feb 12, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (Santa Fe Apartments)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AwC	Auld clay, 5 to 9 percent slopes	7.0	4.6%
AwD	Auld clay, 9 to 15 percent slopes	22.9	15.0%
AyE	Auld stony clay, 9 to 30 percent slopes	8.8	5.7%
DaC	Diablo clay, 2 to 9 percent slopes	16.1	10.5%
DaD	Diablo clay, 9 to 15 percent slopes, warm MAAT	35.4	23.2%
HrC	Huerhuero loam, 2 to 9 percent slopes	37.9	24.8%
LeD	Las Flores loamy fine sand, 9 to 15 percent slopes	24.8	16.2%
Totals for Area of Interest		**152.9**	**100.0%**

Map Unit Descriptions (Santa Fe Apartments)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a

given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series.* Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases.* Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas.* Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

San Diego County Area, California

AwC—Auld clay, 5 to 9 percent slopes

Map Unit Setting

National map unit symbol: hb87
Elevation: 300 to 2,700 feet
Mean annual precipitation: 14 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 200 to 330 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Auld and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Auld

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from metavolcanics

Typical profile

H1 - 0 to 54 inches: clay
H2 - 54 to 59 inches: weathered bedrock

Properties and qualities

Slope: 5 to 9 percent
Depth to restrictive feature: 40 to 59 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: CLAYEY (1975) (R019XD001CA)
Hydric soil rating: No

Minor Components

Las posas
Percent of map unit: 5 percent
Hydric soil rating: No

Diablo
Percent of map unit: 5 percent
Hydric soil rating: No

Huerhuero
Percent of map unit: 3 percent
Hydric soil rating: No

San maguel
Percent of map unit: 2 percent
Hydric soil rating: No

AwD—Auld clay, 9 to 15 percent slopes

Map Unit Setting
National map unit symbol: hb88
Elevation: 300 to 2,700 feet
Mean annual precipitation: 14 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 200 to 330 days
Farmland classification: Not prime farmland

Map Unit Composition
Auld and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Auld

Setting
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from metavolcanics

Typical profile
H1 - 0 to 54 inches: clay
H2 - 54 to 59 inches: weathered bedrock

Properties and qualities
Slope: 9 to 15 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Natural drainage class: Well drained

Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.1 inches)

Interpretive groups
Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: CLAYEY (1975) (R019XD001CA)
Hydric soil rating: No

Minor Components

Las posas
Percent of map unit: 5 percent
Hydric soil rating: No

Huerhuero
Percent of map unit: 5 percent
Hydric soil rating: No

Rock outcrop
Percent of map unit: 5 percent
Hydric soil rating: No

AyE—Auld stony clay, 9 to 30 percent slopes

Map Unit Setting
National map unit symbol: hb89
Elevation: 300 to 2,700 feet
Mean annual precipitation: 14 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 200 to 330 days
Farmland classification: Not prime farmland

Map Unit Composition
Auld and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Auld

Setting
Landform: Hillslopes

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from metavolcanics

Typical profile

H1 - 0 to 30 inches: stony clay
H2 - 30 to 59 inches: weathered bedrock

Properties and qualities

Slope: 9 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: CLAYEY (1975) (R019XD001CA)
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 10 percent
Hydric soil rating: No

San maguel

Percent of map unit: 5 percent
Hydric soil rating: No

DaC—Diablo clay, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: hbb8
Elevation: 30 to 3,000 feet
Mean annual precipitation: 12 to 35 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 200 to 320 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Diablo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Diablo

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous sandstone and shale

Typical profile

H1 - 0 to 15 inches: clay
H2 - 15 to 32 inches: clay, silty clay loam
H2 - 15 to 32 inches: weathered bedrock
H3 - 32 to 36 inches:

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: 24 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Available water storage in profile: Moderate (about 7.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Altamont

Percent of map unit: 10 percent
Hydric soil rating: No

Linne

Percent of map unit: 3 percent
Hydric soil rating: No

Olivenhain

Percent of map unit: 2 percent
Hydric soil rating: No

DaD—Diablo clay, 9 to 15 percent slopes, warm MAAT

Map Unit Setting

National map unit symbol: 2w63f
Elevation: 110 to 910 feet
Mean annual precipitation: 11 to 21 inches
Mean annual air temperature: 58 to 64 degrees F
Frost-free period: 290 to 365 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Diablo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Diablo

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from calcareous shale

Typical profile

A - 0 to 15 inches: clay
Bkss1 - 15 to 28 inches: clay
Bkss2 - 28 to 40 inches: clay loam
Cr - 40 to 79 inches: bedrock

Properties and qualities

Slope: 9 to 15 percent
Depth to restrictive feature: 39 to 79 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Available water storage in profile: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: CLAYEY (1975) (R019XD001CA)
Hydric soil rating: No

Minor Components

Altamont

Percent of map unit: 10 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Linne

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Olephant

Percent of map unit: 2 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

HrC—Huerhuero loam, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: hbcm
Elevation: 1,100 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 260 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Huerhuero and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Huerhuero

Setting

Landform: Marine terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 12 inches: loam
H2 - 12 to 55 inches: clay loam, clay
H2 - 12 to 55 inches: stratified sand to sandy loam
H3 - 55 to 72 inches:

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 25.0
Available water storage in profile: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: CLAYPAN (1975) (R019XD061CA)
Hydric soil rating: No

Minor Components

Stockpen

Percent of map unit: 5 percent
Hydric soil rating: No

Las flores

Percent of map unit: 5 percent
Hydric soil rating: No

Olivenhain

Percent of map unit: 3 percent
Hydric soil rating: No

Unnamed, ponded

Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

LeD—Las Flores loamy fine sand, 9 to 15 percent slopes

Map Unit Setting

National map unit symbol: hbdb

Elevation: 700 feet
Mean annual precipitation: 12 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 300 to 340 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Las flores and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Las Flores

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from siliceous calcareous sandstone

Typical profile

H1 - 0 to 16 inches: loamy fine sand
H2 - 16 to 28 inches: sandy clay, clay
H2 - 16 to 28 inches: sandy clay, clay
H3 - 28 to 38 inches: loamy coarse sand
H3 - 28 to 38 inches: weathered bedrock
H4 - 38 to 48 inches:
H5 - 48 to 52 inches:

Properties and qualities

Slope: 9 to 15 percent
Depth to restrictive feature: About 16 inches to abrupt textural change; About 16 inches to natric; 40 to 60 inches to paralithic bedrock
Natural drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Sodium adsorption ratio, maximum in profile: 30.0
Available water storage in profile: Very low (about 1.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: CLAYPAN (1975) (R019XD061CA)
Hydric soil rating: No

Minor Components

Huerhuero

Percent of map unit: 5 percent
Hydric soil rating: No

Diablo

Percent of map unit: 5 percent
Hydric soil rating: No

Linne

Percent of map unit: 5 percent
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

APPENDIX E

CAP Checklist

CLIMATE ACTION PLAN CONSISTENCY REVIEW CHECKLIST

INTRODUCTION

The City of San Marcos (City) adopted an updated Climate Action Plan (CAP) in December, 2020. The CAP outlines strategies and measures that the City will undertake to achieve its proportional share of State greenhouse gas (GHG) emissions reduction targets. The purpose of the CAP Consistency Checklist (Checklist), in conjunction with the CAP, is to provide a streamlined review process for all proposed development projects that are subject to discretionary review and/or trigger environmental review pursuant to the California Environmental Quality Act (CEQA).

Analysis of GHG emissions and potential climate change impacts from new development is required under CEQA. The City's CAP is a qualified greenhouse gas (GHG) emissions reduction plan in accordance with State CEQA Guidelines Section 15183.5. Pursuant to CEQA Guidelines Sections 15064(h)(3), 15130(d), and 15183(b), a project's incremental contribution to a cumulative GHG emissions effect may be determined not to be cumulatively considerable if it complies with the requirements of a CAP.

The purpose of this Checklist is to implement GHG reduction measures from the CAP that apply to new discretionary development projects. New development would demonstrate consistency with relevant CAP strategies and would not conflict with the City's ability to achieve the identified GHG reduction targets through implementation of applicable measures. Projects that are consistent with the CAP, as determined through the use of this Checklist, may rely on the CAP for the cumulative impact analysis of GHG emissions. Projects that are not consistent with the CAP must prepare a comprehensive project-specific analysis of GHG emissions, including quantification of existing and projected GHG emissions and incorporation of the measures in this Checklist to the extent feasible. Cumulative GHG impacts would be significant for any project that is not consistent with the CAP.

This Checklist may be updated periodically to incorporate new GHG reduction techniques or to comply with later amendments to the CAP or local, State, or federal law. Comprehensive updates to this Checklist will be coordinated with each CAP update. Administrative updates to the Checklist may occur regularly, as necessary for the purpose of keeping the Checklist up-to-date and implementable. Updates to the CAP Checklist associated with an update to the City's CAP would also require City Council approval and shall comply with CEQA.

APPLICABILITY AND PROCEDURES

This Checklist is required only for discretionary projects[1] that are subject to and not exempt from CEQA. Projects that are exempt from CEQA are deemed to be consistent with the City's CAP, and no further review is necessary, with the exception of a Class 32 "In-Fill Development Projects" categorical exemption (State CEQA Guidelines Section 15332), for which projects are required to demonstrate consistency with the CAP through this Checklist.

General procedures for Checklist compliance and review are described below. Specific guidance is also provided under each of the questions under Steps 1 and 2 of the Checklist.

- The City's Development Services - Planning Division reviews development applications and makes determinations regarding environmental review requirements under CEQA.
- The specific applicable requirements outlined in the Checklist shall be required as conditions of project approval.
- The project must provide written documentation and supporting evidence that demonstrate how the proposed project would implement each applicable Checklist requirement described herein to the satisfaction of the Planning Division.
- If a question in the Checklist is deemed not applicable (N/A) to a project, written documentation and evidence supporting that conclusion shall be provided to the satisfaction of the Planning Division. Each Checklist question provides the scenario(s) where checking N/A may be acceptable. If a measure is deemed not applicable for reasons other than those outlined in each question, supporting evidence will need to be provided and would be subject to Planning Division approval. A project may be determined to be inconsistent with the CAP if the N/A response is deemed to be not supported by credible evidence.
- Development projects requiring discretionary review that cannot demonstrate consistency with the CAP using this Checklist shall prepare a separate, project-level GHG analysis as part of the CEQA document prepared for the project.

[1] In this context, a project is any action that meets the definition of a "Project" in Section 15378 of the State CEQA Guidelines.

Application Information

Contact Information

Project No. and Name: GPA21-0008, R21-0004, & MFSDP21-0002 Santa Fe Flores LP

Property Address and APN: 2972 and 2982 South Santa Fe Avenue/APNs 217-161-1800 and 217-161-1900

Applicant Name and Co.: RJ Realty Investors/Santa Fe Flores LP, Contact: Paul Mayer

Contact Phone: 858-888-2488 Contact Email: pm@pemcor.net

Was a consultant retained to complete this checklist? ☑ Yes ☐ No
If Yes, complete the following:

Consultant Name: Jessica Fleming Contact Phone: 619-308-9333 x177

Company Name: RECON Environmental Contact Email: jfleming@reconenvironmental.com

Project Information

1. What is the size of the project site (acres)? 2.5 acres (2.2 acres net)

2. Identify all applicable proposed land uses:

   ☐ Residential (indicate # of single-family dwelling units):

   ☑ Residential (indicate # of multi-family dwelling units): 50 units

   ☐ Commercial (indicate total square footage):

   ☐ Industrial (indicate total square footage):

   ☐ Other (describe):

3. Provide a description of the project proposed. This description should match the basic project description used for the CEQA document. The description may be attached to the Checklist if there are space constraints.

The proposed project would request a Density Bonus and develop the approximately 2.5-acre (2.2-acre net) previously graded project site with 50 multi-family dwelling units (22.4 dwelling units/acre), a 1,000-square-foot roof deck, a 1,170-square-foot ground floor leasing and amenity center, an 800-square-foot tot lot, and 120-square-foot ground floor fire command center. Total project square footage would equate to 58,693 square feet. Out of the 50 dwelling units, 5 units would be dedicated affordable units. The units would include a mix of studios, 1 bed/1 bath, and 2 bed/2 bath. The project would include 250 square feet of private open space for each ground floor unit and 55-63 square feet of private open space for upper floor units. In addition, 125 cubic feet of storage located in each of the 45 carports and locker storage is proposed as part of the project. The discretionary approvals necessary for the project include a Multi-Family Site Development Plan. The apartment building would reach a maximum height of 62 feet. In conjunction with the Density Bonus, and due to the site topography, the project requests a concession to allow for the proposed building to exceed the three-story, 95-foot height limit of the R-3-10 zone. The project also proposes a General Plan Amendment (GPA) to amend the existing land use designation of Commercial (217-161-1900) and Light Industrial (217-161-1800) to Medium Density Residential 2 (MDR2) (217-161-1800 and 217-161-1900) and a Rezone from Commercial (C) (217-161-1900) and Light Industrial (L-I) (217-161-1800) to Multi-Family Residential (R-3-10) (217-161-1800 and 217-161-1900).

STEP 1: LAND USE CONSISTENCY

The first step in this section evaluates a project's GHG emissions consistent with the City's *Guidance to Demonstrating Consistency with the City of San Marcos Climate Action Plan: For Discretionary Projects Subject to CEQA* (Guidance Document). New discretionary development projects subject to CEQA review that emit fewer than 500 metric tons of carbon dioxide equivalent ($MTCO_2e$) annually would not contribute considerably to cumulative climate change impacts as stated in the City's Guidance Document, and therefore, would be considered consistent with the CAP and associated emissions projections.

For projects that are subject to CAP consistency review, the next step in determining consistency is to assess the project's consistency with the growth projections used in the development of the CAP. This section allows the city to determine a project's consistency with the land use assumptions used in the CAP.

Step 1: Land Use Consistency

	Checklist Item (Check the appropriate box and provide an explanation and supporting documentation for your answer)	**Yes**	**No**
1.	The size and type of projects listed below would emit fewer than 500 $MTCO_2e$ per year. Based on this threshold, does the proposed project exceed these characteristics? ▪ Single Family Housing: 36 dwelling units ▪ Multi-Family Housing: 55 dwelling units ▪ Office: 43,000 square feet ▪ Commercial Space: 20,000 square feet ▪ Regional Shopping Center: 18,000 square feet ▪ Hotel: 37 rooms ▪ Restaurant (Sit-Down): 6,500 square feet ▪ Restaurant (Drive-Thru, High Turnover): 2,400 square feet ▪ General Light Industrial: 58,000 square feet ▪ University: 263 students ▪ Mixed-Use: See *Guidance to Demonstrating Consistency* memorandum for methods to estimate mixed-use development thresholds ▪ Other: For project types not listed in this section the need for GHG analysis and mitigation will be made on a project-specific basis, considering the 500 $MTCO_2e$ per year screening threshold. If **"Yes",** proceed to Question 2 of Step 1. If **"No",** in accordance with the City's CAP screening criteria, the project's GHG impact is less than significant and is not subject to the measures of the CAP.	☐	☑
2.	Is the proposed project consistent with the City's existing General Plan land use designation? If **"Yes"**, proceed to Step 2. If **"No"**, proceed to Question 3 of Step 1	☐	☐
3.	For projects not consistent with the existing General Plan land use designation, does the project include a General Plan Amendment that would generate GHG emissions equal to or less than estimated emissions generated under the existing designation? If **"Yes"**, proceed to Step 2 and provide estimated project emissions under both existing and proposed designation(s) for comparison. If **"No"**, the project's GHG impact is potentially significant, and a GHG analysis must be prepared in accordance with the City's Guidance Document and applicable CEQA guidelines. The project must incorporate each of the measures identified in Step 2 to mitigate cumulative GHG emissions impacts, along with other mitigation measures as necessary based on a project specific GHG analysis.. Proceed and complete a project specific GHG analysis, and Step 2 of the Checklist.	☐	☐

STEP 2: CAP MEASURES CONSISTENCY

The second step of CAP consistency review is to evaluate a project's consistency with the applicable strategies and measures of the CAP. Each Checklist item is associated with a specific GHG reduction measure in the City's CAP. "N/A" should only be checked based on the direction provided in each Checklist Item question. All projects for which the measure is applicable must demonstrate that they would implement measures consistent with the Checklist Item, or fully substantiate how the item would be infeasible for project implementation. "N/A" responses are subject to Planning Division review and approval. If "No" is provided as a response to a question, the project would be determined to be inconsistent with the CAP and result in a significant GHG impact.

Step 2: CAP Measures Consistency			
Checklist Item (Check the appropriate box and provide an explanation for your answer. Please use additional sheets if necessary)	**Yes**	**No**	**N/A**
Project Design			
1. Electric Vehicle Charging Stations (Measure T-2) Multi-Family Residential and Non-Residential: Will the project install electric vehicle charging stations (Level 2 or better) in at least five percent of the total parking spaces provided on-site? Check "N/A" if the project is a single-family residential project or would not provide any parking.	☐	☐	☐
Please substantiate how the project satisfies question 1: _____ _____ _____ _____			
2. Bicycle Infrastructure (Measure T-8) Residential and Non-Residential Projects: If the following conditions are met, would the project pay its fair-share contribution to bicycle infrastructure improvements? ☐ Intersection or roadway segment improvements are proposed as part of the project and, ☐ The City's General Plan Mobility Element identifies bicycle infrastructure improvements at any intersection(s) or roadway segment(s) that would be improved as part of the project. Check "N/A" if the conditions above would not be met.	☐	☐	☐
Please substantiate how the project satisfies question 2: _____ _____ _____ _____			

Step 2: CAP Measures Consistency			
Checklist Item (Check the appropriate box and provide an explanation for your answer. Please use additional sheets if necessary)	**Yes**	**No**	**N/A**
3. Transportation Demand Management (Measure T-9) Multi-Family Residential and Non-Residential: Will the project develop and implement a TDM plan that includes, at a minimum, all of the TDM strategies listed below? ☐ Provide discounted monthly transit pass or provide at least 25 percent transit fare subsidy to residents/employees. ☐ Provide designated car-share, carpool, vanpool, and/or park-and-ride parking spaces.[2] ☐ Provide pedestrian connections between all internal uses and to all existing or planned external streets around the project site(s). ☐ Provide secure bicycle parking spaces or bicycle racks, showers, and clothes lockers. ☐ Encourage telecommuting for employees (allow one telecommute day per week or compressed work weeks) or provide a telecommute work center with common office space and equipment available to residents. *-or-* Would the project implement and monitor for four (4) years a TDM program that demonstrates an alternative transportation (i.e. carpool, public transit, bicycle, walk, telecommute) mode share of at least 29 percent [3] for all residents? Check "N/A" if the project is a single-family residential project or is not subject to the City's TDM Ordinance.	☐	☐	☐
Please state which measure option the project for which the project would comply and substantiate how the project satisfies question 3: _____ _____ _____ _____ _____			

[2] The designated number of car-share, carpool, vanpool, and/or park-and-ride parking spaces provided at a rate equal to or greater than CALGreen minimum requirements.

[3] Measure T-10 requires projects to increase alternative mode share by seven percent. The baseline mode share for alternative transportation (i.e. carpool, public transit, bicycle, walk, and telecommute) is 22 percent based on 2010 Census Data.

Step 2: CAP Measures Consistency			
Checklist Item (Check the appropriate box and provide an explanation for your answer. Please use additional sheets if necessary)	**Yes**	**No**	**N/A**
4. Reduce Parking Near Transit (Measure T-12) Multi-Family Residential: If located within a half-mile of a major transit stop[4], would the project provide at least 27 percent fewer parking spaces than required for the same use based on the City's municipal code parking requirements? Check "N/A" if the project is a single-family residential or non-residential project.	☐	☐	☐
Please substantiate how the project satisfies question 4: _____ _____ _____ _____ _____ _____			
5. Water Heaters (Measure E-1) Residential: Will the project install one of, or a combination of, the following water heater types in place of natural gas water heaters? ☐ Electric heat pump water heater ☐ Instantaneous electric water heater ☐ Electric tank ☐ Solar water heater with heat pump water heater backup ☐ Solar water heater with electric tank backup Check "N/A" if the project is a non-residential project.	☐	☐	☐
Please substantiate how the project satisfies question 5: _____ _____ _____ _____ _____ _____			

[4] Major transit stop is defined as a bus or light-rail station with fixed service and 10-minute minimum headways during peak hours. Project applicants should confirm with City staff if the project site would fall within this proximity tot a major transit stop.

Step 2: CAP Measures Consistency			
Checklist Item (Check the appropriate box and provide an explanation for your answer. Please use additional sheets if necessary)	**Yes**	**No**	**N/A**
6. Photovoltaic Installation (Measure E-2) Non-Residential: Will the project install photovoltaic systems with a minimum capacity of two watts per square foot of gross floor area? Check "N/A" if the project is a residential project or if installation of on-site photovoltaic would be infeasible.	☐	☐	☐
Please substantiate how the project satisfies question 6: _____ _____ _____ _____ _____			
7. Landscaping Water Use (Measure W-1) Residential and Non-Residential: Will the project comply with the City's Water Efficient Landscape Ordinance?[5] Check "N/A" if the project is not proposing any landscaping or is not subject to the City's Water Efficient Landscape Ordinance.	☐	☐	☐
Please substantiate how the project satisfies question 7: _____ _____ _____ _____ _____ _____			

[5] City of San Marcos Landscape Manual: https://www.san-marcos.net/home/showdocument?id=13984

Step 2: CAP Measures Consistency			
Checklist Item (Check the appropriate box and provide an explanation for your answer. Please use additional sheets if necessary)	**Yes**	**No**	**N/A**
8. Urban Tree Canopy (Measure C-2) Single-Family Residential: Will the project plant a minimum of one tree per single-family residential unit? *-or-* Multi-Family Residential and Non-Residential: If the project is providing more than 10 parking spaces, will the project plant at least one tree per five parking spaces provided? Check "N/A" if planting the required number of trees on-site would be infeasible.	☐	☐	☐

Please substantiate how the project satisfies question 8:

_____

_____

_____

_____

_____

_____

APPENDIX F

Storm Water Quality Management Plan (SWQMP)

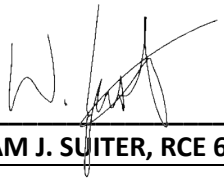
CITY OF SAN MARCOS

PRIORITY DEVELOPMENT PROJECT (PDP)
STORM WATER QUALITY MANAGEMENT PLAN (SWQMP)
FOR
SAN MARCOS RESIDENCES

2972 & 2982 S SANTA FE AVENUE
SAN MARCOS, CA 92069

ASSESSOR'S PARCEL NUMBER(S):
217-161-18 & 217-161-19

ENGINEER OF WORK:



WILLIAM J. SUITER, RCE 68964

PREPARED FOR:

SANTA FE FLORES LP
P.O. BOX 903
RANCHO SANTA FE, CA 92067
(858) 888-2488

PDP SWQMP PREPARED BY:

PASCO LARET SUITER & ASSOCIATES
27127 CALLE ARROYO, SUITE 1904
SAN JUAN CAPISTRANO, CA 92675
(949) 661-6695

DATE OF SWQMP:

OCTOBER 2021
REVISED: MARCH 2022
REVISED: APRIL 2022

GRADING PLANS PREPARED BY:

PASCO LARET SUITER & ASSOCIATES
27127 CALLE ARROYO, SUITE 1904
SAN JUAN CAPISTRANO, CA 92675
(949) 661-6695

Page intentionally left blank

TABLE OF CONTENTS

TABLE OF CONTENTS 3
ACRONYMS 4
PDP SWQMP PREPARER'S CERTIFICATION PAGE 5
PDP SWQMP PROJECT OWNER'S CERTIFICATION PAGE 7
SUBMITTAL RECORD 9
PROJECT VICINITY MAP 10
FORM I-1 APPLICABILITY OF STORM WATER BMP REQUIREMENTS 11
FORM I-2 PROJECT TYPE DETERMINATION CHECKLIST 13
FORM I-3B SITE INFORMATION CHECKLIST FOR PDPS 15
FORM I-4 SOURCE CONTROL BMP CHECKLIST FOR ALL DEVELOPMENT PROJECTS 25
FORM I-5 SITE DESIGN BMP CHECKLIST FOR ALL DEVELOPMENT PROJECTS 27
FORM I-6 SUMMARY OF PDP STRUCTURAL BMPS 29
ATTACHMENT 1 BACKUP FOR PDP POLLUTANT CONTROL BMPS 35
ATTACHMENT 2 BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES 37
ATTACHMENT 3 STRUCTURAL BMP MAINTENANCE INFORMATION 39
ATTACHMENT 4 COPY OF PLAN SHEETS WITH PERMANENT STORM WATER BMPS 41

ACRONYMS

APN	Assessor's Parcel Number
BMP	Best Management Practice
HMP	Hydromodification Management Plan
HSG	Hydrologic Soil Group
MS4	Municipal Separate Storm Sewer System
N/A	Not Applicable
NRCS	Natural Resources Conservation Service
PDP	Priority Development Project
PE	Professional Engineer
SC	Source Control
SD	Site Design
SDRWQCB	San Diego Regional Water Quality Control Board
SIC	Standard Industrial Classification
SWQMP	Storm Water Quality Management Plan

PDP SWQMP PREPARER'S CERTIFICATION PAGE

Project Name: San Marcos Residences
Permit Application Number: [Insert Permit Application Number]

PREPARER'S CERTIFICATION

I hereby declare that I am the Engineer in Responsible Charge of design of storm water best management practices (BMPs) for this project, and that I have exercised responsible charge over the design of the BMPs as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the PDP requirements of the City of San Marcos BMP Design Manual, which is a design manual for compliance with local City of San Marcos and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2015-0100) requirements for storm water management.

I have read and understand that the City Engineer has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the BMP Design Manual. I certify that this PDP SWQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this PDP SWQMP by the City Engineer is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of storm water BMPs for this project, of my responsibilities for project design.

_____
Engineer of Work's Signature, PE Number & Expiration Date

W. Justin Suiter
Print Name

Pasco Laret Suiter & Associates
Company

_____
Date

Engineer's Seal:

Page intentionally blank

PDP SWQMP PROJECT OWNER'S CERTIFICATION PAGE

Project Name: San Marcos Residences
Permit Application Number: [Insert Permit Application Number]

PROJECT OWNER'S CERTIFICATION

This PDP SWQMP has been prepared for Santa Fe Flores, LP by Pasco Laret Suiter & Associates. The PDP SWQMP is intended to comply with the PDP requirements of the City of San Marcos BMP Design Manual, which is a design manual for compliance with local City of San Marcos and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2015-0100) requirements for storm water management.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan. Once the undersigned transfers its interests in the property, its successor-in-interest shall bear the aforementioned responsibility to implement the best management practices (BMPs) described within this plan, including ensuring on-going operation and maintenance of structural BMPs. A signed copy of this document shall be available on the subject property into perpetuity.

_____
Project Owner's Signature

Paul Mayer_____
Print Name

Santa Fe Flores LP_____
Company

_____
Date

Page intentionally blank

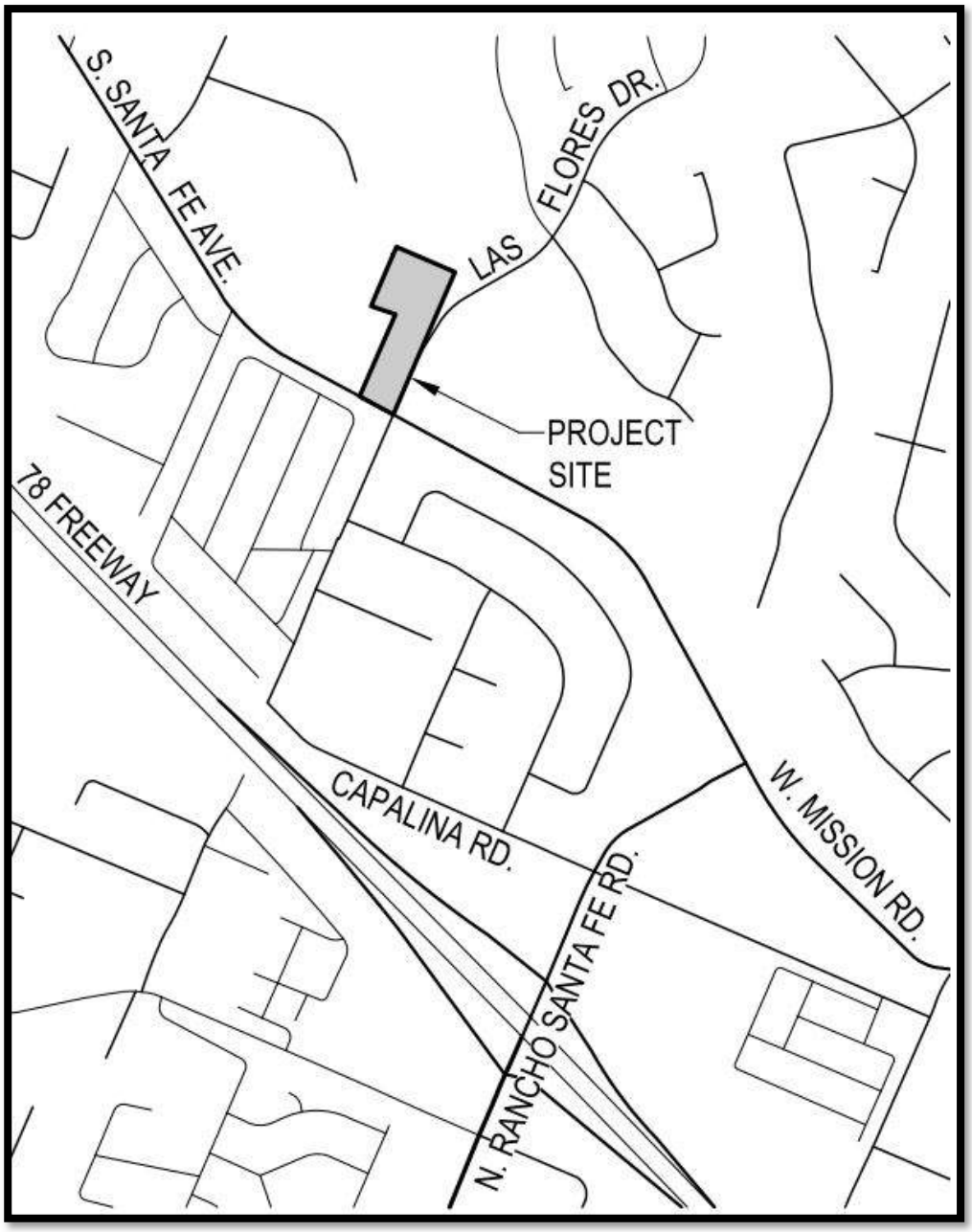
SUBMITTAL RECORD

Use this Table to keep a record of submittals of this PDP SWQMP. Each time the PDP SWQMP is re-submitted, provide the date and status of the project. In column 4 summarize the changes that have been made or indicate if response to plancheck comments is included. When applicable, insert response to plancheck comments behind this page.

Submittal Number	Date	Project Status	Summary of Changes
1	October 2021	☑Preliminary Design / Planning/ CEQA ☐ Final Design	Initial Submittal
2	March 2022	☑Preliminary Design / Planning/ CEQA ☐ Final Design	Resubmittal to address City comments
3	April 2022	☑ Preliminary Design / Planning/ CEQA ☐ Final Design	Resubmittal to address City comments
4		☐ Preliminary Design / Planning/ CEQA ☐ Final Design	

PROJECT VICINITY MAP

Project Name: San Marcos Residences
Permit Application Number: [Insert Permit Application Number]



FORM I-1 APPLICABILITY OF STORM WATER BMP REQUIREMENTS

Applicability of Storm Water Best Management Practices (BMP) Requirements **(Storm Water Intake Form for all Development Permit Applications)** **For detailed information please visit:** **http://www.san-marcos.net/departments/development-services/stormwater/development-planning**	**Form I-1** [March 15, 2016]

Project Identification	
Project Name: San Marcos Residences	
Description: Proposed 54-unit multifamily development with parking lots, access drive, outdoor garden area, miscellaneous hardscape and landscaping.	
Permit Application Number (if applicable):	Date: 10/21/2021
Project Address: 2972/2982 South Santa Fe Avenue	

Determination of Requirements

This form is required as part of the City's application process. The purpose of this form is to identify potential land development planning storm water requirements that apply to development projects.

Development projects are defined as construction, rehabilitation, redevelopment, or reconstruction of any public or private projects. In addition, the identification of a development project, as it relates to storm water regulations, would truly apply to development and redevelopment activities that have the potential to contact storm water and contribute a source of pollutants, or reduce the natural absorption and infiltration abilities of the land.

To access the BMP Design Manual, Storm Water Quality Management Plan (SWQMP) templates, and other pertinent information related to this program please refer to:
http://www.san-marcos.net/departments/development-services/stormwater/development-planning

Please answer each of the following steps below, starting with Step 1 and progressing through each step until reaching "Stop".

Step	Answer	Progression
Step 1: Based on the above, Is the project a "development project" (See definition above)? See Section 1.3 of the BMP Design Manual for further guidance if necessary.	☑ Yes	Go to Step 2.
	☐ No	Permanent BMP requirements do not apply. No SWQMP will be required. Provide brief discussion below. **STOP.**
Discussion / justification if the project is not a "development project" (e.g., the project includes *only* interior remodels within an existing building):		
Step 2: Is the project a Standard Project, Priority Development Project (PDP), or exception to PDP definitions? **To answer this item, complete Form I-2, Project Type Determination. See Section 1.4 of the BMP Design Manual *in its entirety* for guidance.** **In addition to Section 1.4, please refer to the City's SWQMP Submittal Requirements form.**	☐ Standard Project	Only Standard Project requirements apply, including Standard Project SWQMP. **STOP.**
	☑ PDP	Standard and PDP requirements apply, including PDP SWQMP. **Go to Step 3 on the following page.**
	☐ Exception to PDP definitions	Standard Project requirements apply, and any additional requirements specific to the type of project. Provide discussion and list any additional requirements below. Prepare Standard Project SWQMP. **STOP.**

Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:

Form I-1 Page 2, Form Date: March 15, 2016		
Step 3 (PDPs only). Please answer the list of questions in this section to determine if hydromodification requirements reply to the proposed PDP. Does the project:		
Step 3a. Discharge storm water runoff directly to the Pacific Ocean?	☐ Yes	**STOP**. Hydromodification requirements do not apply.
	☑ No	Continue to Step 3b.
Step 3b. Discharge storm water runoff directly to an enclosed embayment, not within protected areas?	☐ Yes	**STOP**. Hydromodification requirements do not apply.
	☑ No	Continue to Step 3c.
Step 3c. Discharge storm water runoff directly to a water storage reservoir or lake, below spillway or normal operating level?	☐ Yes	**STOP**. Hydromodification requirements do not apply.
	☑ No	Continue to Step 3d.
Step 3d. Discharge storm water runoff directly to an area identified in WMAA?	☐ Yes	**STOP**. Hydromodification requirements do not apply.
	☑ No	Hydromodification requirements apply to the project. Go to Step 4.
Discussion / justification if hydromodification control requirements do not apply:		

Step 4 (PDPs subject to hydromodification control requirements only). Does protection of critical coarse sediment yield areas apply based on review of WMAA Potential Critical Coarse Sediment Yield Area Map? See Section 6.2 of the BMP Design Manual for guidance.	☐ Yes	Management measures required for protection of critical coarse sediment yield areas (Chapter 6.2). Stop.
	☑ No	Management measures not required for protection of critical coarse sediment yield areas. Provide brief discussion below. Stop.

FORM I-2 PROJECT TYPE DETERMINATION CHECKLIST

Project Type Determination Checklist			Form I-2 [March 15, 2016]
Project Information			
Project Name/Description: San Marcos Residences			
Permit Application Number (if applicable):			Date:10/21/2021
Project Address: 2972/2982 South Santa Fe Avenue			
Project Type Determination: Standard Project or Priority Development Project (PDP)			
The project is (select one): ☑ New Development ☐ Redevelopment			
The total proposed newly created or replaced impervious area is: 70,628 ft^2 (1.62) acres			
Is the project in any of the following categories, (a) through (f)?			
Yes ☑	No ☐	(a)	New development projects that create 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☐	No ☐	(b)	Redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☐	No ☐	(c)	New and redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site), and support one or more of the following uses: (i) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (Standard Industrial Classification (SIC) code 5812). (ii) Hillside development projects. This category includes development on any natural slope that is twenty-five percent or greater. (iii) Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce. (iv) Streets, roads, highways, freeways, and driveways. This category is defined as any paved impervious surface used for the transportation of automobiles, trucks, motorcycles, and other vehicles.

Form I-2 Page 2, Form Date: March 15, 2016			
Yes ☐	No ☐	(d)	New or redevelopment projects that create and/or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharging directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands). *Note: ESAs are areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Board and San Diego Water Board; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and San Diego Water Board; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees. See BMP Design Manual Section 1.4.2 for additional guidance.*
Yes ☐	No ☐	(e)	New development projects, or redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface, that support one or more of the following uses: (i) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. (ii) Retail gasoline outlets (RGOs). This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.
Yes ☐	No ☐	(f)	New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction. *Note: See BMP Design Manual Section 1.4.2 for additional guidance.*

Does the project meet the definition of one or more of the Priority Development Project categories (a) through (f) listed above?

☐ No – the project is <u>not</u> a Priority Development Project (Standard Project).

☑ Yes – the project is a Priority Development Project (PDP).

The following is for redevelopment PDPs only:

The area of existing (pre-project) impervious area at the project site is: _____ ft^2 (A)
The total proposed newly created or replaced impervious area is _____ ft^2 (B)
Percent impervious surface created or replaced (B/A)*100: _____%
The percent impervious surface created or replaced is (select one based on the above calculation):

☐ less than or equal to fifty percent (50%) – only new impervious areas are considered PDP

OR

☐ greater than fifty percent (50%) – the entire project site is a PDP

FORM I-3B SITE INFORMATION CHECKLIST FOR PDPS

Site Information Checklist For PDPs	Form I-3B (PDPs) [March 15, 2016]
Project Summary Information	
Project Name	San Marcos Residences
Project Address	2972 & 2982 South Santa Fe Avenue San Marcos, CA 92069
Assessor's Parcel Number(s) (APN(s))	217-161-18 & 217-161-19
Permit Application Number	
Project Hydrologic Unit	Select One: ☐ Santa Margarita 902 ☐ San Luis Rey 903 ☑ Carlsbad 904 ☐ San Dieguito 905 ☐ Penasquitos 906 ☐ San Diego 907 ☐ Pueblo San Diego 908 ☐ Sweetwater 909 ☐ Otay 910 ☐ Tijuana 911
Project Watershed (Complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	Agua Hedionda (904.2)
Parcel Area (total area of Assessor's Parcel(s) associated with the project)	2.23 Acres (97,036 Square Feet)
Area to be Disturbed by the Project (Project Area)	2.06 Acres (89,554 Square Feet)
Project Proposed Impervious Area (subset of Project Area)	1.62 Acres (70,628 Square Feet)
Project Proposed Pervious Area (subset of Project Area)	0.43 Acres (18,926 Square Feet)
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Parcel Area.	

Form I-3B Page 2 of 10, Form Date: March 15, 2016
Description of Existing Site Condition
Current Status of the Site (select all that apply): ☐ Existing development ☐ Previously graded but not built out ☐ Demolition completed without new construction ☐ Agricultural or other non-impervious use ☑ Vacant, undeveloped/natural Description / Additional Information: Project site partially graded and storm drain improvements installed during construction of Las Flores abutment along the east side of the project site.
Existing Land Cover Includes (select all that apply): ☑ Vegetative Cover ☑ Non-Vegetated Pervious Areas ☑ Impervious Areas Description / Additional Information:
Underlying Soil belongs to Hydrologic Soil Group (select all that apply): ☐ NRCS Type A ☐ NRCS Type B ☑ NRCS Type C ☑ NRCS Type D
Approximate Depth to Groundwater (GW): ☐ GW Depth < 5 feet ☐ 5 feet < GW Depth < 10 feet ☐ 10 feet < GW Depth < 20 feet ☑ GW Depth > 20 feet
Existing Natural Hydrologic Features (select all that apply): ☐ Watercourses ☐ Seeps ☐ Springs ☐ Wetlands ☑ None Description / Additional Information:

Description of Existing Site Drainage Patterns

How is storm water runoff conveyed from the site? At a minimum, this description should answer:
(1) whether existing drainage conveyance is natural or urban;
(2) Is runoff from offsite conveyed through the site? if yes, quantify all offsite drainage areas, design flows, and locations where offsite flows enter the project site, and summarize how such flows are conveyed through the site;
(3)Provide details regarding existing project site drainage conveyance network, including any existing storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels; and
(4) Identify all discharge locations from the existing project site along with a summary of conveyance system size and capacity for each of the discharge locations. Provide summary of the pre-project drainage areas and design flows to each of the existing runoff discharge locations.

Describe existing site drainage patterns (Refer to the "Preliminary Hydrology Study for San Marcos Residences" prepared by Pasco Laret Suiter & Associates dated October 2021.):

The site is surrounded by residential homes to the north, east and south, and industrial offices to the west. The site is primarily undeveloped with a shared access driveway at the property's southerly boundary. The driveway also provides access to the adjacent commercial property's parking lot and commercial building. The southern portion of the site is relatively flat while the central portion slopes up to an elevated pad at the north end of the site. Las Flores Drive along the property's eastern boundary has approximately a 15-20% grade upward to the north to allow vehicle access over the railroad tracks north of the property. Elevations across the site range from a high of approximately 546 feet in the northeast corner of the property to a low of approximately 494.50 feet at the southwest corner of the property. The existing site is divided into four drainage basins:

The first drainage basin consists of the northerly half graded pad where runoff flows overland and into an existing storm drain inlet structure in the center of the pad. Captured runoff exits the site through an existing 18" RCP at the easterly boundary and into the public storm drain system within Las Flores Drive.

The second drainage basin is a similar, but much smaller, sump condition into a storm drain inlet structure exists just southerly of the north half sump condition mentioned above. Captured runoff also exits the site through a separate 18" RCP at the easterly boundary and into the public storm drain system within Las Flores Drive where it confluences with the north half pad runoff. Pipe flows continue to travel southerly down Las Flores Drive before combining with flows from a 54" RCP and 24" RCP. Combined pipe flows are then diverted to the west along South Santa Fe Avenue through a 60" RCP.

The third drainage basin consists of the southern half of the site where runoff generated from the adjacent liquor store property and the project site combines to surface flow southerly. Surface runoff exits the drainage basin through the existing shared access driveway on South Santa Fe Avenue then into the public street's curb and gutter and flows northerly approximately 100' before being captured by an existing curb inlet structure. Captured runoff is diverted across South Santa Fe Avenue through an 18" RCP storm drain pipe and into a 60" RCP that continues flowing westerly.

The fourth drainage basin is located along the west edge of Drainage Basin E1 north half pad, a small area of existing graded slopes that surface flows to the west and onto the adjacent property.

Description of Proposed Site Development

Project Description / Proposed Land Use and/or Activities:
General Plan Amendment and Rezone from Commercial and Light Industrial to Multifamily Residential to allow 54 dwelling units on a 2.23 acre site. To achieve proposed density, applicant intends to utilize State density bonus law allowances.

List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):

The project proposes to develop the existing vacant property and construct a new multi-family residential building with approximately 54 dwelling units, at-grade parking lots, access drives, hardscape and landscape, and associated improvements including proprietary biofiltration storm water devices that meet the requirements for pollutant control and an underground storm water storage facilities to comply with hydromodification management flow control and to mitigate the 100-year storm event peak discharge rate.

List/describe proposed pervious features of the project (e.g., landscape areas):

Proposed pervious features include landscape areas.

Does the project include grading and changes to site topography?
☑ Yes
☐ No

Description / Additional Information:

The project site will be graded to create pads suitable for the construction of structures, improvements and associated underground utilities.

Description of Proposed Site Drainage Patterns

Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)?

☑ Yes

☐ No

If yes, provide details regarding the proposed project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels, and the method for conveying offsite flows through or around the proposed project site. Identify all discharge locations from the proposed project site along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide a summary of pre- and post-project drainage areas and design flows to each of the runoff discharge locations. Reference the drainage study for detailed calculations.

Describe proposed site drainage patterns (refer to "Preliminary Hydrology Study for San Marcos Residences" prepared by Pasco Laret Suiter & Associates dated October 2021.):
The proposed site is divided into five drainage basins:

The first drainage basin consists of the proposed site's upper level building, north parking lot area and a portion of existing public ROW hillside area that drains into the project site at the northeast corner of the property. Surface runoff will sheet flow southwesterly across the parking area, through a curb opening and into a proprietary biofiltration system. Treated flows and peak flows will enter the private storm drain pipe system then divert pipe flows to an underground storm water storage facility before exiting the project site through an existing 18" RCP storm drain pipe that flows out into the public storm drain system in Las Flores Drive.

The second drainage basin consists of the proposed site's lower level building, south parking lot area, and access road. Surface runoff will sheet flow southerly down the access road, across the parking area then through curb openings into one of two proprietary biofiltration systems. Treated flows and peak flows will enter the private storm drain pipe system then divert pipe flows to an underground storm water storage facility before exiting the project site through a new 18" RCP storm drain pipe and connect to the existing 60" RCP storm drain pipe in South Santa Fe Avenue.

The third drainage basin consists of the adjacent property's existing commercial building, existing parking area and existing undeveloped hillside to the west of the project site. A new concrete ditch is proposed along the project site's westerly boundary along the new access road and a new ribbon gutter along the existing parking area to capture off-site runoff without comingling with on-site runoff and divert the surface flows out onto South Santa Fe Avenue as in the existing condition.

The fourth drainage basin consists of the existing hillside area at the northwest corner of the site. Storm water runoff will surface flow westerly and onto the adjacent property as in the existing condition.

The fifth drainage basin consists of the existing public right-of-way hillside area at the northeast corner of the project site. A new concrete ditch is proposed along the project's easterly boundary to capture off-site runoff from the hillside without comingling with on-site runoff and diverts the surface flow to an underground storm drain piping system to confluence with runoff from Drainage Basin 1. Pipe flows will combine with the first drainage basin pipe flows (downstream of its BMP systems) and exit the site through an existing 18" RCP storm drain pipe that flows out into the public storm drain system in Las Flores Drive.

Form I-3B Page 6 of 10, Form Date: March 15, 2016

Identify whether any of the following features, activities, and/or pollutant source areas will be present (select all that apply):

☑ On-site storm drain inlets
☑ Interior floor drains and elevator shaft sump pumps
☐ Interior parking garages
☐ Need for future indoor & structural pest control
☑ Landscape/Outdoor Pesticide Use
☐ Pools, spas, ponds, decorative fountains, and other water features
☐ Food service
☑ Refuse areas
☐ Industrial processes
☐ Outdoor storage of equipment or materials
☐ Vehicle and Equipment Cleaning
☐ Vehicle/Equipment Repair and Maintenance
☐ Fuel Dispensing Areas
☐ Loading Docks
☐ Fire Sprinkler Test Water
☐ Miscellaneous Drain or Wash Water
☑ Plazas, sidewalks, and parking lots

Description / Additional Information:

Identification and Narrative of Receiving Water and Pollutants of Concern

Describe flow path of storm water from the project site discharge location(s), through urban storm conveyance systems as applicable, to receiving creeks, rivers, and lagoons as applicable, and ultimate discharge to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable):
Storm water runoff that leaves the project site enters the existing 60" RCP in South Santa Fe Avenue then diverts flow westerly approximately 600' down South Santa Fe Avenue then heads southerly approximately 400' down Community drive before entering an unlined vegetated channel/stream. Runoff continues to travel westerly downstream through the Agua Hedionda Hydrologic Area eventually outlets into the Agua Hedionda Lagoon and the Pacific Ocean.

List any 303(d) impaired water bodies within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies:

303(d) Impaired Water Body	Pollutant(s)/Stressor(s)	TMDLs / WQIP Highest Priority Pollutant
Agua Hedionda Creek	Pesticides, Fecal Indicator Bacteria, Pesticides, Metals/Metalloids, Nutrients, Salinity, Toxicity, Miscellaneous	Riparian Habitat Degradation, Hydromodification Impacts
Agua Hedionda Lagoon	Toxicity	

Identification of Project Site Pollutants*

***Identification of project site pollutants is only required if flow-thru treatment BMPs are implemented onsite in lieu of retention or biofiltration BMPs (note the project must also participate in an alternative compliance program unless prior lawful approval to meet earlier PDP requirements is demonstrated)**

Identify pollutants expected from the project site based on all proposed use(s) of the site (see BMP Design Manual Appendix B.6):

Pollutant	Not Applicable to the Project Site	Expected from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment		X	X
Nutrients		X	X
Heavy Metals			
Organic Compounds			
Trash & Debris		X	X
Oxygen Demanding Substances		X	
Oil & Grease		X	
Bacteria & Viruses		Potential	X
Pesticides		X	

Hydromodification Management Requirements

Do hydromodification management requirements apply (see Section 1.6 of the BMP Design Manual)?

☑ Yes, hydromodification management flow control structural BMPs required.

☐ No, the project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐ No, the project will discharge runoff directly to conveyance channels whose bed and bank are concrete-lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐ No, the project will discharge runoff directly to an area identified as appropriate for an exemption by the WMAA for the watershed in which the project resides.

Description / Additional Information (to be provided if a 'No' answer has been selected above):

Critical Coarse Sediment Yield Areas*

***This Section only required if hydromodification management requirements apply**

Based on the maps provided within the WMAA, do potential critical coarse sediment yield areas exist within the project drainage boundaries?

☐ Yes

☑ No, No critical coarse sediment yield areas to be protected based on WMAA maps

If yes, have any of the optional analyses presented in Section 6.2 of the BMP Design Manual been performed?

☐ 6.2.1 Verification of Geomorphic Landscape Units (GLUs) Onsite

☐ 6.2.2 Downstream Systems Sensitivity to Coarse Sediment

☐ 6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite

☑ No optional analyses performed, the project will avoid critical coarse sediment yield areas identified based on WMAA maps

If optional analyses were performed, what is the final result?

☑ No critical coarse sediment yield areas to be protected based on verification of GLUs onsite

☐ Critical coarse sediment yield areas exist but additional analysis has determined that protection is not required. Documentation attached in Attachment 2.b of the SWQMP.

☐ Critical coarse sediment yield areas exist and require protection. The project will implement management measures described in Sections 6.2.4 and 6.2.5 as applicable, and the areas are identified on the SWQMP Exhibit.

Discussion / Additional Information:

Flow Control for Post-Project Runoff*

***This Section only required if hydromodification management requirements apply**

List and describe point(s) of compliance (POCs) for flow control for hydromodification management (see Section 6.3.1). For each POC, provide a POC identification name or number correlating to the project's HMP Exhibit and a receiving channel identification name or number correlating to the project's HMP Exhibit.

There are two (2) POCs for the project, POC-1 and POC-2. POC-1 is located near the center of the property's eastern property boundary and POC-2 is located along near the center of the property's southern property boundary.

Has a geomorphic assessment been performed for the receiving channel(s)?

☑ No, the low flow threshold is 0.1Q2 (default low flow threshold)

☐ Yes, the result is the low flow threshold is 0.1Q2

☐ Yes, the result is the low flow threshold is 0.3Q2

☐ Yes, the result is the low flow threshold is 0.5Q2

If a geomorphic assessment has been performed, provide title, date, and preparer:

Discussion / Additional Information: (optional)

Form I-3B Page 10 of 10, Form Date: March 15, 2016
Other Site Requirements and Constraints
When applicable, list other site requirements or constraints that will influence storm water management design, such as zoning requirements including setbacks and open space, or local codes governing minimum street width, sidewalk construction, allowable pavement types, and drainage requirements. N/A
Optional Additional Information or Continuation of Previous Sections As Needed
This space provided for additional information or continuation of information from previous sections as needed.

FORM I-4 SOURCE CONTROL BMP CHECKLIST FOR ALL DEVELOPMENT PROJECTS

Source Control BMP Checklist for All Development Projects (Standard Projects and Priority Development Projects)	Form I-4 [March 15, 2016]

Project Identification

Project Name: San Marcos Residences

Permit Application Number

Source Control BMPs

All development projects must implement source control BMPs SC-1 through SC-6 where applicable and feasible. See Chapter 4 and Appendix E of the Model BMP Design Manual for information to implement source control BMPs shown in this checklist.

Answer each category below pursuant to the following.

- "Yes" means the project will implement the source control BMP as described in Chapter 4 and/or Appendix E of the Model BMP Design Manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas). Discussion / justification may be provided.

Source Control Requirement	Applied?		
SC-1 Prevention of Illicit Discharges into the MS4	☑ Yes	☐ No	☐ N/A
Discussion / justification if SC-1 not implemented:			
SC-2 Storm Drain Stenciling or Signage	☑ Yes	☐ No	☐ N/A
Discussion / justification if SC-2 not implemented:			
SC-3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☑ N/A
Discussion / justification if SC-3 not implemented:			
SC-4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☑ N/A
Discussion / justification if SC-4 not implemented:			

Form I-4 Page 2 of 2, Form Date: March 15, 2016			
Source Control Requirement	**Applied?**		
SC-5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☑ Yes	☐ No	☐ N/A
Discussion / justification if SC-5 not implemented:			
SC-6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below)			
☐ On-site storm drain inlets	☑ Yes	☐ No	☐ N/A
☐ Interior floor drains and elevator shaft sump pumps	☑ Yes	☐ No	☐ N/A
☐ Interior parking garages	☐ Yes	☐ No	☑ N/A
☐ Need for future indoor & structural pest control	☐ Yes	☐ No	☑ N/A
☐ Landscape/Outdoor Pesticide Use	☑ Yes	☐ No	☐ N/A
☐ Pools, spas, ponds, decorative fountains, and other water features	☐ Yes	☐ No	☑ N/A
☐ Food service	☐ Yes	☐ No	☑ N/A
☐ Refuse areas	☑ Yes	☐ No	☐ N/A
☐ Industrial processes	☐ Yes	☐ No	☑ N/A
☐ Outdoor storage of equipment or materials	☐ Yes	☐ No	☑ N/A
☐ Vehicle and Equipment Cleaning	☐ Yes	☐ No	☑ N/A
☐ Vehicle/Equipment Repair and Maintenance	☐ Yes	☐ No	☑ N/A
☐ Fuel Dispensing Areas	☐ Yes	☐ No	☑ N/A
☐ Loading Docks	☐ Yes	☐ No	☑ N/A
☐ Fire Sprinkler Test Water	☑ Yes	☐ No	☐ N/A
☐ Miscellaneous Drain or Wash Water	☑ Yes	☐ No	☐ N/A
☐ Plazas, sidewalks, and parking lots	☑Yes	☐ No	☐ N/A
Discussion / justification if SC-6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for <u>all</u> "No" answers shown above.			

FORM I-5 SITE DESIGN BMP CHECKLIST FOR ALL DEVELOPMENT PROJECTS

Site Design BMP Checklist for All Development Projects (Standard Projects and Priority Development Projects)	Form I-5 [March 15, 2016]

Project Identification

Project Name: San Marcos Residences

Permit Application Number

Site Design BMPs

All development projects must implement site design BMPs SD-1 through SD-8 where applicable and feasible. See Chapter 4 and Appendix E of the Model BMP Design Manual for information to implement site design BMPs shown in this checklist.

Answer each category below pursuant to the following.

- "Yes" means the project will implement the site design BMP as described in Chapter 4 and/or Appendix E of the Model BMP Design Manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project site has no existing natural areas to conserve). Discussion / justification may be provided.

Site Design Requirement	Applied?		
SD-1 Maintain Natural Drainage Pathways and Hydrologic Features	☐ Yes	☐ No	☑ N/A
Discussion / justification if SD-1 not implemented:			
SD-2 Conserve Natural Areas, Soils, and Vegetation	☐ Yes	☑ No	☐ N/A
Discussion / justification if SD-2 not implemented:			
SD-3 Minimize Impervious Area	☑ Yes	☐ No	☐ N/A
Discussion / justification if SD-3 not implemented:			
SD-4 Minimize Soil Compaction	☑ Yes	☐ No	☐ N/A
Discussion / justification if SD-4 not implemented:			
SD-5 Impervious Area Dispersion	☑ Yes	☐ No	☐ N/A
Discussion / justification if SD-5 not implemented:			

Form I-5 Page 2 of 2, Form Date: March 15, 2016			
Site Design Requirement	**Applied?**		
SD-6 Runoff Collection	☑ Yes	☐ No	☐ N/A
Discussion / justification if SD-6 not implemented:			
SD-7 Landscaping with Native or Drought Tolerant Species	☑ Yes	☐ No	☐ N/A
Discussion / justification if SD-7 not implemented:			
SD-8 Harvesting and Using Precipitation	☐ Yes	☑ No	☐ N/A
Discussion / justification if SD-8 not implemented:			

FORM I-6 SUMMARY OF PDP STRUCTURAL BMPS

Summary of PDP Structural BMPs	Form I-6 (PDPs) [March 15, 2016]
Project Identification	
Project Name: San Marcos Residences	
Permit Application Number	
PDP Structural BMPs	
All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the BMP Design Manual). Selection of PDP structural BMPs for storm water pollutant control must be based on the selection process described in Chapter 5. PDPs subject to hydromodification management requirements must also implement structural BMPs for flow control for hydromodification management (see Chapter 6 of the BMP Design Manual). Both storm water pollutant control and flow control for hydromodification management can be achieved within the same structural BMP(s). PDP structural BMPs must be verified by the local jurisdiction at the completion of construction. This may include requiring the project owner or project owner's representative and engineer of record to certify construction of the structural BMPs (see Section 1.12 of the BMP Design Manual). PDP structural BMPs must be maintained into perpetuity, and the local jurisdiction must confirm the maintenance (see Section 7 of the BMP Design Manual). Use this form to provide narrative description of the general strategy for structural BMP implementation at the project site in the box below. Then complete the PDP structural BMP summary information sheet (page 3 of this form) for each structural BMP within the project (copy the BMP summary information page as many times as needed to provide summary information for each individual structural BMP).	
Describe the general strategy for structural BMP implementation at the site. This information must describe how the steps for selecting and designing storm water pollutant control BMPs presented in Section 5.1 of the BMP Design Manual were followed, and the results (type of BMPs selected). For projects requiring hydromodification flow control BMPs, indicate whether pollutant control and flow control BMPs are integrated or separate. **DMAs 1-3/ BMPs 1-3** Step 1A: The DMA is not self-mitigating, de minimis, or self-retaining. Step 1B: There are no site design BMPs proposed for the project for which the runoff factor can be adjusted. Step 2: Harvest and use is not feasible. Refer to Attachment 1c. Step 3: Pursuant to the geotechnical report and Worksheet C.4-1, infiltration is not feasible. Step 4: Proprietary Biofiltration BMPs (BF-3) have been selected and sized per the design criteria to meet pollutant control requirements and an underground storm water storage facility has been selected and sized per the design criteria to meet hydromodification management flow control requirements and to mitigate the project site's 100-year peak flows **DMAs 4-6** According to section 5.2.1 of the BMP Design Manual for the City of San Marcos, these DMAs qualify as self-mitigating since the vegetation in the landscaped area is native and/or non-native/ non-invasive drought tolerant species that do not require regular application of fertilizers and pesticides, soils are	

Undisturbed native topsoil, or disturbes soils that have been amended and aerated, impervious area within the self-mitigated area is only hydraulically connected to a brow ditch and not any other impervious areas, and the self-mitigating areas are hydraulically separated from DMAs that contain permanent pollutant control BMPs.

Structural BMP Summary Information
(Copy this page as needed to provide information for each individual proposed structural BMP)

Structural BMP ID No. 1	DMA Nos: 1
Construction Plan Sheet No.	

Type of structural BMP:
- ☐ Retention by harvest and use (HU-1)
- ☐ Retention by infiltration basin (INF-1)
- ☐ Retention by bioretention (INF-2)
- ☐ Retention by permeable pavement (INF-3)
- ☐ Partial retention by biofiltration with partial retention (PR-1)
- ☐ Biofiltration (BF-1)
- ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2)
- ☑ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F
- ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)
- ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)
- ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)
- ☐ Detention pond or vault for hydromodification management
- ☐ Other (describe in discussion section below)

Purpose:
- ☑ Pollutant control only
- ☐ Hydromodification control only
- ☐ Combined pollutant control and hydromodification control
- ☐ Pre-treatment/forebay for another structural BMP
- ☐ Other (describe in discussion section below)

Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 1911 San Diego Avenue, Suite 100 San Diego, CA 92110
Who will be the final owner of this BMP?	Santa Fe Flores LP
Who will maintain this BMP into perpetuity?	Santa Fe Flores LP
What is the funding mechanism for maintenance?	Santa Fe Flores LP

Form I-6 Page 3 of X (Copy as many as needed) Form Date: March 15, 2016	
Structural BMP Summary Information **(Copy this page as needed to provide information for each individual proposed structural BMP)**	
Structural BMP ID No. 2	DMA Nos: 2
Construction Plan Sheet No.	
Type of structural BMP: ☐ Retention by harvest and use (HU-1) ☐ Retention by infiltration basin (INF-1) ☐ Retention by bioretention (INF-2) ☐ Retention by permeable pavement (INF-3) ☐ Partial retention by biofiltration with partial retention (PR-1) ☐ Biofiltration (BF-1) ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2) ☑ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐ Detention pond or vault for hydromodification management ☐ Other (describe in discussion section below)	
Purpose: ☑ Pollutant control only ☐ Hydromodification control only ☐ Combined pollutant control and hydromodification control ☐ Pre-treatment/forebay for another structural BMP ☐ Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 1911 San Diego Avenue, Suite 100 San Diego, CA 92110
Who will be the final owner of this BMP?	Santa Fe Flores LP
Who will maintain this BMP into perpetuity?	Santa Fe Flores LP
What is the funding mechanism for maintenance?	Santa Fe Flores LP

Form I-6 Page 3 of X (Copy as many as needed) Form Date: March 15, 2016	
Structural BMP Summary Information **(Copy this page as needed to provide information for each individual proposed structural BMP)**	
Structural BMP ID No. 3	DMA Nos: 3
Construction Plan Sheet No.	
Type of structural BMP: ☐ Retention by harvest and use (HU-1) ☐ Retention by infiltration basin (INF-1) ☐ Retention by bioretention (INF-2) ☐ Retention by permeable pavement (INF-3) ☐ Partial retention by biofiltration with partial retention (PR-1) ☐ Biofiltration (BF-1) ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2) ☑ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐ Detention pond or vault for hydromodification management ☐ Other (describe in discussion section below)	
Purpose: ☑ Pollutant control only ☐ Hydromodification control only ☐ Combined pollutant control and hydromodification control ☐ Pre-treatment/forebay for another structural BMP ☐ Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 1911 San Diego Avenue, Suite 100 San Diego, CA 92110
Who will be the final owner of this BMP?	Santa Fe Flores LP
Who will maintain this BMP into perpetuity?	Santa Fe Flores LP
What is the funding mechanism for maintenance?	Santa Fe Flores LP

Form I-6 Page 3 of X (Copy as many as needed) Form Date: March 15, 2016	
Structural BMP Summary Information **(Copy this page as needed to provide information for each individual proposed structural BMP)**	
Structural BMP ID No. 10	DMA Nos: 1
Construction Plan Sheet No.	
Type of structural BMP: ☐ Retention by harvest and use (HU-1) ☐ Retention by infiltration basin (INF-1) ☐ Retention by bioretention (INF-2) ☐ Retention by permeable pavement (INF-3) ☐ Partial retention by biofiltration with partial retention (PR-1) ☐ Biofiltration (BF-1) ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☑ Detention pond or vault for hydromodification management ☐ Other (describe in discussion section below)	
Purpose: ☐ Pollutant control only ☑ Hydromodification control only ☐ Combined pollutant control and hydromodification control ☐ Pre-treatment/forebay for another structural BMP ☐ Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 1911 San Diego Avenue, Suite 100 San Diego, CA 92110
Who will be the final owner of this BMP?	Santa Fe Flores LP
Who will maintain this BMP into perpetuity?	Santa Fe Flores LP
What is the funding mechanism for maintenance?	Santa Fe Flores LP

Form I-6 Page 3 of X (Copy as many as needed) Form Date: March 15, 2016	
Structural BMP Summary Information **(Copy this page as needed to provide information for each individual proposed structural BMP)**	
Structural BMP ID No. 11	DMA Nos: 2-3
Construction Plan Sheet No.	
Type of structural BMP: ☐ Retention by harvest and use (HU-1) ☐ Retention by infiltration basin (INF-1) ☐ Retention by bioretention (INF-2) ☐ Retention by permeable pavement (INF-3) ☐ Partial retention by biofiltration with partial retention (PR-1) ☐ Biofiltration (BF-1) ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☑ Detention pond or vault for hydromodification management ☐ Other (describe in discussion section below)	
Purpose: ☐ Pollutant control only ☑ Hydromodification control only ☐ Combined pollutant control and hydromodification control ☐ Pre-treatment/forebay for another structural BMP ☐ Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 1911 San Diego Avenue, Suite 100 San Diego, CA 92110
Who will be the final owner of this BMP?	Santa Fe Flores LP
Who will maintain this BMP into perpetuity?	Santa Fe Flores LP
What is the funding mechanism for maintenance?	Santa Fe Flores LP

ATTACHMENT 1 BACKUP FOR PDP POLLUTANT CONTROL BMPS

This is the cover sheet for Attachment 1.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 1a	DMA Exhibit (Required) See DMA Exhibit Checklist on the back of this Attachment cover sheet.	☑ Included
Attachment 1b	Tabular Summary of DMAs Showing DMA ID matching DMA Exhibit, DMA Area, and DMA Type (Required)* *Provide table in this Attachment OR on DMA Exhibit in Attachment 1a	☑ Included on DMA Exhibit in Attachment 1a ☐ Included as Attachment 1b, separate from DMA Exhibit
Attachment 1c	Form I-7, Harvest and Use Feasibility Screening Checklist (Required unless the entire project will use infiltration BMPs) Refer to Appendix B.3-1 of the BMP Design Manual to complete Form I-7.	☑ Included ☐ Not included because the entire project will use infiltration BMPs
Attachment 1d	Form I-8, Categorization of Infiltration Feasibility Condition (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the BMP Design Manual to complete Form I-8.	☑ Included ☐ Not included because the entire project will use harvest and use BMPs
Attachment 1e	Pollutant Control BMP Design Worksheets / Calculations (Required) Refer to Appendices B and E of the BMP Design Manual for structural pollutant control BMP design guidelines	☑ Included

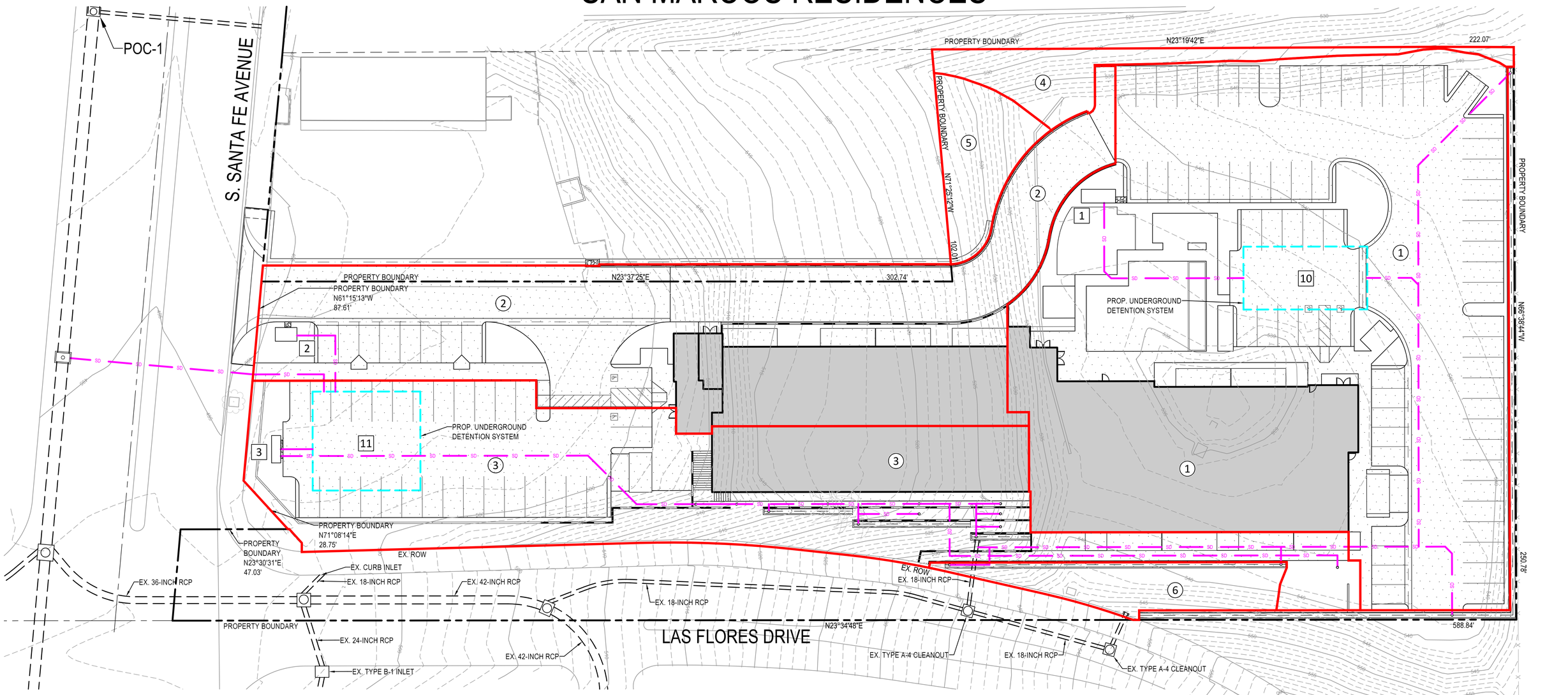
Use this checklist to ensure the required information has been included on the DMA Exhibit:

The DMA Exhibit must identify:

- ☐ Underlying hydrologic soil group
- ☐ Approximate depth to groundwater
- ☐ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
- ☐ Critical coarse sediment yield areas to be protected
- ☐ Existing topography and impervious areas
- ☐ Existing and proposed site drainage network and connections to drainage offsite
- ☐ Proposed demolition
- ☐ Proposed grading
- ☐ Proposed impervious features
- ☐ Proposed design features and surface treatments used to minimize imperviousness
- ☐ Drainage management area (DMA) boundaries, DMA ID numbers, and DMA areas (square footage or acreage), and DMA type (i.e., drains to BMP, self-retaining, or self-mitigating)
- ☐ Potential pollutant source areas and corresponding required source controls (see Chapter 4, Appendix E.1, and Form I-3B)
- ☐ Structural BMPs (identify location, type of BMP, and size/detail)

DMA EXHIBIT

SAN MARCOS RESIDENCES



DMA SUMMARY

DRAINAGE MANAGEMENT AREA (DMA)	TOTAL AREA (SF/AC)	TOTAL IMPV. AREA (SF/AC)	TOTAL PERV. AREA (SF/AC)	DMA TYPE	BMP TYPE	BMP NAME	BMP SIZE PROVIDED
1	43,998/ 1.01	34,828/ 0.800	9,170/ 0.211	DRAINS TO BMP	PROPRIETARY BIOFILTRATION (BF-3)	1	90 SF
				DRAINS TO BMP	DETENTION VAULT	10	H: 5.58' W: 27.56' L: 54.23'
2	22,743/ 0.522	20,908/ 0.480	1,835/ 0.042	DRAINS TO BMP	PROPRIETARY BIOFILTRATION (BF-3)	2	57 SF
3	23,845/ 0.547	16,781/ 0.385	7,064/ 0.162	DRAINS TO BMP	PROPRIETARY BIOFILTRATION (BF-3)	3	48 SF
2 3	46,588/ 1.070	37,689/ 0.865	8,899/ 0.204	DRAINS TO BMP	DETENTION VAULT	11	H: 3.54' W: 43.31' L: 47.20'
4	2,470/ 0.057	0/ 0.00	2,470/ 0.057	SELF MITIGATING	-		-
5	2,306/ 0.053	0/ 0.00	2,306/ 0.053	SELF MITIGATING	-		-
6	2,522/ 0.058	374/ 0.009	2,148/ 0.049	SELF MITIGATING	-		-

AREA CALCULATIONS

TOTAL SITE AREA: 97,036 SF (2.228 AC)
AREA DISTURBED BY PROJECT: 90,586 SF (2.080 AC)

EXISTING IMPERVIOUS AREA: 859 SF (0.020 AC)
PROPOSED IMPERVIOUS AREA: 72,891 SF (1.673 AC)
INCREASE IMPERVIOUS AREA: 72,032 SF (1.654 AC)

SOIL TYPE INFORMATION

SOIL: TYPE C & D HYDROLOGIC SOILS PER OBSERVED ONSITE SUBSURFACE SOIL CONDITIONS PROVIDED IN THE LIMITED GEOTECHNICAL INVESTIGATION PREPARED BY GHOSRIDER, INC.

GROUNDWATER INFORMATION

GROUNDWATER NOT ENCOUNTERED IN ANY OF THE BORINGS CONDUCTED BY GHOSTRIDER, INC., ACCORDING TO THE LIMITED GEOTECHNICAL INVESTIGATION PREPARED BY GHOSTRIDER, INC. CONCLUSION IN REPORT STATES "NO GROUNDWATER WAS ENCOUNTERED WITHIN ANY HAND AUGER BORING TO THE MAXIMUM EXPLORED DEPTH OF 50½ FEET".

TREATMENT CONTROL BMPS

PROPRIETARY BIOFILTRATION BF-3

POTENTIAL POLLUTANT SOURCE AREAS

TRASH DUMPESTERS, ROOFS, PARKING LOTS, LANDSCAPING, RESTAURANT(S), WATER FEATURES, AND OUTDOOR STORAGE AREAS.

SOURCE CONTROLS

SC-1: PREVENTION OF ILLICIT DISCHARGES INTO THE MS4
SC-2: STORM DRAIN STENCILING OR SIGNAGE
SC-5: PROTECT TRASH STORAGE AREAS FROM RAINFALL, RUN-ON, RUNOFF, AND WIND DISPERSAL
SC-6: ADDITIONAL BMPS BASED ON POTENTIAL SOURCES ON RUNOFF POLLUTANTS

LEGEND

PROPERTY LINE
RIGHT-OF-WAY
CENTER LINE OF ROAD
DMA BOUNDARY
EXISTING STORM DRAIN LINE
PROPOSED STORM DRAIN LINE
PROPOSED UNDERGROUND R-TANK DETENTION SYSTEM
LIMITS OF PROP. BUILDING
LIMITS OF PROP. CONCRETE PAVEMENT
DMA AREA #
BMP #

SCALE: 1" = 20'

DMA EXHIBIT
SAN MARCOS RESIDENCES
CITY OF SAN MARCOS

PASCO LARET SUITER & ASSOCIATES
San Diego | Solana Beach | Orange County
Phone 858.259.8212 | www.plsaengineering.com

SAVE DATE: 02/28/22 ~ PLOT DATE: 02/28/22 ~ FILE NAME: J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\REPORTS\WQMP\Attachments\Attachment 1 - Backup for BMPs\Att 1a - DMA Exhibit\3527-WQMP-DMA Exhibit.dwg

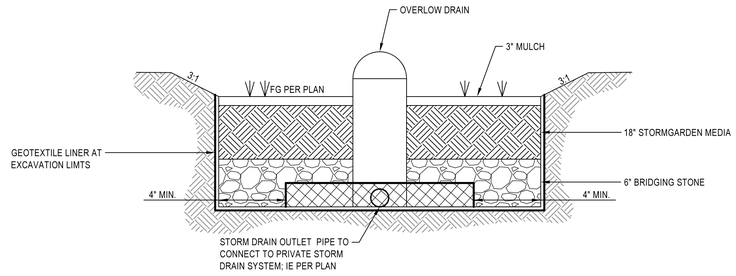
DMA EXHIBIT

SAN MARCOS RESIDENCES

StormGarden Biofilttration System
San Marcos Residences
3/1/2022

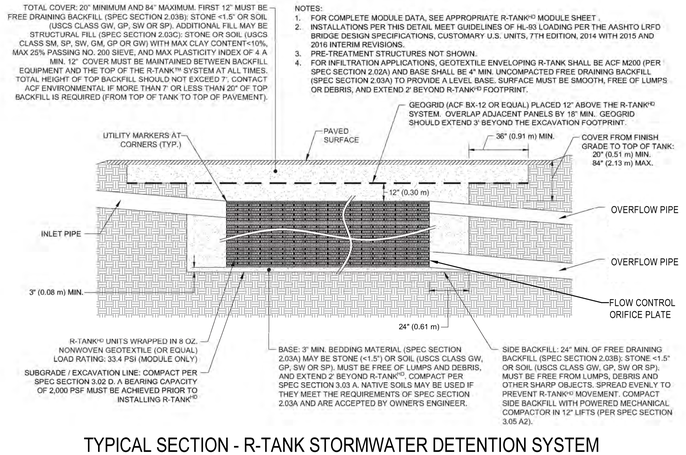
DMA	BMP type	DMA AREA (SF)	Total DMA AREA (acres)	REQ flow for dma (cfs)	StormGarden Filter Bed Size (SF)	StormGarden System Flow Rate (cfs)
1	StormGarden Boxless BioFiltration	43,998	1.01		70	0.226
2	StormGarden Boxless BioFiltration	22,743	0.52		41	0.132
3	StormGarden Boxless BioFiltration	23,845	0.55		34	0.110
Totals					**145**	

NOTES:
1. StormGarden loading rate at 145"/HR is 1.45 GPM/SF of Filter Bed.
2. The StormGarden width and length can be customized to any size and shape conceivable because it is a boxless system and indpendent of a concrete form.



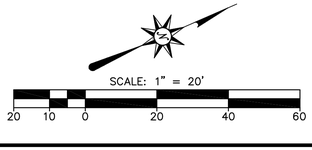
TYPICAL SECTION - STORMGARDEN BIOFILTRATION SYSTEM

SCALE: NOT TO SCALE



TYPICAL SECTION - R-TANK STORMWATER DETENTION SYSTEM

SCALE: NOT TO SCALE



DMA EXHIBIT
SAN MARCOS RESIDENCES
CITY OF SAN MARCOS

PASCO LARET SUITER & ASSOCIATES
San Diego | Solana Beach | Orange County
Phone 858.259.8212 | www.plsaengineering.com

ATTACHMENT 1c

Harvest and Use Feasibility Screening	**Worksksheet B.3-1**

1. Is there a demand for harvested water (check all that apply) at the project site that is reliably present during the wet season?

∨ Toilet and urinal flushing
√ Landscape irrigation
Other:_____

2. If there is a demand; estimate the anticipated average wet season demand over a period of 36 hours. Guidance for planning level demand calculations for toilet/urinal flushing and landscape irrigation is provided in Section B.3.2.

Toilet/Urinal Flushing

(9.3 gal/person-day) x (0.13368 cuft/gal) x (1.5 days) = 1.86 cuft/person-36hr

Assume (2 people per 1-bed/1bath unit x 23 units) x (1.86 cuft/person-36 hr) = 85.56 cuft/36hr

(3 people per 2-bed/2-bath unit x 27 units) x (1.86 cuft/person-36hr) = 150.66 cuft/36hr

Total Toilet/Urinal Flushing= 85.56 + 150.66 = 236 cuft/36hr

Landscape Irrigation

(0.43 ac irrigated) x (390 gal/ac-36hr) x (0.13368 cuft/gal) = 23 cuft/36hr

Total = 236 cuft + 23 cuft = 259 cuft

3. Calculate the DCV using worksheet B-2.1.

DCV = 3,912 cuft

3a. Is the 36-hour demand greater than or equal to the DCV?	3b. Is the 36-hour demand greater than 0.25DCV but less than the full DCV?	3c. Is the 36-hour demand less than 0.25DCV?
Yes / ∨ No	Yes / ∨ No	∨ Yes
Harvest and use appears to be feasible. Conduct more detailed evaluation and sizing calculations to confirm that DCV can be used at an adequate rate to meet drawdown criteria.	Harvest and use may be feasible. Conduct more detailed evaluation and sizing calculations to determine feasibility. Harvest and use may only be able to be used for a portion of the site, or (optionally) the storage may need to be upsized to meet long term capture targets while draining in longer than 36 hours.	∨ Harvest and use is considered to be infeasible.

ATTACHMENT 1d

October 18, 2021 CTE Job No. 10-16426G

Mr. Paul Mayer
P.O. Box 903
Rancho Santa Fe, California
Phone: (858) 888-2488 Via Email: pm@pemcor.net

Subject: Site Percolation Testing and Infiltration Feasibility Evaluation
Proposed S. Santa Fe Multi-Family Housing Development
2927 S. Santa Fe Avenue
San Marcos, California

References: At End of Document – Appendix A

Mr. Mayer:

In accordance with your request and our proposal No. G-5522 dated August 30, 2021, CTE, Inc. has performed percolation testing at the site and provides an evaluation of the infiltration characteristics and feasibility for the proposed project located at the subject site. This report presents the accumulated field and laboratory data collected and provides preliminary conclusions and recommendations regarding the site's suitability for design and development of stormwater infiltration BMP devices.

Our evaluation of the site's infiltration characteristics and feasibility was performed in general accordance with the guidelines set forth in the *City of San Marcos BMP design Manual (Updated February 2016).*

Based on our geotechnical analysis of the accumulated data and information, and in consideration of the potential for geotechnical hazards associated with onsite infiltration, CTE has determined that infiltration in any amount at the site is not feasible and should not be allowed. Any/all basins for storage of stormwater runoff should be lined with an impermeable liner and piped offsite via a suitable discharge outlet.

1.0 SITE DESCRIPTION & PERCOLATION TESTING

1.1 Site Description

The subject site is located at 2927 S. Santa Fe Avenue. The proposed development is bounded by S. Santa Fe Avenue to the southwest, N. Las Flores Drive to the east, and commercial structures to the north and west.

The subject site generally descends to the southwest with approximate elevations ranging from a high of 540 feet above mean sea level (msl) at the northeast end of the site, to a low of 495 feet above msl at the southern end of the site. The site currently consists of three undeveloped terraced building pads that are separated by an approximately 10-foot-tall 2:1 (horizontal distance: vertical distance) slope.

1.2 Field Exploration

Due to the sloping nature of the site, and in consideration of the proposed multi-story structures that are planned to be terraced into the sloping site, CTE determined that the southern-lower area of the site is the only potential suitable/feasible area for development of infiltration BMP devices. As such, our percolation testing was only performed in this area.

Two percolation test borings were excavated on September 30, 2021 using a Diedrich D50 truck-mounted drill rig equipped with eight-inch diameter hollow-stem augers to depths of five feet below the existing ground surface. The test holes were excavated such that the percolation testing was performed at or near the anticipated bottom elevation of proposed infiltration basin/s.

Groundwater was not encountered in either of the percolation test excavations. In addition, groundwater was not encountered in any of the previous subsurface explorations (extending to a maximum depth of approximately 51.5 feet below existing ground surface) performed by Ghostrider, Inc., as referenced in their Limited Geotechnical Investigation Report, dated July 1st, 2020.

1.3 Site-Specific Geologic and Soil Information

Reference to the published regional geologic map, *Geologic Map of the Oceanside 30'x60' Quadrangle, Kennedy & Tan, 2007*, indicates that the site is underlain by Tertiary-age Santiago Formation (May Symbol: Tsa). However, during our subsurface field explorations within the southern-lower portion of the site, young alluvial deposits were encountered at the surface and extended to the maximum explored depth of 5 feet bgs. As observed in the exploratory excavations, the encountered alluvial materials consist of stiff to very stiff, dark brown, moist, Sandy Clay (CL) with some gravel. Detailed logs of the percolation test borings are provided in the attached Appendix C.

1.4 Percolation Test Methods

Percolation testing was performed on October 1st, 2021, subsequent to a twenty-hour presoak period, and in general accordance with applicable regional standards outlined in the *Riverside County – Low Impact Development BMP Design Handbook (09/2011)*. The percolation rate test results are presented in the following section in Table 2.2 and are included in Appendix B.

2.0 CALCULATED INFILTRATION RATE

As per the regionally accepted methods outlined in the *Riverside County – Low Impact Development BMP Design Handbook (09/2011),* percolation test rates are to be converted to infiltration rates using the Porchet Method. The intent of calculating the converted infiltration rate is to take into account bias inherent in percolation test borehole sidewall infiltration that would not occur at a basin bottom where such sidewalls may not present.

The infiltration rate (I_t) is derived by the equation:

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
r = effective radius of test hole
H_{avg} = average head over the time interval, inches

Given the measured percolation rates, the calculated infiltration rates are presented with and without a Factor of Safety applied in Table 2.2 below. A completed C.4-1 Worksheet is included in Appendix D. The civil engineer of record should determine an appropriate factor of safety to be applied via completion of Worksheet D.5-1 provided in Appendix D of the *City of San Marcos BMP design Manual (Updated February 2016).* However, CTE does not recommend using a factor of safety of less than 2.0.

TABLE 2.0
RESULTS OF PERCOLATION TESTING WITH FACTOR OF SAFETY APPLIED

Test Location	Test Depth (inches)	Procedure	Geologic Unit	Percolation Rate (inches per hour)	Infiltration Rate (inches per hour)	Infiltration Rate with FOS of 2 Applied (inches per hour)
P-1	60	Non-Sandy	Qya	1.250	0.052	0.026
P-2	60	Non-Sandy	Qya	1.250	0.052	0.026

NOTES Water level was measured from a fixed point at the top of the hole.
Weather was sunny during percolation testing.
Qya = Quaternary Young Alluvial Deposits
The test holes were eight inches in diameter.

3.0 CONCLUSIONS

The percolation testing and converted infiltration rates indicate that partial infiltration at the site appears feasible, however, based on the sloping nature of the site, the planned development, the presence of high to very high expansion potential soils, the fine-grained nature of the encountered soils, and the potential for lateral migration of infiltration water into relatively close proximity public right-of-way and utility trenches, it is CTE opinion that the site is not considered suitable for infiltration in any amount. Any/all basins for storage of stormwater runoff should be lined with an impermeable liner and piped offsite via a suitable discharge outlet.

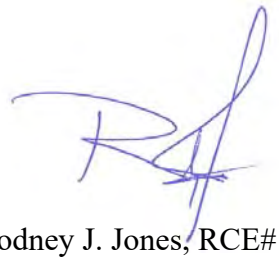
4.0 LIMITATIONS

CTE's conclusions and recommendations are based on an analysis of the observed conditions in the explored locations,the data collected and our evaluation of potential geotechnical hazards related to onsite infiltration.

The opportunity to be of service on this project is appreciated. If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Respectfully submitted,

CONSTRUCTION TESTING & ENGINEERING, INC.



Rodney J. Jones, RCE# 84232
Senior Engineer

Attachments:

Figure 1 Percolation Test Location Map

Appendix A References
Appendix B Percolation Test Data and Infiltration Rate Conversion Calculations
Appendix C Percolation Test Boring Logs
Appendix D Laboratory Test Results
Appendix E Worksheet C.4-1

40' 0 20' 40'

LEGEND

P-2 APPROXIMATE PERC TEST LOCATION

Qya QUATERNARY YOUNG ALLUVIAL FLOOD PLAIN DEPOSITS

Tsa TERTIARY SANTIAGO FORMATION

APPROXIMATE GEOLOGIC CONTACT

CTE A Universal Engineering Sciences Company — Construction Testing & Engineering, Inc.
Inspection | Testing | Geotechnical | Environmental & Construction Engineering | Civil Engineering | Surveying

GEOLOGIC/PERC TEST LOCATION MAP
S. SANTA FE MULTI-FAMILY HOUSING DEVELOPMENT
2927 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

SCALE:	DATE:
1"=40'	10/21
CTE JOB NO.: 10-16426G	FIGURE: 1

S:\Projects\10-16426G (S. Santa Fe Ave Perc Testing)\Figure 1.dwg

APPENDIX A

REFERENCES

1. Ghostrider, Inc., Limited Geotechnical Investigation, 2972 South Santa Fe Avenue, San Marcos, Project No. 19-2118C, dated July 1, 2020.

2. Kennedy, M.P. and Tan, S.S., 2007, "Geologic Map of the Oceanside 30' x 60' Quadrangle, California", California Geological Survey, Map No. 2.

3. Riverside County, Revised 9/2011, "Design Handbook for Low Impact Development BMPs"".

4. City of San Marcos, February 2016, "BMP Design Manual For Permanent Site Design, Storm Water Treatment and Hydromodification Management"

APPENDIX B

PERCOLATION TEST DATA AND INFILTRATION RATE CONVERSION CALCULATIONS

Project:	**S. SANTA FE MULTI-FAMILY HOUSING**						
Project No.:	**10-16426G**						Tables P-1
Percolation Field Data and Calculated Rates							
P-1					**Total Depth:**	**60 inches**	
Time	Test Interval Time	Test Refill	Water Level Initial/Start	Water Level End/Final	Incremental Water Level Change	Percolation Rate	Percolation Rate
	(minutes)	Depth /Inches	Depth /Inches	Depth /Inches	(inches)	inches/minute	inches/hour
7:25:00	Initial	None	12.88	initial	-		
7:55:00	30	12	12.88	14.63	1.75	0.058	3.500
8:25:00	30	12.75	12.00	14.13	2.13	0.071	4.250
8:55:00	30	12.875	12.75	14.13	1.38	0.046	2.750
9:25:00	30	12.125	12.88	14.00	1.13	0.038	2.250
9:55:00	30	13.75	12.13	13.75	1.63	0.054	3.250
10:25:00	30	11.625	13.75	14.63	0.88	0.029	1.750
10:55:00	30	13	11.63	13.00	1.38	0.046	2.750
11:25:00	30	13.875	13.00	13.88	0.88	0.029	1.750
11:55:00	30	12.625	13.88	14.50	0.63	0.021	1.250
12:25:00	30	13.375	12.63	13.38	0.75	0.025	1.500
12:55:00	30	13.5	13.38	14.00	0.63	0.021	1.250
13:25:00	30	NO	13.50	14.13	0.63	0.021	1.250
P-2					**Total Depth:**	**60 inches**	
Time	Test Interval Time	Test Refill	Water Level Initial/Start	Water Level End/Final	Incremental Water Level Change	Percolation Rate	Percolation Rate
	(minutes)	Depth /Inches	Depth /Inches	Depth /Inches	(inches)	inches/minute	inches/hour
7:25:00	Initial	None	11.50	initial	-		
7:55:00	30	12.25	11.50	15.13	3.625	0.121	7.250
8:25:00	30	12.125	12.25	15.63	3.375	0.113	6.750
8:55:00	30	12.5	12.13	15.13	3.000	0.100	6.000
9:25:00	30	12	12.50	15.50	3.000	0.100	6.000
9:55:00	30	10	12.00	15.75	3.750	0.125	7.500
10:25:00	30	11.125	10.00	14.13	4.125	0.138	8.250
10:55:00	30	13.625	11.13	13.63	2.500	0.083	5.000
11:25:00	30	12.625	13.63	14.63	1.000	0.033	2.000
11:55:00	30	13.625	12.63	13.63	1.000	0.033	2.000
12:25:00	30	12.75	13.63	14.25	0.625	0.021	1.250
12:55:00	30	13.5	12.75	13.50	0.750	0.025	1.500
13:25:00	30	NO	13.50	14.13	0.625	0.021	1.250

Percolation Rate Conversion P-1

		Inches
Time Interval,	Δt =	30
Final Depth of Water,	D_f =	14.13
Test Hole Radius,	r =	4
Initial Depth to Water,	D_0 =	13.50
Total Depth of Test Hole,	D_T =	60

H_o =	46.5	in
H_f =	45.875	in
$\Delta H = \Delta D$ =	0.625	in
H_{avg} =	46.1875	in
I_t =	0.052	in/hr

Percolation Rate Conversion P-2

		Inches
Time Interval,	Δt =	30
Final Depth of Water,	D_f =	14.13
Test Hole Radius,	r =	4
Initial Depth to Water,	D_0 =	13.50
Total Depth of Test Hole,	D_T =	60

H_o =	46.5	in
H_f =	45.875	in
$\Delta H = \Delta D$ =	0.625	in
H_{avg} =	46.1875	in
I_t =	0.052	in/hr

TABLE RESULTS OF PERCOLATION TESTING WITH 2.0 FACTOR OF SAFETY APPLIED						
Test Location	Test Depth (inches)	Procedure	Soil Type* (USCS Classification)	Percolation Rate (inches per hour)	Infiltration Rate (inches per hour)	Infiltration Rate with FOS of 2 Applied (inches per hour)
P-1	60	Non-Sandy	Qya	1.250	0.052	0.026
P-2	60	Non-Sandy	Qya	1.250	0.052	0.026

APPENDIX C

PERCOLATION TEST BORING LOGS

DEFINITION OF TERMS

PRIMARY DIVISIONS			SYMBOLS	SECONDARY DIVISIONS
COARSE GRAINED SOILS MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS < 5% FINES	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES LITTLE OR NO FINES
			GP	POORLY GRADED GRAVELS OR GRAVEL SAND MIXTURES, LITTLE OF NO FINES
		GRAVELS WITH FINES	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, NON-PLASTIC FINES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, PLASTIC FINES
	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS < 5% FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES	SM	SILTY SANDS, SAND-SILT MIXTURES, NON-PLASTIC FINES
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES, PLASTIC FINES
FINE GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT IS LESS THAN 50		ML	INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, SLIGHTLY PLASTIC CLAYEY SILTS
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY, SANDY, SILTS OR LEAN CLAYS
			OL	ORGANIC SILTS AND ORGANIC CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTY CLAYS
HIGHLY ORGANIC SOILS			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS

GRAIN SIZES

BOULDERS	COBBLES	GRAVEL		SAND			SILTS AND CLAYS
		COARSE	FINE	COARSE	MEDIUM	FINE	

12" 3" 3/4" 4 10 40 200

CLEAR SQUARE SIEVE OPENING U.S. STANDARD SIEVE SIZE

ADDITIONAL TESTS

(OTHER THAN TEST PIT AND BORING LOG COLUMN HEADINGS)

MAX- Maximum Dry Density
GS- Grain Size Distribution
SE- Sand Equivalent
EI- Expansion Index
CHM- Sulfate and Chloride Content , pH, Resistivity
COR - Corrosivity
SD- Sample Disturbed
PM- Permeability
SG- Specific Gravity
HA- Hydrometer Analysis
AL- Atterberg Limits
RV- R-Value
CN- Consolidation
CP- Collapse Potential
HC- Hydrocollapse
REM- Remolded
PP- Pocket Penetrometer
WA- Wash Analysis
DS- Direct Shear
UC- Unconfined Compression
MD- Moisture/Density
M- Moisture
SC- Swell Compression
OI- Organic Impurities

FIGURE: BL1

PROJECT: DRILLER: SHEET: of
CTE JOB NO: DRILL METHOD: DRILLING DATE:
LOGGED BY: SAMPLE METHOD: ELEVATION:

BORING LEGEND

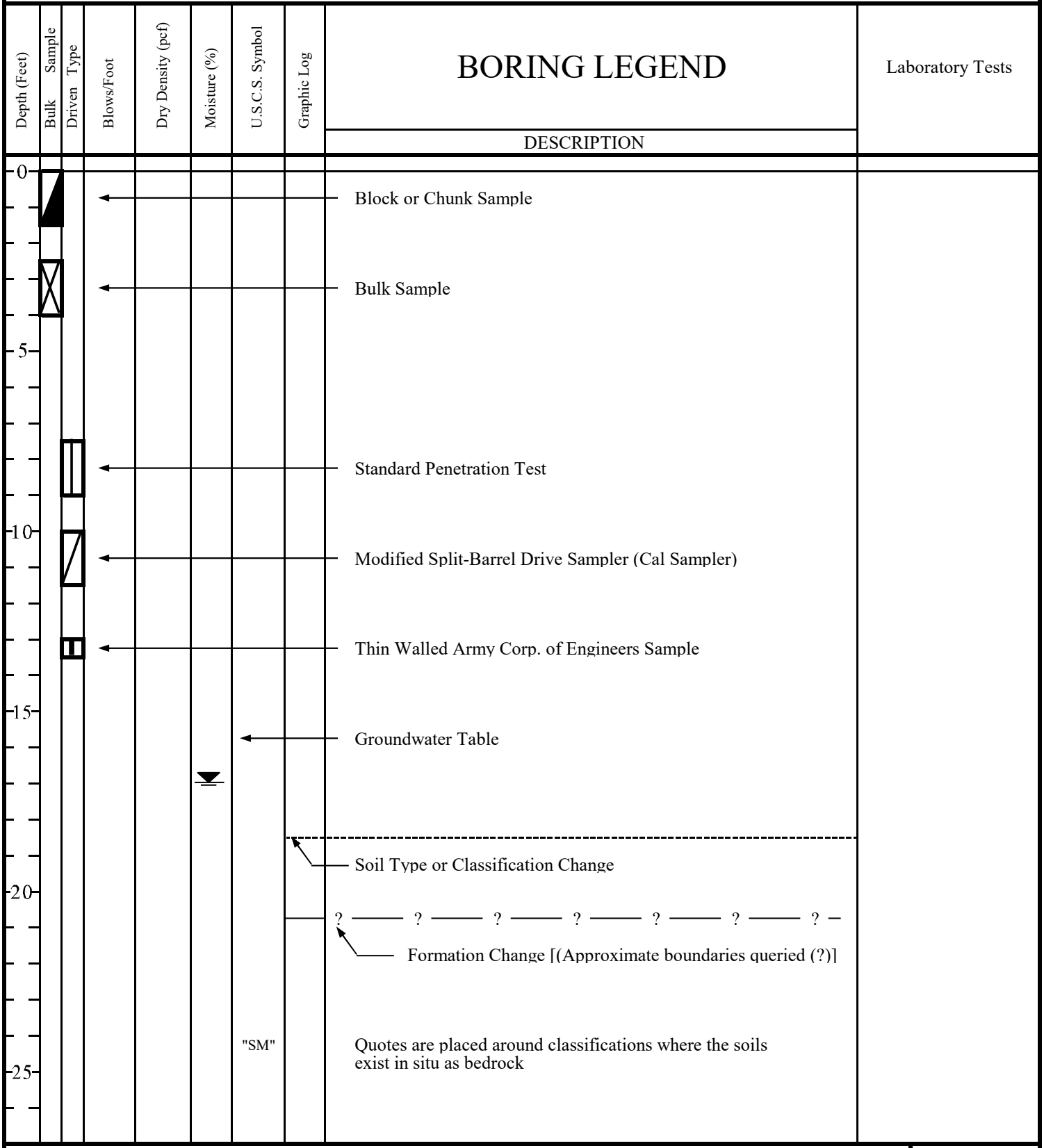


FIGURE: BL2

A Universal Engineering Sciences Company

Construction Testing & Engineering, Inc.

Inspection | Testing | Geotechnical | Environmental & Construction Engineering | Civil Engineering | Surveying

PROJECT:	S. SANTA FE MULTI-FAMILY HOUSING DE	DRILLER:	PACIFIC DRILLING	SHEET:	1 of 1
CTE JOB NO:	10-16426G	DRILL METHOD:	HOLLOW-STEM AUGER	DRILLING DATE:	9/30/2021
LOGGED BY:	DJT	SAMPLE METHOD:	SPT	ELEVATION:	~497 FEET

BORING: P-1

Depth (Feet)	Bulk Sample	Driven Type	Blows/6"	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0						CL		**QUATERNARY YOUNG ALLUVIAL DEPOSITS:** Very stiff, slightly moist, dark brown, sandy CLAY with gravel.	
		▮	5 8 9						GS
5								Total Depth: 5' No Groundwater Encountered Backfilled with Soil Cuttings	
10									
15									
20									
25									

A Universal Engineering Sciences Company

Construction Testing & Engineering, Inc.

Inspection | Testing | Geotechnical | Environmental & Construction Engineering | Civil Engineering | Surveying

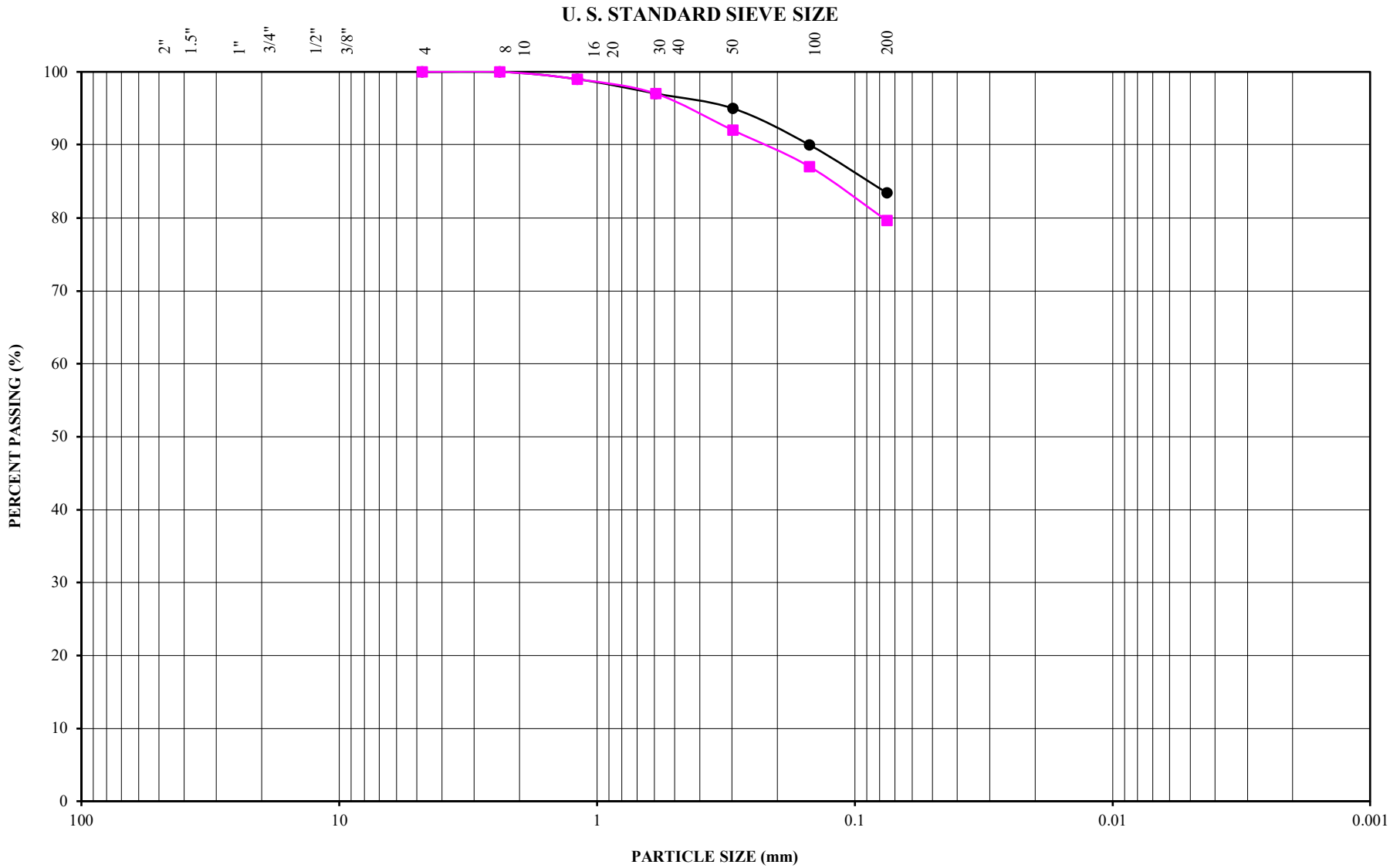
PROJECT:	S. SANTA FE MULTI-FAMILY HOUSING DE	DRILLER:	PACIFIC DRILLING	SHEET:	1 of 1
CTE JOB NO:	10-16426G	DRILL METHOD:	HOLLOW-STEM AUGER	DRILLING DATE:	9/30/2021
LOGGED BY:	DJT	SAMPLE METHOD:	SPT	ELEVATION:	~497 FEET

BORING: P-2

Depth (Feet)	Bulk Sample	Driven Type	Blows/6"	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0						CL		**QUATERNARY YOUNG ALLUVIAL DEPOSITS:** Very stiff, slightly moist, dark brown, sandy CLAY with gravel.	
			4 8 8						GS
5								Total Depth: 5' No Groundwater Encountered Backfilled with Soil Cuttings	
10									
15									
20									
25									

APPENDIX D

LABORATORY TEST RESULTS



PARTICLE SIZE ANALYSIS

A Universal Engineering Sciences Company

Construction Testing & Engineering, Inc.

Inspection | Testing | Geotechnical | Environmental & Construction Engineering | Civil Engineering | Surveying

Sample Designation	Sample Depth (feet)	Symbol	Liquid Limit (%)	Plasticity Index	Classification
P-1	4-5	●			CL
P-2	4-5	■			CL
CTE JOB NUMBER:		10-16426G		FIGURE:	C-1

APPENDIX E

C.4-1 WORKSHEET

Worksheet C.4-1: Categorization of Infiltration Feasibility Condition

Categorization of Infiltration Feasibility Condition		Worksheet C.4-1	
Part 1 - Full Infiltration Feasibility Screening Criteria **Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?**			
Criteria	Screening Question	**Yes**	**No**
1	**Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		X
Provide basis: N/A Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
2	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	N/A	
Provide basis: N/A Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			

Worksheet C.4-1 Page 2 of 4			
Criteria	Screening Question	**Yes**	**No**
3	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	N/A	
Provide basis: N/A Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	N/A	
Provide basis: N/A Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
Part 1 Result*	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2		

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by City Engineer to substantiate findings.

Worksheet C.4-1 Page 3 of 4

Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria

Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
5	**Do soil and geologic conditions allow for infiltration in any appreciable rate or volume?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		X

Provide basis:

Refer to CTE's "Site Percolation Testing and Infiltration Feasibility Evaluation" letter report, dated October 18, 2021, CTE Job No. 10-16426G.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

6	**Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.		X

Provide basis:

Refer to CTE's "Site Percolation Testing and Infiltration Feasibility Evaluation" letter report, dated October 18, 2021, CTE Job No. 10-16426G.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

Worksheet C.4-1 Page 4 of 4			
Criteria	Screening Question	**Yes**	**No**
7	**Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	N/A	
Provide basis: N/A Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
8	**Can infiltration be allowed without violating downstream water rights**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	N/A	
Provide basis: N/A Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
Part 2 Result*	If all answers from row 5-8 are yes then partial infiltration design is potentially feasible. The feasibility screening category is **Partial Infiltration.** If any answer from row 5-8 is no, then infiltration of any volume is considered to be **infeasible** within the drainage area. The feasibility screening category is **No Infiltration.**	CTE concludes that the site is in a "no infiltration" conditions.	

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

ATTACHMENT 1e

Appendix B: Stormwater Pollutant Control Hydrologic Calculations and Sizing Methods

Worksheet B.2-1. DCV

DMA-1

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.7	inches
2	Area tributary to BMP (s)	A=	1.01	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.73	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	1882	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	34,828	0.9	31,345	
Pervious	9,170	0.1	917	
Total	43,998		32,262	0.73

DMA-2

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.7	inches
2	Area tributary to BMP (s)	A=	0.52	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.84	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	1108	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	20,908	0.9	18,817	
Pervious	1,835	0.1	184	
Total	22,743		19,001	0.84

Appendix B: Stormwater Pollutant Control Hydrologic Calculations and Sizing Methods

Worksheet B.2-1. DCV

DMA-3

Design Capture Volume		**Worksheet B-2.1**		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.7	inches
2	Area tributary to BMP (s)	A=	0.55	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.66	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	922	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	16,781	0.9	15,103	
Pervious	7,064	0.1	706	
Total	23,845		15,809	0.66

Appendix B: Storm Water Pollutant Control Hydrologic Calculations and Sizing Methods

Worksheet B.6-1: Flow-Thru Design Flows

DMA-1

Flow-thru Design Flows		Worksheet B.6-1		
4	DCV requiring flow-thru	$DCV_{flow\text{-}thru}$	1882	cubic-feet
6	Design rainfall intensity	i=	0.20	in/hr
7	Area tributary to BMP (s)	A=	1.01	acres
8	Area-weighted runoff factor (estimate using Appendix B.2)	C=	0.73	unitless
9	Calculate Flow Rate = (C x i x A)	Q=	0.15	cfs
		1.5Q=	0.222	cfs

DMA-2

Flow-thru Design Flows		Worksheet B.6-1		
4	DCV requiring flow-thru	$DCV_{flow\text{-}thru}$	1108	cubic-feet
6	Design rainfall intensity	i=	0.20	in/hr
7	Area tributary to BMP (s)	A=	0.52	acres
8	Area-weighted runoff factor (estimate using Appendix B.2)	C=	0.84	unitless
9	Calculate Flow Rate = (C x i x A)	Q=	0.09	cfs
		1.5Q=	0.131	cfs

DMA-3

Flow-thru Design Flows		Worksheet B.6-1		
4	DCV requiring flow-thru	$DCV_{flow\text{-}thru}$	922	cubic-feet
6	Design rainfall intensity	i=	0.20	in/hr
7	Area tributary to BMP (s)	A=	0.55	acres
8	Area-weighted runoff factor (estimate using Appendix B.2)	C=	0.66	unitless
9	Calculate Flow Rate = (C x i x A)	Q=	0.07	cfs
		1.5Q=	0.109	cfs

StormGarden Biofilttration System
San Marcos Residences
3/1/2022

DMA	BMP type	DMA AREA (SF)	Total DMA AREA (acres)	REQ flow for dma (cfs)	StormGarden Filter Bed Size (SF)	StormGarden System Flow Rate (cfs)
1	StormGarden Boxless BioFiltration	43,998	1.01		70	0.226
2	StormGarden Boxless BioFiltration	22,743	0.52		41	0.132
3	StormGarden Boxless BioFiltration	23,845	0.55		34	0.110
Totals					***145***	

NOTES:

1. StormGarden loading rate at 145"/HR is 1.45 GPM/SF of Filter Bed.
2. The StormGarden width and length can be customized to any size and shape conceivable because it is a boxless system and indpendent of a concrete form.

ATTACHMENT 2 BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES

This is the cover sheet for Attachment 2.

☐ Mark this box if this attachment is empty because the project is exempt from PDP hydromodification management requirements.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 2a	Hydromodification Management Exhibit (Required)	☑ Included See Hydromodification Management Exhibit Checklist on the back of this Attachment cover sheet.
Attachment 2b	Management of Critical Coarse Sediment Yield Areas (WMAA Exhibit is required, additional analyses are optional) See Section 6.2 of the BMP Design Manual.	☑ Exhibit showing project drainage boundaries marked on WMAA Critical Coarse Sediment Yield Area Map (Required) Optional analyses for Critical Coarse Sediment Yield Area Determination ☐ 6.2.1 Verification of Geomorphic Landscape Units Onsite ☐ 6.2.2 Downstream Systems Sensitivity to Coarse Sediment ☐ 6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite
Attachment 2c	Geomorphic Assessment of Receiving Channels (Optional) See Section 6.3.4 of the BMP Design Manual.	☑ Not performed ☐ Included ☐ Submitted as separate stand-alone document
Attachment 2d	Flow Control Facility Design, including Structural BMP Drawdown Calculations and Overflow Design Summary (Required) See Chapter 6 and Appendix G of the BMP Design Manual	☑ Included ☐ Submitted as separate stand-alone document
Attachment 2e	Vector Control Plan (Required when structural BMPs will not drain in 96 hours)	☐ Included ☑ Not required because BMPs will drain in less than 96 hours

Use this checklist to ensure the required information has been included on the Hydromodification Management Exhibit:

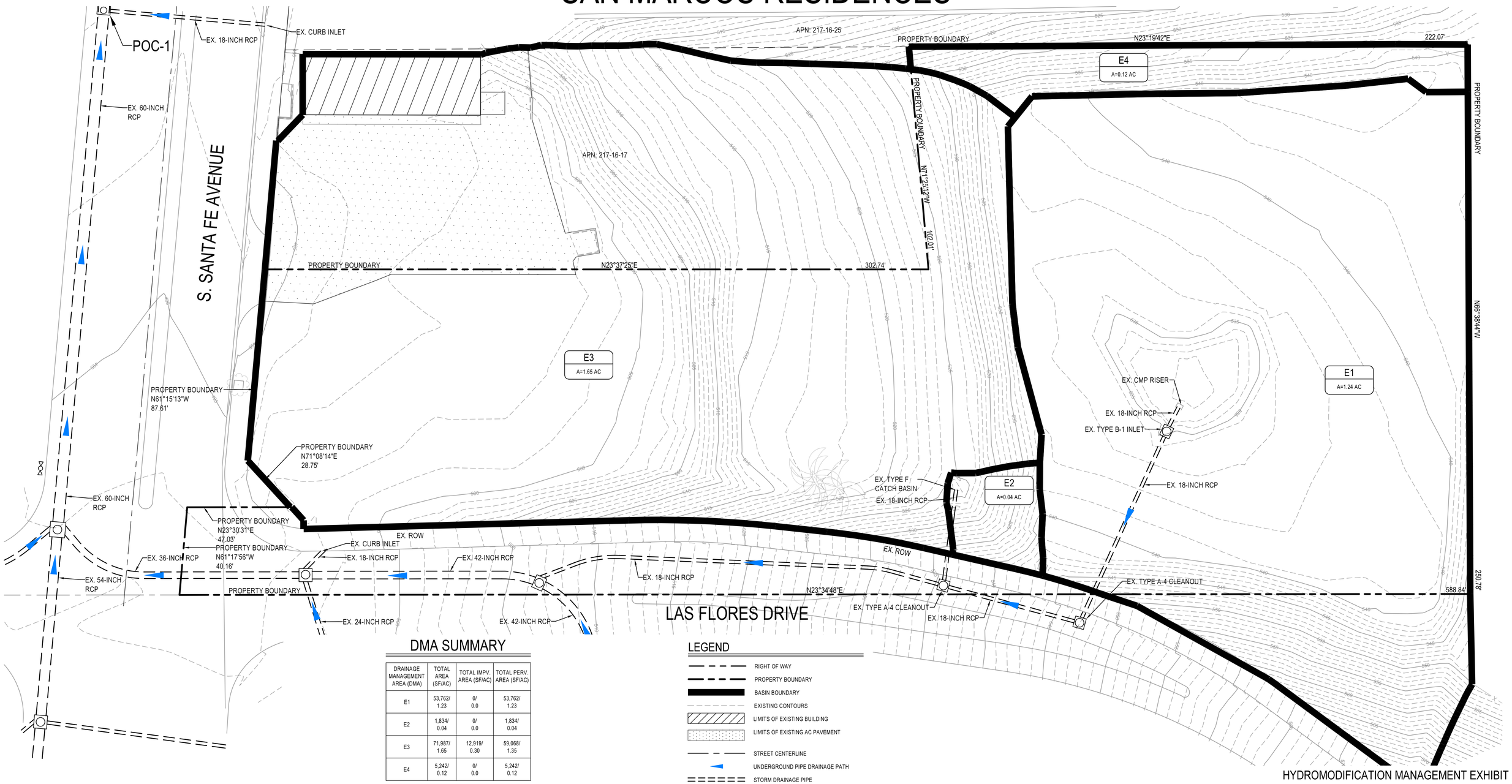
The Hydromodification Management Exhibit must identify:

- ☐ Underlying hydrologic soil group
- ☐ Approximate depth to groundwater
- ☐ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
- ☐ Critical coarse sediment yield areas to be protected
- ☐ Existing topography
- ☐ Existing and proposed site drainage network and connections to drainage offsite
- ☐ Proposed grading
- ☐ Proposed impervious features
- ☐ Proposed design features and surface treatments used to minimize imperviousness
- ☐ Point(s) of Compliance (POC) for Hydromodification Management
- ☐ Existing and proposed drainage boundary and drainage area to each POC (when necessary, create separate exhibits for pre-development and post-project conditions)
- ☐ Structural BMPs for hydromodification management (identify location, type of BMP, and size/detail)

HYDROMODIFICATION MANAGEMENT EXHIBIT

PRE-PROJECT CONDITIONS

SAN MARCOS RESIDENCES



DMA SUMMARY

DRAINAGE MANAGEMENT AREA (DMA)	TOTAL AREA (SF/AC)	TOTAL IMPV. AREA (SF/AC)	TOTAL PERV. AREA (SF/AC)
E1	53,762/ 1.23	0/ 0.0	53,762/ 1.23
E2	1,834/ 0.04	0/ 0.0	1,834/ 0.04
E3	71,987/ 1.65	12,919/ 0.30	59,068/ 1.35
E4	5,242/ 0.12	0/ 0.0	5,242/ 0.12

LEGEND

- RIGHT OF WAY
- PROPERTY BOUNDARY
- BASIN BOUNDARY
- EXISTING CONTOURS
- LIMITS OF EXISTING BUILDING
- LIMITS OF EXISTING AC PAVEMENT
- STREET CENTERLINE
- UNDERGROUND PIPE DRAINAGE PATH
- STORM DRAINAGE PIPE
- DMA ID / DMA AREA (AC) — DMA REFERENCE CALLOUT

SCALE: 1" = 20'

20 10 0 20 40 60

HYDROMODIFICATION MANAGEMENT EXHIBIT
PRE-PROJECT CONDITIONS
SAN MARCOS RESIDENCES
CITY OF SAN MARCOS

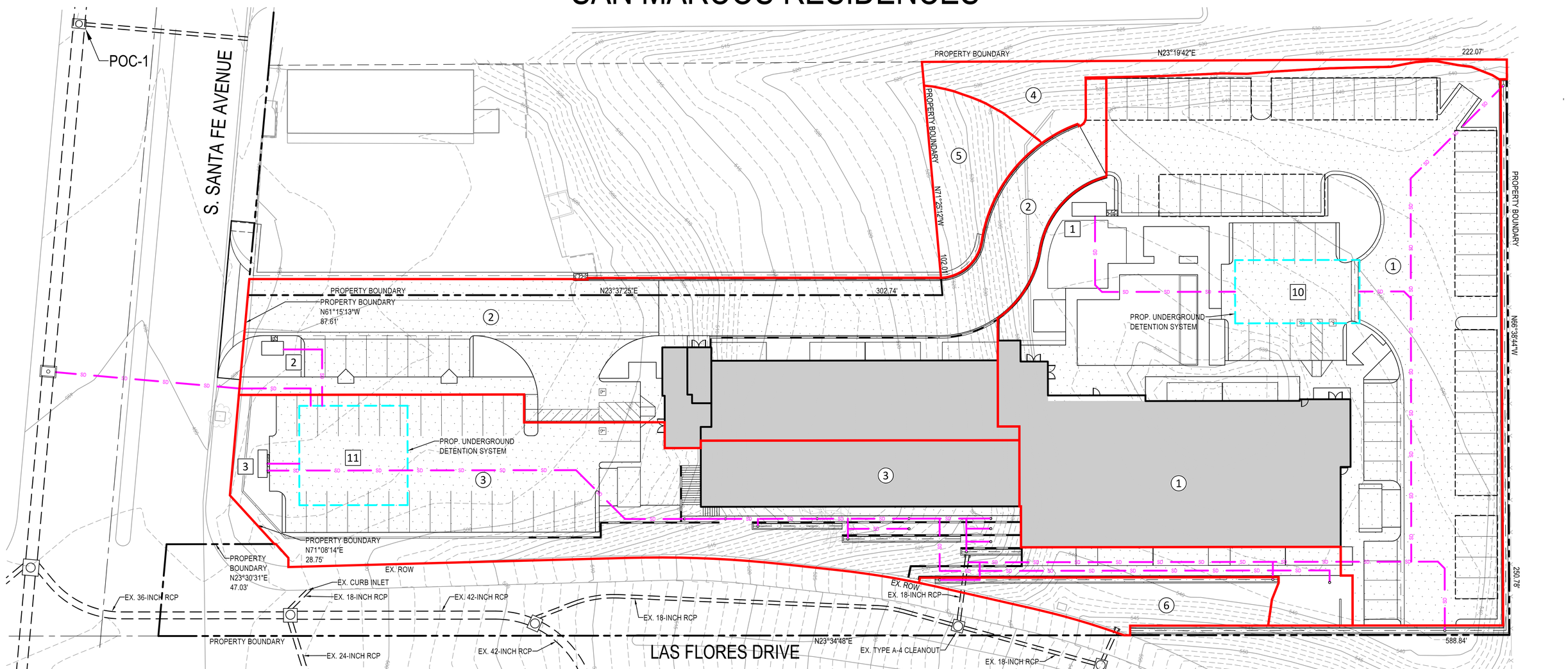
PASCO LARET SUITER & ASSOCIATES
San Diego | Solana Beach | Orange County
Phone 858.259.8212 | www.plsaengineering.com

SAVE DATE: 10/18/21 ~ PLOT DATE: 10/18/21 ~ FILE NAME: J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\REPORTS\WQMP\Attachments\Attachment 2 - Backup for Hydromodification Control Measures\Att 2a - Hydromod Exhibit\3527-WQMP-Hydromod Exhibit, Pre Project.dwg

HYDROMODIFICATION MANAGEMENT EXHIBIT

POST-PROJECT CONDITIONS

SAN MARCOS RESIDENCES



DMA SUMMARY

DRAINAGE MANAGEMENT AREA (DMA)	TOTAL AREA (SF/AC)	TOTAL IMPV. AREA (SF/AC)	TOTAL PERV. AREA (SF/AC)	DMA TYPE	BMP TYPE	BMP NAME	BMP SIZE PROVIDED
1	43,998/ 1.01	34,828/ 0.800	9,170/ 0.211	DRAINS TO BMP	PROPRIETARY BIOFILTRATION (BF-3)	1	110 SF
				DRAINS TO BMP	DETENTION VAULT	10	H: 5.58' W: 27.56' L: 54.23'
2	22,743/ 0.522	20,908/ 0.480	1,835/ 0.042	DRAINS TO BMP	PROPRIETARY BIOFILTRATION (BF-3)	2	56 SF
3	23,845/ 0.547	16,781/ 0.385	7,064/ 0.162	DRAINS TO BMP	PROPRIETARY BIOFILTRATION (BF-3)	3	44 SF
2 3	46,588/ 1.070	37,689/ 0.865	8,899/ 0.204	DRAINS TO BMP	DETENTION VAULT	11	H: 3.54' W: 43.31' L: 47.20'
4	2,470/ 0.057	0/ 0.00	2,470/ 0.057	SELF MITIGATING	-		-
5	2,306/ 0.053	0/ 0.00	2,306/ 0.053	SELF MITIGATING	-		-
6	2,522/ 0.058	374/ 0.009	2,148/ 0.049	SELF MITIGATING	-		-

AREA CALCULATIONS

TOTAL SITE AREA: 97,036 SF (2.228 AC)
AREA DISTURBED BY PROJECT: 90,586 SF (2.080 AC)

EXISTING IMPERVIOUS AREA: 859 SF (0.020 AC)
PROPOSED IMPERVIOUS AREA: 72,891 SF (1.673 AC)
INCREASE IMPERVIOUS AREA: 72,032 SF (1.654 AC)

SOIL TYPE INFORMATION

SOIL: TYPE C & D HYDROLOGIC SOILS PER OBSERVED ONSITE SUBSURFACE SOIL CONDITIONS PROVIDED IN THE LIMITED GEOTECHNICAL INVESTIGATION PREPARED BY GHOSRIDER, INC.

GROUNDWATER INFORMATION

GROUNDWATER NOT ENCOUNTERED IN ANY OF THE BORINGS CONDUCTED BY GHOSTRIDER, INC., ACCORDING TO THE LIMITED GEOTECHNICAL INVESTIGATION PREPARED BY GHOSTRIDER, INC. CONCLUSION IN REPORT STATES "NO GROUNDWATER WAS ENCOUNTERED WITHIN ANY HAND AUGER BORING TO THE MAXIMUM EXPLORED DEPTH OF 50½ FEET".

TREATMENT CONTROL BMPS

PROPRIETARY BIOFILTRATION BF-3

POTENTIAL POLLUTANT SOURCE AREAS

TRASH DUMPESTERS, ROOFS, PARKING LOTS, LANDSCAPING, RESTAURANT(S), WATER FEATURES, AND OUTDOOR STORAGE AREAS.

SOURCE CONTROLS

SC-1: PREVENTION OF ILLICIT DISCHARGES INTO THE MS4
SC-2: STORM DRAIN STENCILING OR SIGNAGE
SC-5: PROTECT TRASH STORAGE AREAS FROM RAINFALL, RUN-ON, RUNOFF, AND WIND DISPERSAL
SC-6: ADDITIONAL BMPS BASED ON POTENTIAL SOURCES ON RUNOFF POLLUTANTS

LEGEND

PROPERTY LINE
RIGHT-OF-WAY
CENTER LINE OF ROAD
DMA BOUNDARY
EXISTING STORM DRAIN LINE
PROPOSED STORM DRAIN LINE
PROPOSED UNDERGROUND R-TANK DETENTION SYSTEM
LIMITS OF PROP. BUILDING
LIMITS OF PROP. CONCRETE PAVEMENT
DMA AREA #
BMP #

SCALE: 1" = 20'

HYDROMODIFICATION MANAGEMENT EXHIBIT
POST-PROJECT CONDITIONS
SAN MARCOS RESIDENCES
CITY OF SAN MARCOS

PASCO LARET SUITER & ASSOCIATES
San Diego | Solana Beach | Orange County
Phone 858.259.8212 | www.plsaengineering.com

SAVE DATE: 02/15/22 ~ PLOT DATE: 02/28/22 ~ FILE NAME: J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\REPORTS\WQMP\Attachments\Attachment 2 - Backup for Hydromodification Control Measures\Att 2a - Hydromod Exhibits\3527-WQMP-Hydromod Exhibit, Post Project.dwg

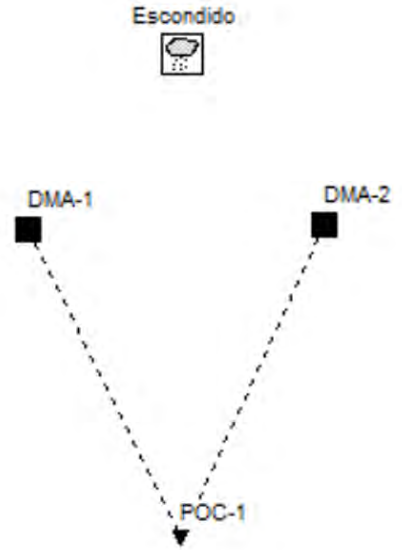
ATTACHMENT 2b

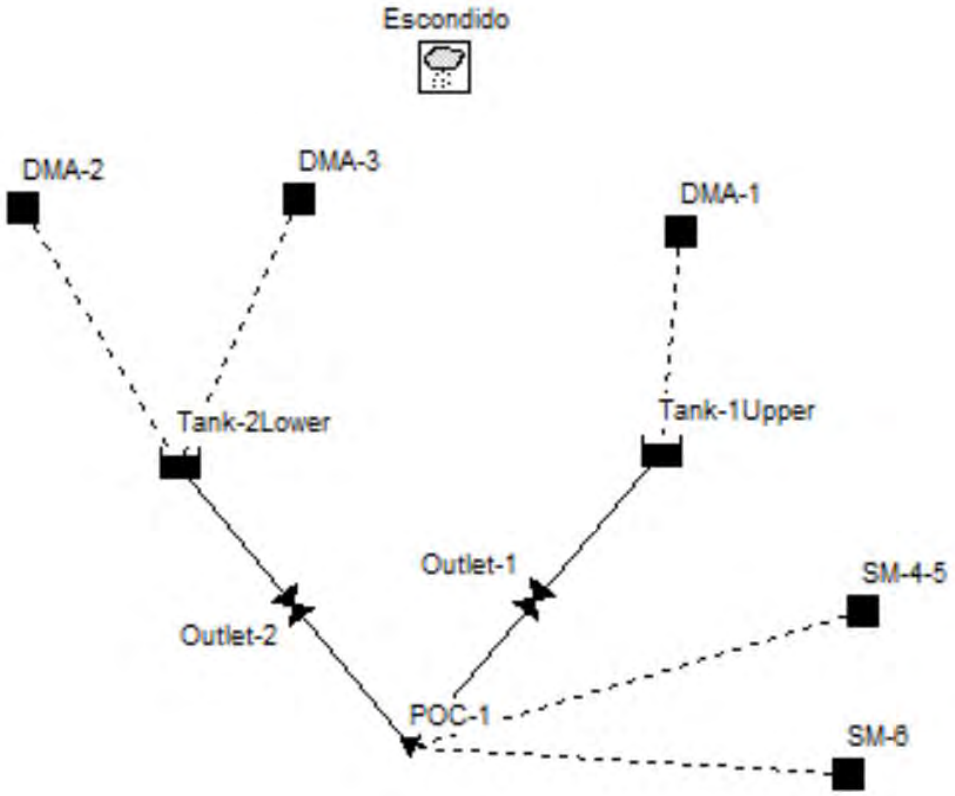
Potential Critical Coarse Sediment Yield Areas, Regional San Diego County Watersheds
Source:Project Clean Water
File Name: WMAA Mapping Data from Attachment C 2018_0906.zip
Date: 10/19/18 (Last Updated)
Legend
Creek
Yes
PROJECT SITE
N33°09'34.56"
W117°12'31.68"
W117°12'5.76"
W117°11'39.84"
N33°09'8.64"
Google Earth
Image Landsat / Copernicus
1000 ft
N

ATTACHMENT 2d

SWMM MODEL SCHEMATICS

PRE-PROJECT MODEL	POST-PROJECT MODEL





3527 South Santa Fe
3/2/2022

POC-1
SWMM INPUT

PRE-PROJECT

DMA	Basin	Area (ac)	Width (Area/Flow Length) (ft)	% Slope	% Impervious	% "B" Soils	% "C" Soils	% "D" Soils	Weighted Infiltration (in/hr):	Weighted Suction Head (in):	Weighted Initial Deficit:	N-perv
1		1.1	290	8.0%	0%	0%	100%	0%	0.100	6.000	0.320	0.080
2		1.12	143	13.0%	0%	0%	46%	55%	0.059	7.635	0.325	0.080
	Total:	**2.22**										

POST-PROJECT

DMA	BMP	Area (ac)	Width (Area/Flow Length) (ft)	% Impervious	% Slope	% "B" Soils	% "C" Soils	% "D" Soils	Weighted Infiltration (in/hr):	Weighted Suction Head (in):	Weighted Initial Deficit:	N-perv
1	Tank-1	1.010	936	79%	5.0%	0%	100%	0%	0.075	6.000	0.320	0.06
2	Tank-2	0.522	758	92%	10.0%	0%	46%	54%	0.045	7.620	0.325	0.06
3	Tank-2	0.547	794	70%	7.0%	0%	33%	67%	0.037	8.010	0.327	0.06
SM-4 and 5	NA	0.110	165	0%	50.0%	0%	100%	0%	0.075	6.000	0.320	0.08
SM-6	NA	0.058	126	15%	50.0%	0%	100%	0%	0.075	6.000	0.320	0.08
	Total:	**2.25**										

Infiltration:		
C:	0.1	in/hr
D:	0.025	in/hr

Suction Head:		
C:	6	in
D:	9	in

Initial Deficit	
C:	0.32
D:	0.33

POC-1

```
[TITLE]
;;Project Title/Notes
3527 South Santa Fe
Pre-Development Condition

[OPTIONS]
;;Option             Value
FLOW_UNITS           CFS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         KINWAVE
LINK_OFFSETS         DEPTH
MIN_SLOPE            0
ALLOW_PONDING        NO
SKIP_STEADY_STATE    NO

START_DATE           09/24/1964
START_TIME           13:00:00
REPORT_START_DATE    09/24/1964
REPORT_START_TIME    13:00:00
END_DATE             05/23/2008
END_TIME             22:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          01:00:00
WET_STEP             00:15:00
DRY_STEP             04:00:00
ROUTING_STEP         0:01:00
RULE_STEP            00:00:00

INERTIAL_DAMPING     PARTIAL
NORMAL_FLOW_LIMITED  BOTH
FORCE_MAIN_EQUATION  H-W
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         12.557
MAX_TRIALS           8
HEAD_TOLERANCE       0.005
SYS_FLOW_TOL         5
LAT_FLOW_TOL         5
MINIMUM_STEP         0.5
THREADS              1

[EVAPORATION]
;;Data Source    Parameters
;;-------------- ----------------
MONTHLY          .06    .08    .11    .15    .17    .19    .19    .18    .15    .11    .08    .06
DRY_ONLY         NO

[RAINGAGES]
;;Name           Format    Interval SCF      Source
```

POC-1

```
;;-------------- --------- ------ ------ ----------
Escondido        INTENSITY 1:00     1.0      TIMESERIES Escondido

[SUBCATCHMENTS]
;;Name           Rain Gage        Outlet           Area     %Imperv  Width    %Slope   CurbLen  SnowPack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- ----------------
DMA-2            Escondido        POC-1            1.12     0        143      13       0
DMA-1            Escondido        POC-1            1.1      0        290      8        0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
DMA-2            0.012      0.08       0.05       0.1        25         OUTLET
DMA-1            0.012      0.08       0.05       0.1        25         OUTLET

[INFILTRATION]
;;Subcatchment   Suction    Ksat       IMD
;;-------------- ---------- ---------- ----------
DMA-2            7.635      0.059      0.325
DMA-1            6          0.1        0.32

[OUTFALLS]
;;Name           Elevation  Type       Stage Data       Gated    Route To
;;-------------- ---------- ---------- ---------------- -------- ----------------
POC-1            0          FREE                        NO

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
Escondido        FILE "J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\REPORTS\WQMP\SWMM\Rain Data\escondido\escondido1.dat"

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
POC-1            -33.882            5151.408

[VERTICES]
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
```

POC-1

```
[Polygons]
;;Subcatchment   X-Coord            Y-Coord
;;-------------- ------------------ ------------------
DMA-2            662.783            6679.992
DMA-1            -758.346           6657.435

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
Escondido        -9.075             7491.454
```

POC-1

```
[TITLE]
;;Project Title/Notes
3527 South Santa Fe
Post-Project Condition

[OPTIONS]
;;Option             Value
FLOW_UNITS           CFS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         KINWAVE
LINK_OFFSETS         DEPTH
MIN_SLOPE            0
ALLOW_PONDING        NO
SKIP_STEADY_STATE    NO

START_DATE           09/24/1964
START_TIME           13:00:00
REPORT_START_DATE    09/24/1964
REPORT_START_TIME    13:00:00
END_DATE             05/23/2008
END_TIME             22:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          01:00:00
WET_STEP             00:15:00
DRY_STEP             04:00:00
ROUTING_STEP         0:01:00
RULE_STEP            00:00:00

INERTIAL_DAMPING     PARTIAL
NORMAL_FLOW_LIMITED  BOTH
FORCE_MAIN_EQUATION  H-W
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         12.557
MAX_TRIALS           8
HEAD_TOLERANCE       0.005
SYS_FLOW_TOL         5
LAT_FLOW_TOL         5
MINIMUM_STEP         0.5
THREADS              1

[EVAPORATION]
;;Data Source    Parameters
;;-------------- ----------------
MONTHLY          .06    .08    .11    .15    .17    .19    .19    .18    .15    .11    .08    .06
DRY_ONLY         NO

[RAINGAGES]
;;Name           Format    Interval SCF      Source
```

POC-1

```
;;-------------- --------- ------ ------ ----------
Escondido        INTENSITY 1:00     1.0      TIMESERIES Escondido

[SUBCATCHMENTS]
;;Name           Rain Gage        Outlet           Area     %Imperv  Width    %Slope   CurbLen  SnowPack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- ----------------
DMA-2            Escondido        Tank-2Lower      0.522    92       758      10       0
DMA-1            Escondido        Tank-1Upper      1.01     79       936      5        0
SM-4-5           Escondido        POC-1            0.11     0        165      50       0
DMA-3            Escondido        Tank-2Lower      0.547    70       794      7        0
SM-6             Escondido        POC-1            0.058    15       126      50       0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
DMA-2            0.012      0.06       0.05       0.1        25         OUTLET
DMA-1            0.012      0.06       0.05       0.1        25         OUTLET
SM-4-5           0.012      0.08       0.05       0.1        25         OUTLET
DMA-3            0.012      0.06       0.05       0.1        25         OUTLET
SM-6             0.012      0.08       0.05       0.1        25         OUTLET

[INFILTRATION]
;;Subcatchment   Suction    Ksat       IMD
;;-------------- ---------- ---------- ----------
DMA-2            7.62       0.045      0.325
DMA-1            6          0.075      0.32
SM-4-5           6          0.075      0.32
DMA-3            8.01       0.037      0.327
SM-6             6          0.075      0.32

[OUTFALLS]
;;Name           Elevation  Type       Stage Data       Gated    Route To
;;-------------- ---------- ---------- ---------------- -------- ----------------
POC-1            0          FREE                        NO

[STORAGE]
;;Name           Elev.    MaxDepth   InitDepth  Shape      Curve Name/Params            N/A      Fevap    Psi      Ksat     IMD
;;-------------- -------- ---------- ---------- ---------- ---------------------------- -------- -------- -------- -------- --------
Tank-1Upper      0        5.58       0          TABULAR    Tank1Upper                   0        0
Tank-2Lower      0        3.54       0          TABULAR    Tank-2Lower                  0        0

[OUTLETS]
;;Name           From Node        To Node          Offset     Type            QTable/Qcoeff    Qexpon     Gated
;;-------------- ---------------- ---------------- ---------- --------------- ---------------- ---------- --------
Outlet-1         Tank-1Upper      POC-1            0          TABULAR/DEPTH   OUTLET-1                    NO
Outlet-2         Tank-2Lower      POC-1            0          TABULAR/DEPTH   OUTLET-2                    NO

[CURVES]
;;Name           Type       X-Value    Y-Value
;;-------------- ---------- ---------- ----------
OUTLET-1         Rating     0          0
```

```
OUTLET-1                  0.2       0.01
OUTLET-1                  0.4       0.01
OUTLET-1                  0.6       0.02
OUTLET-1                  0.8       0.02
OUTLET-1                  1         0.02
OUTLET-1                  1.2       0.02
OUTLET-1                  1.4       0.02
OUTLET-1                  1.6       0.03
OUTLET-1                  1.8       0.03
OUTLET-1                  2         0.03
OUTLET-1                  2.2       0.03
OUTLET-1                  2.4       0.03
OUTLET-1                  2.6       0.03
OUTLET-1                  2.8       0.04
OUTLET-1                  3         0.04
OUTLET-1                  3.2       0.04
OUTLET-1                  3.4       0.04
OUTLET-1                  3.6       0.04
OUTLET-1                  3.8       0.04
OUTLET-1                  4         0.04
OUTLET-1                  4.2       0.04
OUTLET-1                  4.4       0.04
OUTLET-1                  4.6       0.05
OUTLET-1                  4.8       0.05
OUTLET-1                  5         0.05
OUTLET-1                  5.2       0.87
OUTLET-1                  5.4       3.61
OUTLET-1                  5.58      7
;
OUTLET-2         Rating   0         0
OUTLET-2                  0.1       0.01
OUTLET-2                  0.2       0.01
OUTLET-2                  0.3       0.01
OUTLET-2                  0.4       0.01
OUTLET-2                  0.5       0.01
OUTLET-2                  0.6       0.02
OUTLET-2                  0.7       0.02
OUTLET-2                  0.8       0.02
OUTLET-2                  0.9       0.02
OUTLET-2                  1         0.02
OUTLET-2                  1.1       0.02
OUTLET-2                  1.2       0.02
OUTLET-2                  1.3       0.02
OUTLET-2                  1.4       0.02
OUTLET-2                  1.5       0.03
OUTLET-2                  1.6       0.03
OUTLET-2                  1.7       0.03
OUTLET-2                  1.8       0.03
OUTLET-2                  1.9       0.03
OUTLET-2                  2         0.03
OUTLET-2                  2.1       0.03
```

```
OUTLET-2                    2.2         0.03
OUTLET-2                    2.3         0.03
OUTLET-2                    2.4         0.03
OUTLET-2                    2.5         0.03
OUTLET-2                    2.6         0.03
OUTLET-2                    2.7         0.03
OUTLET-2                    2.8         0.04
OUTLET-2                    2.9         0.04
OUTLET-2                    3           0.04
OUTLET-2                    3.1         0.37
OUTLET-2                    3.2         1.51
OUTLET-2                    3.3         3.08
OUTLET-2                    3.4         4.99
OUTLET-2                    3.5         5.66
OUTLET-2                    3.54        5.69
;
Tank1Upper       Storage    0           1520
Tank1Upper                  5.58        1520
;
Tank-2Lower      Storage    0           1995
Tank-2Lower                 3.54        1995

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
Escondido        FILE "J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\REPORTS\WQMP\SWMM\Rain Data\escondido\escondido1.dat"

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
POC-1            198.110            4329.947
Tank-1Upper      1409.511           5738.859
Tank-2Lower      -921.120           5673.022

[VERTICES]
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------

[Polygons]
```

```
;;Subcatchment   X-Coord            Y-Coord
;;-------------- ------------------ ------------------
DMA-2            -1671.662          6910.758
DMA-1            1501.683           6805.419
SM-4-5           2380.183           4981.105
DMA-3            -341.754           6950.261
SM-6             2311.363           4206.877

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
Escondido        392.092            7571.018
```

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
--------------------------------------------------------------

3527 South Santa Fe
Pre-Development Condition


***********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
***********************************************************

***************
Analysis Options
***************
Flow Units ............... CFS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... NO
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Starting Date ............ 09/24/1964 13:00:00
Ending Date .............. 05/23/2008 22:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 01:00:00
Wet Time Step ............ 00:15:00
Dry Time Step ............ 04:00:00


*************************        Volume         Depth
Runoff Quantity Continuity     acre-feet        inches
*************************     ---------       -------
Total Precipitation ......       113.057       611.120
Evaporation Loss .........         1.623         8.773
Infiltration Loss ........       101.158       546.802
Surface Runoff ...........        11.234        60.723
Final Storage ............         0.000         0.000
Continuity Error (%) .....        -0.847


*************************        Volume        Volume
Flow Routing Continuity        acre-feet      10^6 gal
*************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......        11.234         3.661
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........        11.234         3.661
Flooding Loss ............         0.000         0.000
```

```
  Evaporation Loss .........         0.000         0.000
  Exfiltration Loss ........         0.000         0.000
  Initial Stored Volume ....         0.000         0.000
  Final Stored Volume ......         0.000         0.000
  Continuity Error (%) .....         0.000


  **************************
  Subcatchment Runoff Summary
  **************************

  ---------------------------------------------------------------------------------------------------------------------------
                           Total      Total      Total      Total     Imperv       Perv      Total       Total     Peak  Runoff
                          Precip      Runon       Evap      Infil     Runoff     Runoff     Runoff      Runoff   Runoff   Coeff
  Subcatchment                in         in         in         in         in         in         in    10^6 gal      CFS
  ---------------------------------------------------------------------------------------------------------------------------
  DMA-2                   611.12       0.00      11.07     537.38       0.00      69.00      69.00        2.10     0.88   0.113
  DMA-1                   611.12       0.00       6.43     556.40       0.00      52.29      52.29        1.56     0.82   0.086


  Analysis begun on:  Wed Mar  2 11:57:09 2022
  Analysis ended on:  Wed Mar  2 11:57:39 2022
  Total elapsed time: 00:00:30
```

```
  EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
  --------------------------------------------------------------

  3527 South Santa Fe
  Post-Project Condition


  ***********************************************************
  NOTE: The summary statistics displayed in this report are
  based on results found at every computational time step,
  not just on results from each reporting time step.
  ***********************************************************

  ****************
  Analysis Options
  ****************
  Flow Units ............... CFS
  Process Models:
    Rainfall/Runoff ........ YES
    RDII ................... NO
    Snowmelt ............... NO
    Groundwater ............ NO
    Flow Routing ........... YES
    Ponding Allowed ........ NO
    Water Quality .......... NO
  Infiltration Method ...... GREEN_AMPT
  Flow Routing Method ...... KINWAVE
  Starting Date ............ 09/24/1964 13:00:00
  Ending Date .............. 05/23/2008 22:00:00
  Antecedent Dry Days ...... 0.0
  Report Time Step ......... 01:00:00
  Wet Time Step ............ 00:15:00
  Dry Time Step ............ 04:00:00
  Routing Time Step ........ 60.00 sec


  *************************        Volume         Depth
  Runoff Quantity Continuity     acre-feet        inches
  *************************     ---------       -------
  Total Precipitation ......       114.432       611.120
  Evaporation Loss .........        11.688        62.417
  Infiltration Loss ........        25.406       135.682
  Surface Runoff ...........        79.431       424.198
  Final Storage ............         0.005         0.025
  Continuity Error (%) .....        -1.833


  *************************        Volume        Volume
  Flow Routing Continuity        acre-feet      10^6 gal
  *************************     ---------     ---------
  Dry Weather Inflow .......         0.000         0.000
  Wet Weather Inflow .......        79.431        25.884
  Groundwater Inflow .......         0.000         0.000
  RDII Inflow ..............         0.000         0.000
```

```
External Inflow .....         0.000        0.000
External Outflow .....       79.418       25.880
Flooding Loss .....           0.000        0.000
Evaporation Loss .....        0.000        0.000
Exfiltration Loss .....       0.000        0.000
Initial Stored Volume ....    0.000        0.000
Final Stored Volume .....     0.007        0.002
Continuity Error (%) .....    0.007
```

```
*******************************
Highest Flow Instability Indexes
*******************************
All links are stable.
```

```
************************
Routing Time Step Summary
************************
Minimum Time Step           :    59.00 sec
Average Time Step           :    60.00 sec
Maximum Time Step           :    60.00 sec
Percent in Steady State     :     0.00
Average Iterations per Step :     1.00
Percent Not Converging      :     0.00
```

```
**************************
Subcatchment Runoff Summary
**************************
```

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Imperv Runoff in	Perv Runoff in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DMA-2	611.12	0.00	75.02	40.19	499.47	8.58	508.05	7.20	0.45	0.831
DMA-1	611.12	0.00	65.42	114.54	428.12	13.73	441.85	12.12	0.84	0.723
SM-4-5	611.12	0.00	6.89	545.59	0.00	65.06	65.06	0.19	0.08	0.106
DMA-3	611.12	0.00	60.78	148.60	380.17	34.04	414.20	6.15	0.46	0.678
SM-6	611.12	0.00	17.37	463.93	82.01	55.52	137.52	0.22	0.05	0.225

```
******************
Node Depth Summary
******************
```

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
POC-1	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
Tank-1Upper	STORAGE	0.05	5.15	5.15	11059 08:02	5.15
Tank-2Lower	STORAGE	0.05	3.15	3.15	10332 03:23	3.15

```
******************
Node Inflow Summary
******************

-------------------------------------------------------------------------------------------------
                                 Maximum  Maximum                  Lateral       Total        Flow
                                 Lateral    Total  Time of Max      Inflow      Inflow     Balance
                                  Inflow   Inflow   Occurrence      Volume      Volume       Error
Node                 Type           CFS      CFS  days hr:min    10^6 gal    10^6 gal     Percent
-------------------------------------------------------------------------------------------------
POC-1                OUTFALL       0.13     1.47  11059  08:01       0.411        25.9       0.000
Tank-1Upper          STORAGE       0.84     0.84  10332  03:16        12.1        12.1       0.007
Tank-2Lower          STORAGE       0.89     0.89  10332  03:31        13.4        13.4       0.007


*********************
Node Flooding Summary
*********************

No nodes were flooded.


**********************
Storage Volume Summary
**********************

-------------------------------------------------------------------------------------------------
                       Average     Avg  Evap Exfil       Maximum     Max    Time of Max    Maximum
                        Volume    Pcnt  Pcnt  Pcnt        Volume    Pcnt     Occurrence    Outflow
Storage Unit         1000 ft3    Full  Loss  Loss      1000 ft3    Full    days hr:min        CFS
-------------------------------------------------------------------------------------------------
Tank-1Upper             0.082       1     0     0         7.826      92    11059  08:01       0.66
Tank-2Lower             0.103       1     0     0         6.278      89    10332  03:21       0.90


***********************
Outfall Loading Summary
***********************

-----------------------------------------------------------
                       Flow       Avg       Max       Total
                       Freq      Flow      Flow      Volume
Outfall Node           Pcnt       CFS       CFS    10^6 gal
-----------------------------------------------------------
POC-1                 10.97      0.02      1.47      25.878
-----------------------------------------------------------
System                10.97      0.02      1.47      25.878


*******************
Link Flow Summary
*******************
```

Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days	hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
Outlet-1	DUMMY	0.66	11059	08:02			
Outlet-2	DUMMY	0.90	10332	03:23			

****
Conduit Surcharge Summary
****

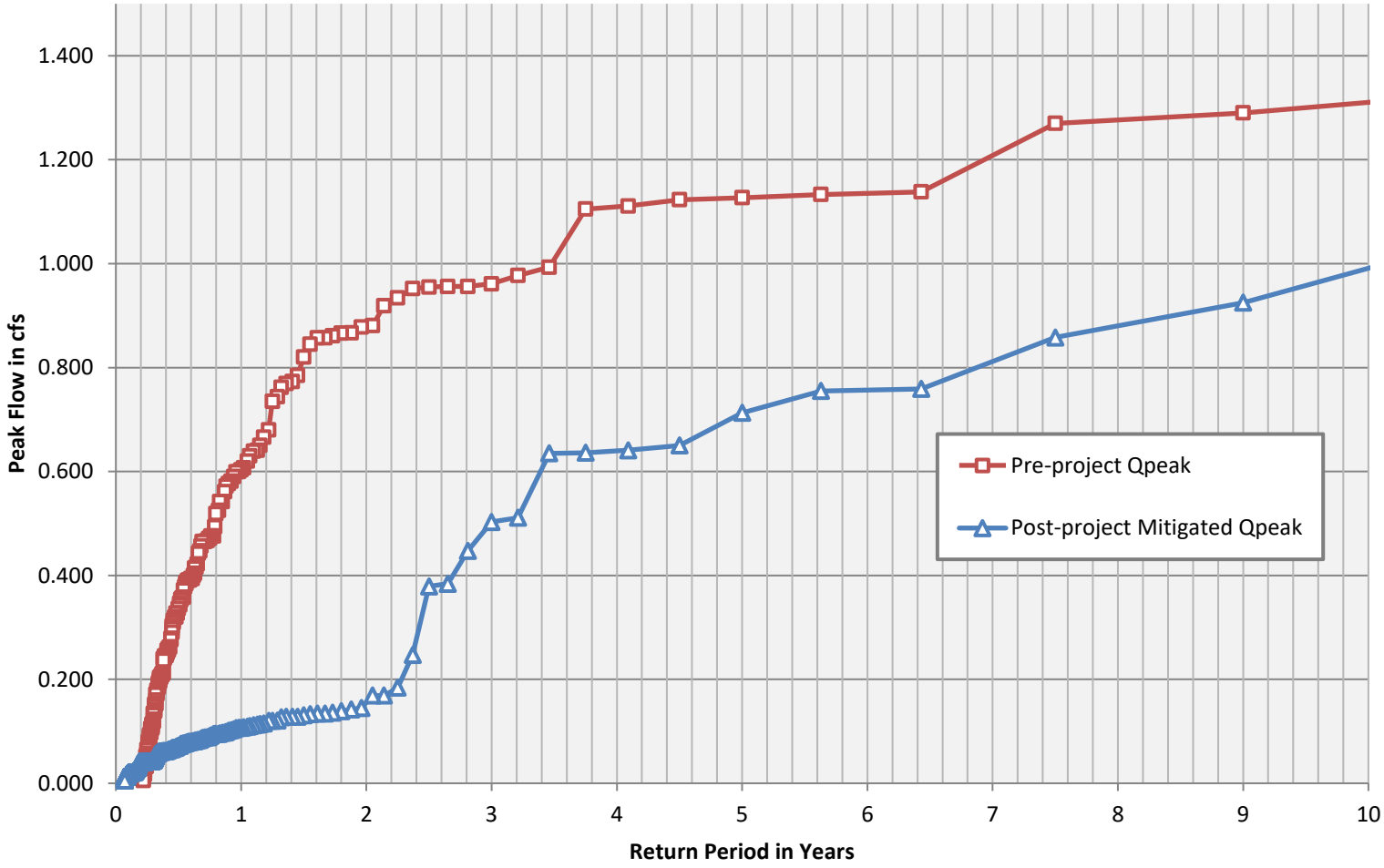
No conduits were surcharged.

Analysis begun on: Wed Mar 2 12:59:17 2022
Analysis ended on: Wed Mar 2 12:59:56 2022
Total elapsed time: 00:00:39

Peak Flow Frequency Summary

Return Period	Pre-project Qpeak (cfs)	Post-project - Mitigated Q (cfs)
LF = 0.1xQ2	0.088	0.016
2-year	0.879	0.156
5-year	1.127	0.713
10-year	1.310	0.991

Peak Flow Frequency Curves

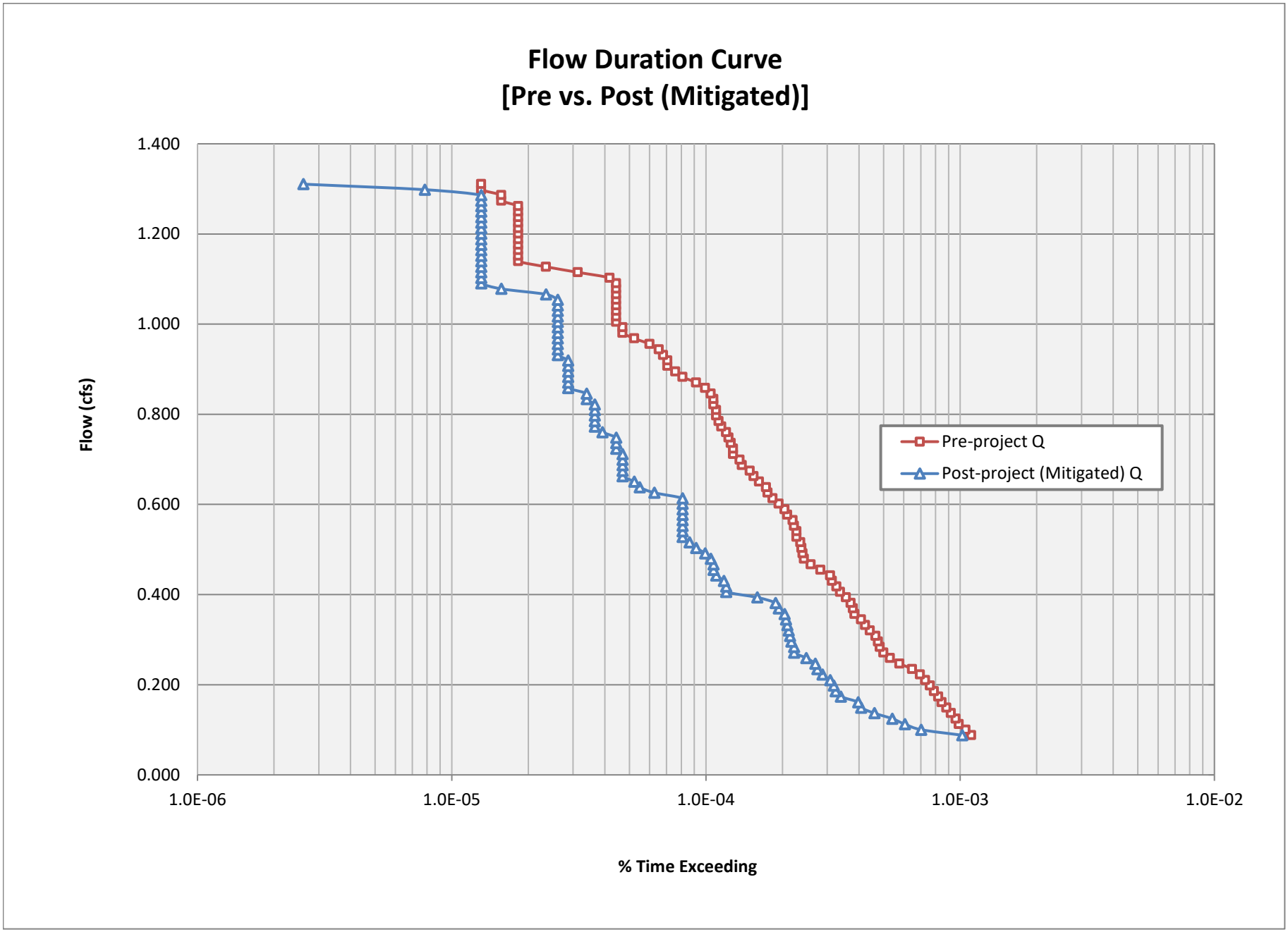


Low-flow Threshold:	10%	
0.1xQ2 (Pre):	0.088	cfs
Q10 (Pre):	1.310	cfs
Ordinate #:	100	
Incremental Q (Pre):	0.01223	cfs
Total Hourly Data:	382736	hours

The proposed BMP: PASSED

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
0	0.088	423	1.11E-03	390	1.02E-03	92%	Pass
1	0.100	402	1.05E-03	269	7.03E-04	67%	Pass
2	0.112	378	9.88E-04	232	6.06E-04	61%	Pass
3	0.125	368	9.61E-04	207	5.41E-04	56%	Pass
4	0.137	352	9.20E-04	176	4.60E-04	50%	Pass
5	0.149	338	8.83E-04	156	4.08E-04	46%	Pass
6	0.161	324	8.47E-04	152	3.97E-04	47%	Pass
7	0.174	314	8.20E-04	130	3.40E-04	41%	Pass
8	0.186	302	7.89E-04	124	3.24E-04	41%	Pass
9	0.198	291	7.60E-04	122	3.19E-04	42%	Pass
10	0.210	279	7.29E-04	118	3.08E-04	42%	Pass
11	0.222	266	6.95E-04	110	2.87E-04	41%	Pass
12	0.235	248	6.48E-04	105	2.74E-04	42%	Pass
13	0.247	221	5.77E-04	103	2.69E-04	47%	Pass
14	0.259	203	5.30E-04	95	2.48E-04	47%	Pass
15	0.271	191	4.99E-04	85	2.22E-04	45%	Pass
16	0.284	185	4.83E-04	85	2.22E-04	46%	Pass
17	0.296	182	4.76E-04	83	2.17E-04	46%	Pass
18	0.308	178	4.65E-04	82	2.14E-04	46%	Pass
19	0.320	169	4.42E-04	81	2.12E-04	48%	Pass
20	0.332	162	4.23E-04	80	2.09E-04	49%	Pass
21	0.345	156	4.08E-04	79	2.06E-04	51%	Pass
22	0.357	147	3.84E-04	78	2.04E-04	53%	Pass
23	0.369	145	3.79E-04	74	1.93E-04	51%	Pass
24	0.381	142	3.71E-04	72	1.88E-04	51%	Pass
25	0.394	136	3.55E-04	61	1.59E-04	45%	Pass
26	0.406	129	3.37E-04	46	1.20E-04	36%	Pass
27	0.418	125	3.27E-04	46	1.20E-04	37%	Pass
28	0.430	120	3.14E-04	45	1.18E-04	38%	Pass
29	0.442	118	3.08E-04	42	1.10E-04	36%	Pass
30	0.455	108	2.82E-04	41	1.07E-04	38%	Pass
31	0.467	99	2.59E-04	41	1.07E-04	41%	Pass
32	0.479	93	2.43E-04	40	1.05E-04	43%	Pass
33	0.491	92	2.40E-04	38	9.93E-05	41%	Pass
34	0.504	91	2.38E-04	35	9.14E-05	38%	Pass
35	0.516	90	2.35E-04	33	8.62E-05	37%	Pass
36	0.528	87	2.27E-04	31	8.10E-05	36%	Pass
37	0.540	87	2.27E-04	31	8.10E-05	36%	Pass
38	0.552	85	2.22E-04	31	8.10E-05	36%	Pass
39	0.565	84	2.19E-04	31	8.10E-05	37%	Pass
40	0.577	80	2.09E-04	31	8.10E-05	39%	Pass
41	0.589	78	2.04E-04	31	8.10E-05	40%	Pass
42	0.601	74	1.93E-04	31	8.10E-05	42%	Pass
43	0.614	70	1.83E-04	31	8.10E-05	44%	Pass
44	0.626	67	1.75E-04	24	6.27E-05	36%	Pass
45	0.638	66	1.72E-04	21	5.49E-05	32%	Pass
46	0.650	62	1.62E-04	20	5.23E-05	32%	Pass
47	0.663	59	1.54E-04	18	4.70E-05	31%	Pass
48	0.675	57	1.49E-04	18	4.70E-05	32%	Pass
49	0.687	53	1.38E-04	18	4.70E-05	34%	Pass
50	0.699	52	1.36E-04	18	4.70E-05	35%	Pass
51	0.711	49	1.28E-04	18	4.70E-05	37%	Pass
52	0.724	49	1.28E-04	17	4.44E-05	35%	Pass
53	0.736	48	1.25E-04	17	4.44E-05	35%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
54	0.748	47	1.23E-04	17	4.44E-05	36%	Pass
55	0.760	46	1.20E-04	15	3.92E-05	33%	Pass
56	0.773	44	1.15E-04	14	3.66E-05	32%	Pass
57	0.785	43	1.12E-04	14	3.66E-05	33%	Pass
58	0.797	42	1.10E-04	14	3.66E-05	33%	Pass
59	0.809	42	1.10E-04	14	3.66E-05	33%	Pass
60	0.821	41	1.07E-04	14	3.66E-05	34%	Pass
61	0.834	41	1.07E-04	13	3.40E-05	32%	Pass
62	0.846	40	1.05E-04	13	3.40E-05	33%	Pass
63	0.858	38	9.93E-05	11	2.87E-05	29%	Pass
64	0.870	35	9.14E-05	11	2.87E-05	31%	Pass
65	0.883	31	8.10E-05	11	2.87E-05	35%	Pass
66	0.895	29	7.58E-05	11	2.87E-05	38%	Pass
67	0.907	27	7.05E-05	11	2.87E-05	41%	Pass
68	0.919	27	7.05E-05	11	2.87E-05	41%	Pass
69	0.931	26	6.79E-05	10	2.61E-05	38%	Pass
70	0.944	25	6.53E-05	10	2.61E-05	40%	Pass
71	0.956	23	6.01E-05	10	2.61E-05	43%	Pass
72	0.968	20	5.23E-05	10	2.61E-05	50%	Pass
73	0.980	18	4.70E-05	10	2.61E-05	56%	Pass
74	0.993	18	4.70E-05	10	2.61E-05	56%	Pass
75	1.005	17	4.44E-05	10	2.61E-05	59%	Pass
76	1.017	17	4.44E-05	10	2.61E-05	59%	Pass
77	1.029	17	4.44E-05	10	2.61E-05	59%	Pass
78	1.041	17	4.44E-05	10	2.61E-05	59%	Pass
79	1.054	17	4.44E-05	10	2.61E-05	59%	Pass
80	1.066	17	4.44E-05	9	2.35E-05	53%	Pass
81	1.078	17	4.44E-05	6	1.57E-05	35%	Pass
82	1.090	17	4.44E-05	5	1.31E-05	29%	Pass
83	1.103	16	4.18E-05	5	1.31E-05	31%	Pass
84	1.115	12	3.14E-05	5	1.31E-05	42%	Pass
85	1.127	9	2.35E-05	5	1.31E-05	56%	Pass
86	1.139	7	1.83E-05	5	1.31E-05	71%	Pass
87	1.152	7	1.83E-05	5	1.31E-05	71%	Pass
88	1.164	7	1.83E-05	5	1.31E-05	71%	Pass
89	1.176	7	1.83E-05	5	1.31E-05	71%	Pass
90	1.188	7	1.83E-05	5	1.31E-05	71%	Pass
91	1.200	7	1.83E-05	5	1.31E-05	71%	Pass
92	1.213	7	1.83E-05	5	1.31E-05	71%	Pass
93	1.225	7	1.83E-05	5	1.31E-05	71%	Pass
94	1.237	7	1.83E-05	5	1.31E-05	71%	Pass
95	1.249	7	1.83E-05	5	1.31E-05	71%	Pass
96	1.262	7	1.83E-05	5	1.31E-05	71%	Pass
97	1.274	6	1.57E-05	5	1.31E-05	83%	Pass
98	1.286	6	1.57E-05	5	1.31E-05	83%	Pass
99	1.298	5	1.31E-05	3	7.84E-06	60%	Pass
100	1.310	5	1.31E-05	1	2.61E-06	20%	Pass


Flow Duration Curve
[Pre vs. Post (Mitigated)]
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
Flow (cfs)
1.0E-06
1.0E-05
1.0E-04
1.0E-03
1.0E-02
% Time Exceeding
Pre-project Q
Post-project (Mitigated) Q

Summary for Pond 6P: Tank-1 Upper

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	8,482 cf	**Tank-1 Upper (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
100.00	1,600	0.0	0	0	1,600
101.00	1,600	95.0	1,520	1,520	1,742
102.00	1,600	95.0	1,520	3,040	1,884
103.00	1,600	95.0	1,520	4,560	2,025
104.00	1,600	95.0	1,520	6,080	2,167
105.00	1,600	95.0	1,520	7,600	2,309
105.08	1,600	95.0	122	7,722	2,320
105.58	1,600	95.0	760	8,482	2,391

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**12.00" Round Culvert** L= 100.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 100.00' / 99.00' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	100.00'	**0.90" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	105.08'	**Custom Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.50 0.50 Width (feet) 6.00 6.00 0.00

Stage-Discharge for Pond 6P: Tank-1 Upper

Elevation (feet)	Primary (cfs)
100.00	0.00
100.20	0.01
100.40	0.01
100.60	0.02
100.80	0.02
101.00	0.02
101.20	0.02
101.40	0.02
101.60	0.03
101.80	0.03
102.00	0.03
102.20	0.03
102.40	0.03
102.60	0.03
102.80	0.04
103.00	0.04
103.20	0.04
103.40	0.04
103.60	0.04
103.80	0.04
104.00	0.04
104.20	0.04
104.40	0.04
104.60	0.05
104.80	0.05
105.00	0.05
105.20	0.87
105.40	**3.61**
105.58	**7.00**

Summary for Pond 8P: Tank-2 Lower

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	7,062 cf	**Tank-2 Lower (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
100.00	2,100	0.0	0	0	2,100
101.00	2,100	95.0	1,995	1,995	2,262
102.00	2,100	95.0	1,995	3,990	2,425
103.00	2,100	95.0	1,995	5,985	2,587
103.04	2,100	95.0	80	6,065	2,594
103.54	2,100	95.0	998	7,062	2,675

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**12.00" Round Culvert** L= 100.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 100.00' / 99.00' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	100.00'	**0.90" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	103.04'	**Custom Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.50 0.50 Width (feet) 7.00 7.00 0.00

Stage-Discharge for Pond 8P: Tank-2 Lower

Elevation (feet)	Primary (cfs)
100.00	0.00
100.10	0.01
100.20	0.01
100.30	0.01
100.40	0.01
100.50	0.01
100.60	0.02
100.70	0.02
100.80	0.02
100.90	0.02
101.00	0.02
101.10	0.02
101.20	0.02
101.30	0.02
101.40	0.02
101.50	0.03
101.60	0.03
101.70	0.03
101.80	0.03
101.90	0.03
102.00	0.03
102.10	0.03
102.20	0.03
102.30	0.03
102.40	0.03
102.50	0.03
102.60	0.03
102.70	0.03
102.80	0.04
102.90	0.04
103.00	0.04
103.10	0.37
103.20	1.51
103.30	3.08
103.40	4.99
103.50	**5.66**
103.54	**5.69**

Vault Drawdown Calculation

Project Name	South Santa Fe	Tank-1	
Project No	3527	Date	3/2/2022

Vault Drawdown	**92.2**	**hrs**

Note: Drawdown time is calculated assuming an initial water surface depth equal to the invert of the lowest surface discharge opening in the vault outlet structure.

Underdrain Orifice Diameter:	**0.9**	in
C:	**0.6**	

Surface Depth (ft)	Volume (cf)	$Q_{orifice}$ (cfs)	ΔT (hr)	Total Time (hr)
5.08	7722	0.048	0.000	0.0
4	6080	0.042	10.181	10.2
3	4560	0.036	10.773	21.0
2	3040	0.029	12.844	33.8
1	1520	0.020	16.960	50.8
0	0	0.000	41.484	92.2

Vault Drawdown Calculation

Project Name	South Santa Fe	Tank-2	
Project No	3527	Date	3/2/2022

Vault Drawdown	**94.2**	**hrs**

Note: Drawdown time is calculated assuming an initial water surface depth equal to the invert of the lowest surface discharge opening in the vault outlet structure.

Underdrain Orifice Diameter:	**0.9**	in
C:	**0.6**	

Surface Depth (ft)	Volume (cf)	$Q_{orifice}$ (cfs)	ΔT (hr)	Total Time (hr)
3.04	6065	0.037	0.000	0.0
2	3990	0.029	17.468	17.5
1	1995	0.020	22.260	39.7
0	0	0.000	54.448	94.2

Manning's *n* Values for Overland Flow[1]

The BMP Design Manuals within the County of San Diego allow for a land surface description other than short prairie grass to be used for hydromodification BMP design only if documentation provided is consistent with Table A.6 of the SWMM 5 User's Manual.

In January 2016, the EPA released the SWMM Reference Manual Volume I – Hydrology (SWMM Hydrology Reference Manual). The SWMM Hydrology Reference Manual complements the SWMM 5 User's Manual by providing an in-depth description of the program's hydrologic components. Table 3-5 of the SWMM Hydrology Reference Manual expounds upon Table A.6 of the SWMM 5 User's Manual by providing Manning's *n* values for additional overland flow surfaces. Therefore, in order to provide SWMM users with a wider range of land surfaces suitable for local application and to provide Copermittees with confidence in the design parameters, we recommend using the values published by Yen and Chow in Table 3-5 of the EPA SWMM Reference Manual Volume I – Hydrology. The values are provided in the table below:

Overland Surface	**Manning value (*n*)**
Smooth asphalt pavement	0.010
Smooth impervious surface	0.011
Tar and sand pavement	0.012
Concrete pavement	0.014
Rough impervious surface	0.015
Smooth bare packed soil	0.017
Moderate bare packed soil	0.025
Rough bare packed soil	0.032
Gravel soil	0.025
Mowed poor grass	0.030
Average grass, closely clipped sod	0.040
Pasture	0.040
Timberland	0.060
Dense grass	0.060
Shrubs and bushes	0.080
Land Use	
Business	0.014
Semibusiness	0.022
Industrial	0.020
Dense residential	0.025
Suburban residential	0.030
Parks and lawns	0.040

[1]Content summarized from *Improving Accuracy in Continuous Simulation Modeling: Guidance for Selecting Pervious Overland Flow Manning's n Values in the San Diego Region* (TRWE, 2016).

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Diego County Area, California

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Information for All Uses.....8
Soil Properties and Qualities.....8
Soil Qualities and Features.....8
Hydrologic Soil Group (2972/2982 South Santa Fe Avenue).....8
References.....13

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

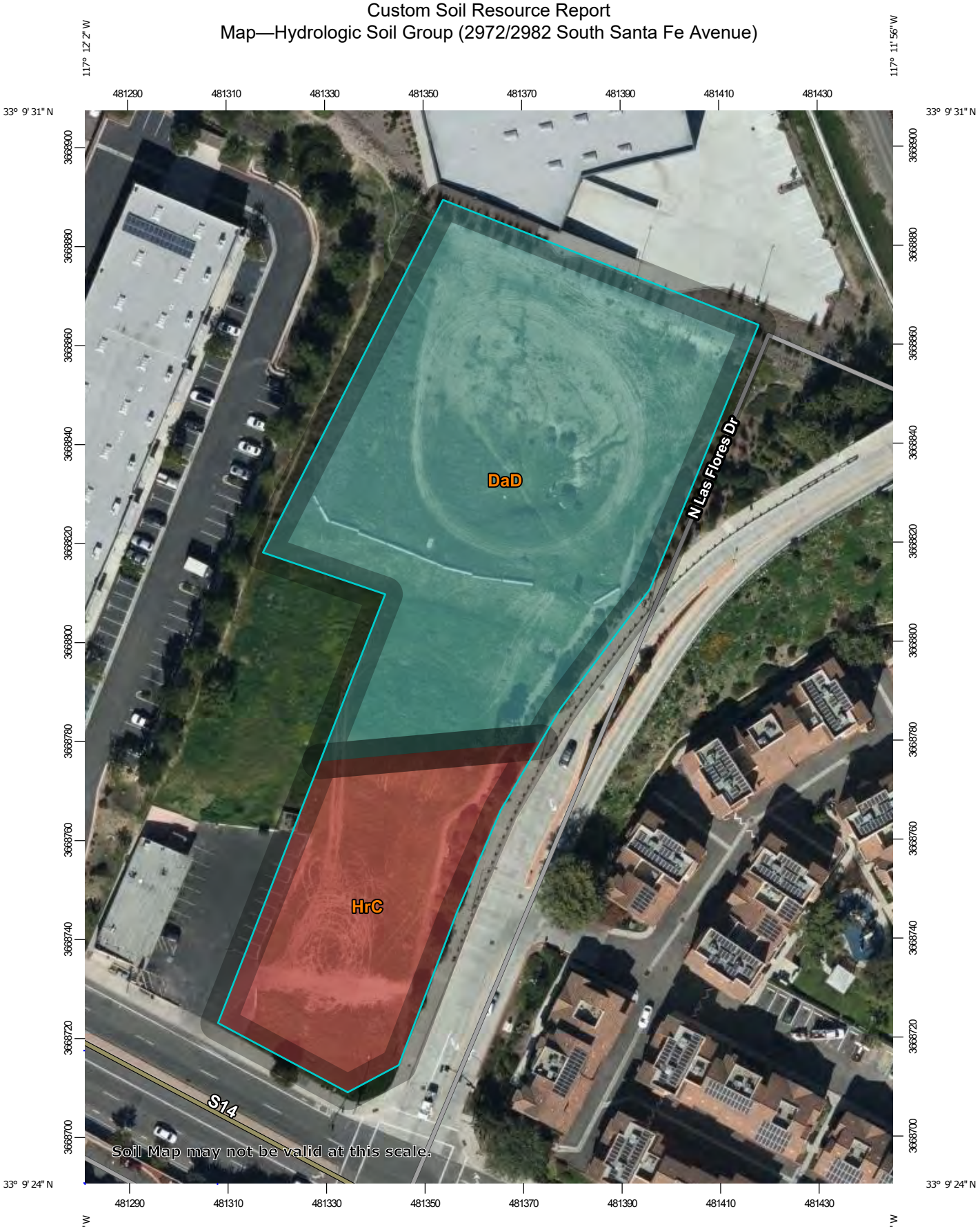
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Map—Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)



Map Scale: 1:1,060 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 15, May 27, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 24, 2020—Feb 12, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DaD	Diablo clay, 9 to 15 percent slopes, warm MAAT	C	1.7	72.6%
HrC	Huerhuero loam, 2 to 9 percent slopes	D	0.6	27.4%
Totals for Area of Interest			**2.3**	**100.0%**

Rating Options—Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

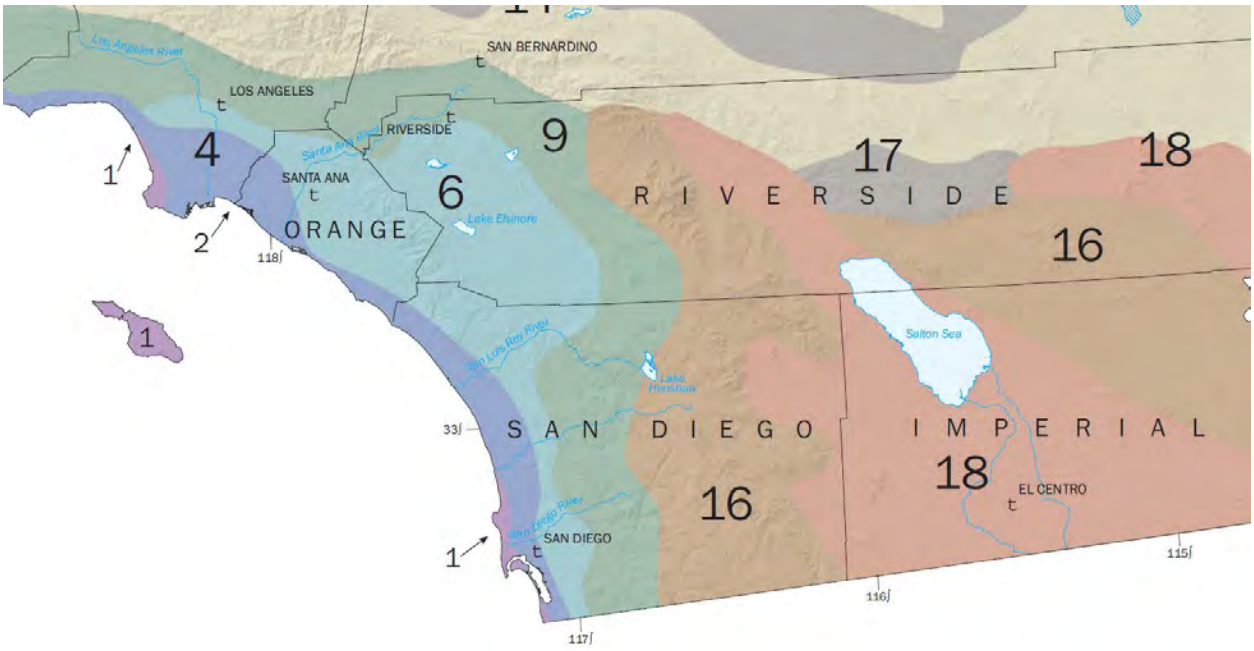


Figure G.1-2: California Irrigation Management Information System "Reference Evapotranspiration Zones"

Table G.1-1: Monthly Average Reference Evapotranspiration by ETo Zone (inches/month and inches/day) for use in SWMM Models for Hydromodification Management Studies in San Diego County CIMIS Zones 1, 4, 6, 9, and 16 (See CIMIS ETo Zone Map)

	January	February	March	April	May	June	July	August	September	October	November	December
Zone	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month
1	0.93	1.4	2.48	3.3	4.03	4.5	4.65	4.03	3.3	2.48	1.2	0.62
4	1.86	2.24	3.41	4.5	5.27	5.7	5.89	5.58	4.5	3.41	2.4	1.86
6	1.86	2.24	3.41	4.8	5.58	6.3	6.51	6.2	4.8	3.72	2.4	1.86
9	2.17	2.8	4.03	5.1	5.89	6.6	7.44	6.82	5.7	4.03	2.7	1.86
16	1.55	2.52	4.03	5.7	7.75	8.7	9.3	8.37	6.3	4.34	2.4	1.55
	January	February	March	April	May	June	July	August	September	October	November	December
Days	31	28	31	30	31	30	31	31	30	31	30	31
Zone	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day
1	0.030	0.050	0.080	0.110	0.130	0.150	0.150	0.130	0.110	0.080	0.040	0.020
4	0.060	0.080	0.110	0.150	0.170	0.190	0.190	0.180	0.150	0.110	0.080	0.060
6	0.060	0.080	0.110	0.160	0.180	0.210	0.210	0.200	0.160	0.120	0.080	0.060
9	0.070	0.100	0.130	0.170	0.190	0.220	0.240	0.220	0.190	0.130	0.090	0.060
16	0.050	0.090	0.130	0.190	0.250	0.290	0.300	0.270	0.210	0.140	0.080	0.050

ATTACHMENT 3 STRUCTURAL BMP MAINTENANCE INFORMATION

This is the cover sheet for Attachment 3.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 3a	Structural BMP Maintenance Thresholds and Actions (Required)	☑ Included See Structural BMP Maintenance Information Checklist on the back of this Attachment cover sheet.
Attachment 3b	Draft Maintenance Agreement (when applicable)	☐ Included ☐ Not Applicable

Use this checklist to ensure the required information has been included in the Structural BMP Maintenance Information Attachment:

☑ **Preliminary Design / Planning / CEQA level submittal:**

Attachment 3a must identify:

- ☐ Typical maintenance indicators and actions for proposed structural BMP(s) based on Section 7.7 of the BMP Design Manual

Attachment 3b is not required for preliminary design / planning / CEQA level submittal.

☐ **Final Design level submittal:**

Attachment 3a must identify:

- ☐ Specific maintenance indicators and actions for proposed structural BMP(s). This shall be based on Section 7.7 of the BMP Design Manual and enhanced to reflect actual proposed components of the structural BMP(s)
- ☐ How to access the structural BMP(s) to inspect and perform maintenance
- ☐ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
- ☐ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
- ☐ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
- ☐ Recommended equipment to perform maintenance
- ☐ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management

Attachment 3b: For private entity operation and maintenance, Attachment 3b shall include a draft maintenance agreement in the local jurisdiction's standard format (PDP applicant to contact the [City Engineer] to obtain the current maintenance agreement forms).

R-TANK MAINTENANCE

Designing an underground stormwater detention system with future maintenance in mind is a simple process that includes three primary objectives: **PREVENT** debris from entering the system by using good pre-treatment systems, **ISOLATE** debris and sediments that manage to enter the system, and **PROTECT** the body of the system by providing backflush mechanisms to ensure longevity.

1. PREVENT

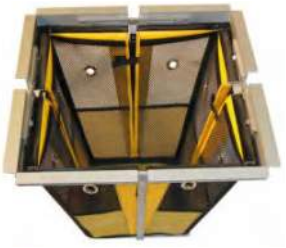
Keeping debris and sediment out of the system by pre-treating runoff is one of the smartest things an engineer can do when designing underground detention systems. It makes no sense to allow trash and sediments to flow unrestricted into an underground system where removal will be expensive. Instead, capture pollutants simply and inexpensively in the inlets, where removal is easy. There are several ways this can be accomplished with minimal cost impacts to your project.

Trash Guard Plus®

Trash Guard Plus®

Trash Guard Plus is a patented stormwater pretreatment device that traps debris, sediment and floatables in the inlet. It helps extend maintenance cycles by using the full volume of the inlet structure for sediment capacity. And it is easy to maintain by accessing pollutants through the manhole lid.

Trash Guard Plus works by both screening debris out of the runoff and by slowing the flow of runoff, causing sediments to fall to the bottom of the inlet. Testing at NC State has shown the Trash Guard to be effective at removing trash, sediment, nutrients, and metals.



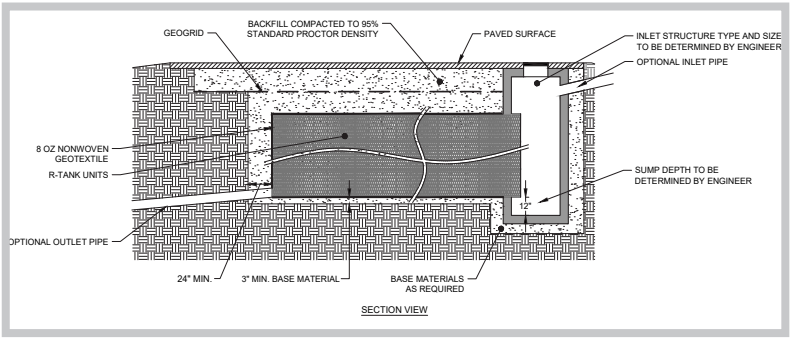
Gratemaster

Gratemaster

To treat a single inlet that serves as a junction for a larger drainage area, consider an insert like the Gratemaster. Ideal for capturing sediment and trash, it makes clean-up a snap by holding all the pollutants right near the surface for easy extraction.

R-Tank Screening

For a more centralized approach, some engineers prefer to create an opening in the inlet structures to allow the R-Tank modules to penetrate the structure to act as a trash screen. This works best with a structure that includes a sump (see drawing below).



R-TANK MAINTENANCE

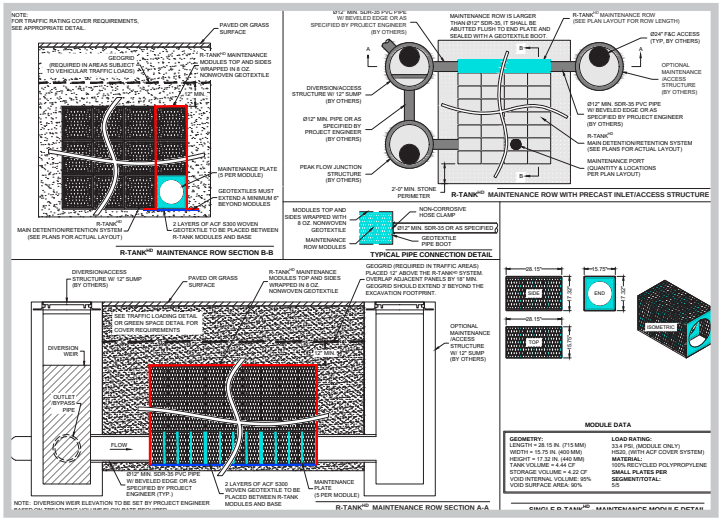
2. ISOLATE

Some pollutants may elude the pre-treatment systems. Trap these materials inside the maintenance row (see drawing to right). Consolidating sediments in a single location makes them easy to remove. Maintenance rows are formed by using maintenance modules, which have open internal components that are fully accessible by conventional jet-vac systems. These modules are set in a row (or multiple rows) to your desired length. Longer maintenance rows should include an access structure on both ends. Extremely long rows may require access from the middle of the row, as well.

The maintenance row is always wrapped in geotextile independently from the rest of the system. The geotextile retains trash, sediments, and other solids, preventing contamination of the rest of the system.

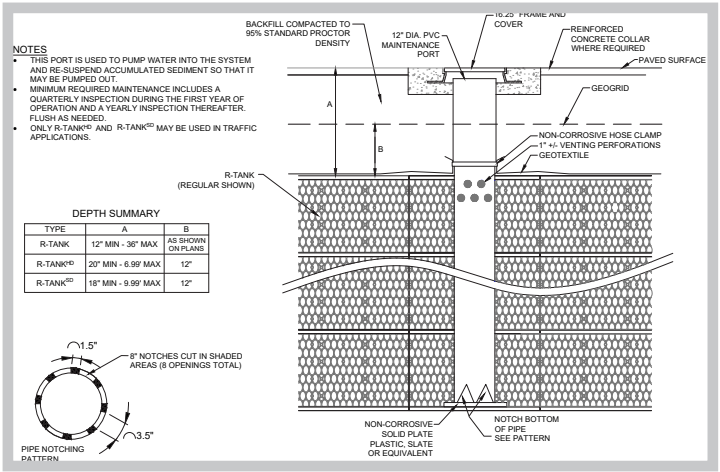
The maintenance row should be sized to treat the first flush (usually 1") of runoff. Use a bypass structure to divert that flow into the maintenance row, and allow larger flows to continue to a downstream inlet where they can enter the R-Tank outside of the maintenance row.

The maintenance row is only available in LD, HD, and UD modules. For SD and XD modules, consider creating a forebay around the inlet locations to collect sediment. This is done by using a taller module installed at a lower invert. Geotextile baffles between the forebay and the rest of the system can help retain sediments. Concentrate Maintenance Ports (see PROTECT below) in the forebay to ensure access to sediment for removal.



3. PROTECT

Every good system has a fall-back plan. You can ensure a long system life by including maintenance ports throughout the system footprint to remove any pollutants that evade the pretreatment system and maintenance row. Maintenance ports should be specified within 10' of inlet and outlet connections, and roughly 50' on center (see maintenance port detail to right).



Maintenance Procedures

Maintaining the StormGarden system is necessary to continue the effective pollutant removal from stormwater runoff prior to discharge into the stormdarin system. Ongoing maintenance will also extend the life of the filter media and the StormGarden system. As the StormGarden filters stormwater runoff, pollutants accumulate within the filter media and floating debris such as silt, trash and leaves accumulate on top of the media underneath the concrete slab. When an excessive amount of silt and trash build up on top of the media, the flow-through rate of the media is reduced, thus decreasing the capacity of the system. Regular replacement of the top mulch layer helps stop the accumulation of such sediment and debris and maintaining the overall performance of the system.

The manufacturer or manufacturer's representative includes a 1-year maintenance plan with each StormGarden purchase. The included maintenance plan consists of a maximum of 2 scheduled visits. If additional visits are required due to excessive sediment and trash loading, they can be performed by the manufacturer/representative for an additional charge. The start of the maintenance plan begins when the system is activated for full operation. Full operation is defined as the unit installed, curb and gutter and transitions in place, and the unit activated by installation contractor, which includes the mulch and plant installed and the temporary throat protection removed.

Activation cannot occur until the site is fully stabilized, which means full landscaping, grass cover, final paving and sweeping is complete. Maintenance visits are scheduled seasonally. The spring visit cleans up after winter loads which include salts and sands, and the fall visit is to remove excessive leaves and debris.

It is the responsibility of the owner to provide adequate irrigation when necessary to the plant of the StormGarden system. Cleanup due to major contamination such as oils, chemicals, toxic spills, etc. will result in additional costs and are not covered under the 1-year maintenance plan provided by manufacturer/representative. Should a major contamination event occur, the owner must block off the outlet pipe to the StormGarden unit (where the cleaned runoff drains to from the StormGarden, such as the bypass inlet) and block off the throat of the StormGarden. All appropriate regulatory parties as well as the manufacturer/representative should be informed immediately.

Each maintenance visit consists of the following tasks:

- Visual inspection of StormGarden unit and surrounding area
- Removal of tree grate and erosion control stones
- Removal of sediment, trash, debris and mulch
- Mulch replacement
- Clean and replace erosion control stones
- Evaluation of plant and pruning or replacement if necessary
- Clean area around StormGarden unit
- Maintenance report

StormGarden Maintenance Checklist

System Component	Problem	Conditions to Check	Condition that Should Exist	Actions
Inlet/Forebay Area	Excessive sediment or trash accumulation.	Accumulated sediments or trash impair free flow of water into StormGarden.	Inlet should be free of obstructions allowing free distributed flow of water into StormGarden.	Sediment and/or trash should be removed.
Mulch Cover	Trash and floatable debris accumulation.	Excessive trash and/or debris accumulation.	Minimal trash or other debrison mulch cover.	Trash and debris should be removed, and mulch cover rakedlevel.
Mulch/Media	"Ponding" of water	"Ponding" could indicate clogging due to excessive fine sediment loading or spill of petroleum oils.	Stormwater should drain freely and evenly through system	Replace mulch and/or media as necessary.
Underdrain	Not draining/ponding of water above	"Ponding" could indicate the drain rock or perforated piping is clogged.	Stormwater should drain freely and evenly through system	Flush the underdrain piping using the cleanout provided. Worse case scenario is you replace all internal components if terminally failed.
Vegetation	Plants not growing or in poor condition.	Soil/mulch too wet, evidence ofspill. Incorrect plant selection. Pest infestation. Vandalism to plants.	Plants should be healthy and pest free.	Replant with plants suitable to for system. Contact qualified landscape professional or arborist.
Vegetation	Plant growth excessive.	Plants should be appropriate to the region/climate of the site.	Plants should not be overgrown or be excessive for the system.	Trim/prune plants in accordance with typical landscaping and safety needs.
Structure	Structure has visible cracks.	Cracks wider than 1/2 inch		Vault should be repaired.
Maintenance frequency will depend on site specific characteristics and will generally need to occur 1-2 times per year				

StormGarden Inspection & Maintenance Log

StormGarden System Size/Model:_____Location: _____

Date	Mulch & Debris Removed	Depth of Mulch Added	Mulch Brand	Height of Vegetation Above Grate	Vegetation Species	Issues with System	Comments

StormGarden Activation Checklist

Project Name:_____ Company:_____

Site Contact Name:_____ Site Contact Phone/Email:_____

Site Owner/End User Name:_____ Site Owner/End User Phone/Email:_____

Site Designation	System Size	Final Pavement /Top Coat Complete	Landscaping Complete/ Soil Stabilized	Construction materials / Piles / Debris Removed	Throat Opening Measures According to Plan	Plant Species Requested
		☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	
		☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	
		☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	
		☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	
		☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	
		☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	
		☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	
		☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	
		☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	

ATTACHMENT 4 COPY OF PLAN SHEETS WITH PERMANENT STORM WATER BMPS

This is the cover sheet for Attachment 4.

Use this checklist to ensure the required information has been included on the plans:

The plans must identify:

- ☐ Structural BMP(s) with ID numbers matching Form I-6 Summary of PDP Structural BMPs
- ☐ The grading and drainage design shown on the plans must be consistent with the delineation of DMAs shown on the DMA exhibit
- ☐ Details and specifications for construction of structural BMP(s)
- ☐ Signage indicating the location and boundary of structural BMP(s) as required by the [City Engineer]
- ☐ How to access the structural BMP(s) to inspect and perform maintenance
- ☐ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
- ☐ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
- ☐ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
- ☐ Recommended equipment to perform maintenance
- ☐ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management
- ☐ Include landscaping plan sheets showing vegetation requirements for vegetated structural BMP(s)
- ☐ All BMPs must be fully dimensioned on the plans
- ☐ When proprietary BMPs are used, site-specific cross section with outflow, inflow, and model number shall be provided. Photocopies of general brochures are not acceptable.

GPA21-0008 | MFSDP21-0002 | R21-0004

PRELIMINARY GRADING FOR SAN MARCOS RESIDENCES

2972 & 2982 S. SANTA FE AVENUE

LEGEND

- PROPERTY BOUNDARY
- CENTERLINE OF ROAD
- ADJACENT PROPERTY LINE / RIGHT-OF-WAY
- EXISTING CONTOUR LINE — 64
- EXISTING SPOT ELEVATION — (XXX.XX) FG
- PROPOSED SPOT ELEVATION — XXX.XX FS
- PROPOSED CURB & GUTTER
- PROPOSED RIBBON GUTTER
- PROPOSED RETAINING WALL
- PROPOSED GRADING DAYLIGHT
- PROPOSED STORM DRAIN — SD
- PROPOSED DOMESTIC WATER — W
- PROPOSED FIRE WATER — F
- PROPOSED SEWER — S
- PROPOSED UNDERGROUND STORM DRAIN DETENTION SYSTEM
- PROPOSED FIRE HYDRANT
- PROPOSED RIP RAP
- EXISTING WATER MAIN — W
- EXISTING SEWER MAIN — S
- EXISTING STORM DRAIN — SD
- EXISTING GAS MAIN — G
- EXISTING TELECOM CONDUIT — T

AERIAL TOPOGRAPHY

AERIAL TOPOGRAPHY SUPPLIED BY: HOOPER LAND COMPANY
1642 MOON ROCK ROAD
FALLBROOK, CA 92028
760-723-2891
SURVEY COMPLETED: JUNE 2020

ASSESSOR'S PARCEL NUMBER

217-161-18-00, 217-161-19-00

RAW EARTHWORK QUANTITIES

CUT:	17,500 CY
FILL:	250 CY
NET(EXPORT):	17,250 CY

THE ABOVE RAW EARTHWORK QUANTITIES ARE ESTIMATES ONLY. CONTRACTOR SHALL NOT RELY UPON QUANTITIES FOR BID PURPOSES. CONTRACTOR TO VERIFY EARTHWORK QUANTITIES TO THEIR SATISFACTION PRIOR TO START OF WORK.

NOTE: QUANTITIES DO NOT INCLUDE ANY EARTHWORK FOR REMEDIAL PURPOSES. EARTHWORK ESTIMATES ARE BASED ON IN PLACE VOLUMES AN DO NOT ACCOUNT FOR ANY SHRINKAGE OR SWELL OF THE SOIL THAT MAY OCCUR DURING GRADING.

PROPOSED EASEMENT INFORMATION

1 PROPOSED LANDSCAPE MAINTENANCE EASEMENT FOR OPEN SPACE SLOPE TO THE CITY OF SAN MARCOS.

EXISTING EASEMENT INFORMATION

2 EASEMENT GRANTED TO THE COUNTY OF SAN DIEGO FOR PUBLIC HIGHWAY PURPOSES, RECORDED JUNE 11, 1913 IN BOOK 500, PAGE 135, OFFICIAL RECORDS. NOT PLOTTABLE.

3 EASEMENT GRANTED TO VISTA IRRIGATION DISTRICT FOR PIPELINE AND OTHER DISTRICT WORKS, RECORDED OCTOBER 24, 1925, IN BOOK 1136, PAGE 238, OFFICIAL RECORDS. NOT PLOTTABLE.

4 EASEMENT GRANTED TO SAN DIEGO GAS AND ELECTRIC COMPANY FOR PUBLIC UTILITIES, INGRESS AND EGRESS, RECORDED JUNE 19, 1973 AS DOC. NO. 73-167727, OFFICIAL RECORDS TO BE QUITCLAIMED.

5 EASEMENT GRANTED TO THE COUNTY OF SAN DIEGO FOR UTILITY PURPOSES, RECORDED OCTOBER 25, 1979 AS DOC. NO. 79-448104, OFFICIAL RECORDS TO BE QUITCLAIMED. VACATION OF COUNTY HIGHWAY.

6 EASEMENT GRANTED TO THE COUNTY OF SAN DIEGO FOR UTILITY PURPOSES, RECORDED JUNE 24, 1987 AS DOC. NO. 87-353275 TO BE QUITCLAIMED. VACATION OF COUNTY HIGHWAY.

7 EASEMENT GRANTED TO THE CITY OF SAN MARCOS FOR PUBLIC STREET AND UTILITY PURPOSES, RECORDED OCTOBER 13, 2005 AS DOC. NO. 2005-0887133.

8 EASEMENT GRANTED TO THE CITY OF SAN MARCOS FOR OPEN SPACE SLOPE LANDSCAPE MAINTENANCE AND ACCESS PURPOSES, RECORDED OCTOBER 13, 2005 AS DOC. NO. 2005-0887134, OFFICIAL RECORDS.

9 EASEMENT GRANTED TO VISTA IRRIGATION DISTRICT FOR UTILITY PURPOSES, RECORDED NOVEMBER 17, 2005 AS DOC. NO. 2005-0996226, OFFICIAL RECORDS.

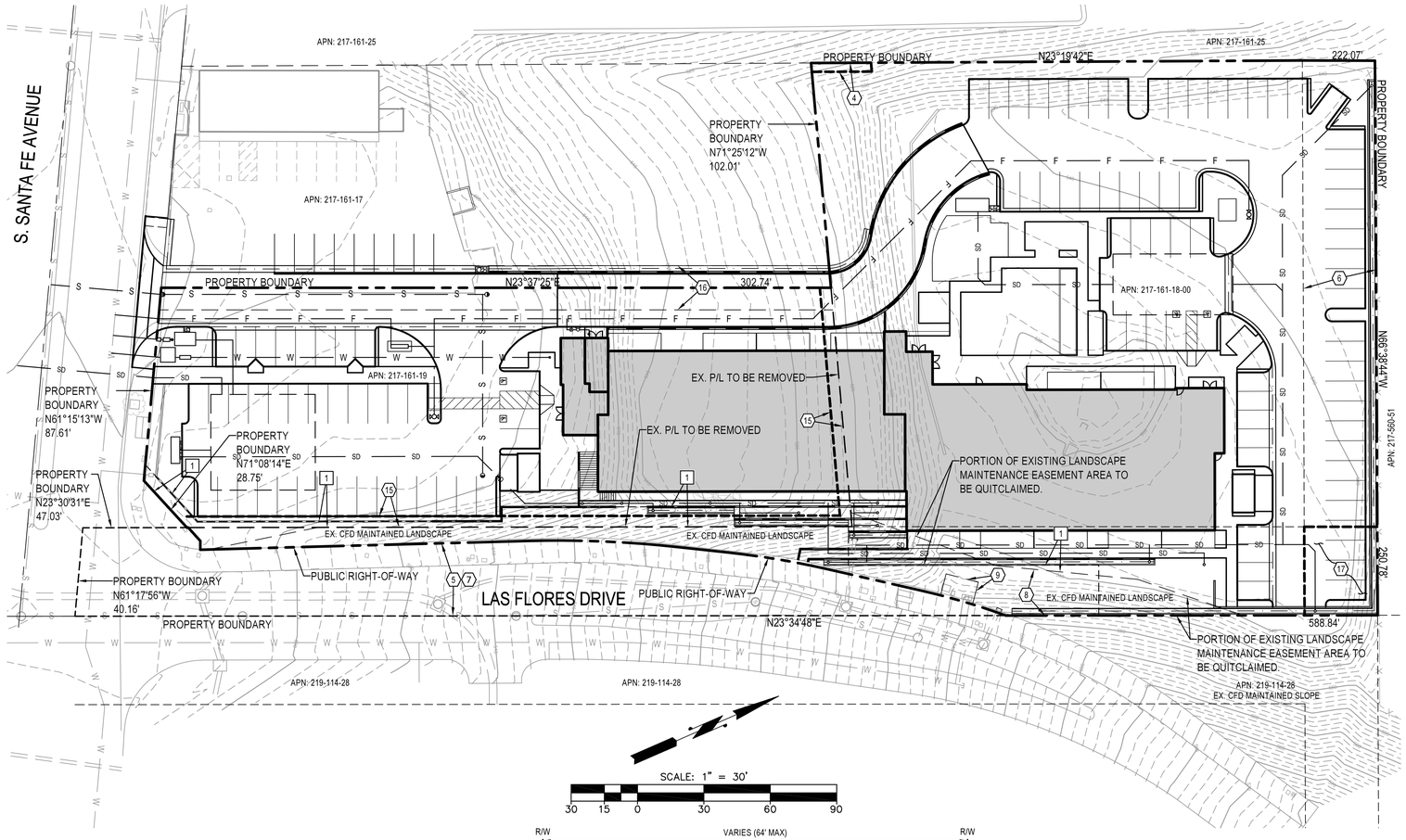
13 EASEMENT GRANTED TO COUNTY OF SAN DIEGO FOR PUBLIC STREET PURPOSES, RECORDED JUNE 11, 1913 IN BOOK 500, PAGE 135 OF DEEDS. NOT PLOTTABLE.

14 EASEMENT GRANTED TO VISTA IRRIGATION DISTRICT FOR PIPELINES, INGRESS AND EGRESS, AND ALL NECESSARY APPURTENANCES, RECORDED OCTOBER 24, 1925 IN BOOK 1136, PAGE 238 OF DEEDS. NOT PLOTTABLE.

15 EASEMENT GRANTED TO BARENY COLEMAN AND JEAN S. COLEMAN FOR PUBLIC UTILITIES, INGRESS AND EGRESS RECORDED OCTOBER 27, 1959 IN BOOK 7959, PAGE 126, OFFICIAL RECORDS TO BE QUITCLAIMED.

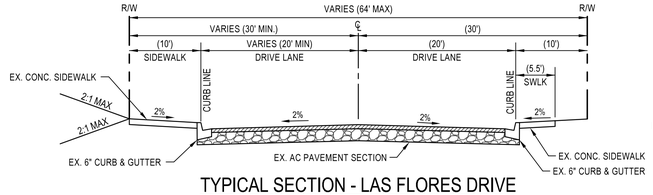
16 EASEMENT GRANTED TO FAIRMONT FOODS COMPANY FOR ROAD AND UTILITY PURPOSES, RECORDED JULY 5, 1973 AS DOC. NO. 73-184604, OFFICIAL RECORDS.

17 EASEMENT GRANTED TO COUNTY OF SAN DIEGO FOR UTILITIES, INGRESS AND EGRESS, RECORDED JUNE 24, 1987 AS DOC. NO. 87-353275, OFFICIAL RECORDS TO BE QUITCLAIMED. VACATION OF COUNTY HIGHWAY.



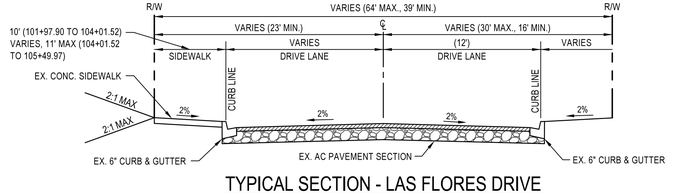
ABBREVIATIONS

AC	ASPHALT CONCRETE
ADA	AMERICAN WITH DISABILITIES ACT
BFD	BACKFLOW DEVICE
BLDG	BUILDING
BS	BOTTOM OF STAIRS
BW	BOTTOM OF WALL
CB	CATCH BASIN
CF	CURB FACE
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COMM	COMMUNICATIONS
CONC	CONCRETE
DS	DOWNSPOUT
EG	EDGE OF GUTTER
ELEC	ELECTRICAL
EX	EXISTING
FF	FINISH FLOOR
FG	FINISHED GRADE
FL	FLOW LINE
FM	FORCE MAIN
FS	FINISHED SURFACE
GA	GUY ANCHOR
GB	GRADE BREAK
GFF	GARAGE FINISH FLOOR
GP	GUY POLE
GV	GAS VALVE
HP	HIGH POINT
HT	HEIGHT
INV	INVERT ELEVATION
MH	MANHOLE
MIN	MINIMUM
PA	PLANTER AREA
PBOX	PULL BOX
P/L	PROPERTY LINE
POC	POINT OF CONNECTION
POT	PATH OF TRAVEL
PP	POWER POLE
PROP	PROPOSED
PVC	POLYVINYL CHLORIDE
R/W	RIGHT-OF-WAY
SCO	SEWER CLEANOUT
SD	STORM DRAIN
SDCO	STORM DRAIN CLEANOUT
SDMH	STORM DRAIN MANHOLE
SL	STREET LIGHT
SMH	SEWER MANHOLE
TC	TOP OF CURB
TD	TOP OF DECK
TG	TOP OF GRATE
TS	TOP OF STAIRS
TW	TOP OF WALL
TYP	TYPICAL
WAR	WATER AIR RELEASE
WM	WATER METER
WV	WATER VALVE



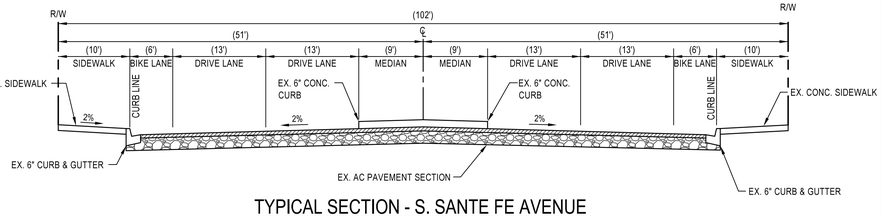
TYPICAL SECTION - LAS FLORES DRIVE

SCALE: NTS
UP TO STA. 101+97.90 (PER IP-4629)



TYPICAL SECTION - LAS FLORES DRIVE

SCALE: NTS
STA. 101+97.90 TO STA. 105+49.97 (PER IP-4629)



TYPICAL SECTION - S. SANTE FE AVENUE

SCALE: NTS

OWNER

WE HEREBY CERTIFY THAT WE ARE THE RECORD OWNERS OF THE PROPERTY SHOWN ON THESE PLANS AND THAT SAID PLANS SHOW OUR ENTIRE CONTIGUOUS OWNERSHIP (EXCLUDING SUBDIVISION LOTS). WE UNDERSTAND THAT PROPERTY IS CONSIDERED CONTIGUOUS EVEN IF IT IS SEPARATED BY ROADS, STREETS, UTILITY EASEMENTS OR RAILROADS RIGHTS-OF-WAY.

OWNER

SANTA FE FLORES LP
CONTACT: PAUL MAYER
P.O. BOX 903
RANCHO SANTA FE, CA 92067

ENGINEER OF WORK

WILLIAM J. SUITER RCE 68964

REGISTERED PROFESSIONAL ENGINEER — WILLIAM J. SUITER — No. RCE 68964 — EXP. 12-31-23 — Civil — STATE OF CALIFORNIA

LEGAL DESCRIPTION

PORTION OF LOT 4 IN BLOCK 95 OF RANCHO LOS VALLECITOS DE SAN MARCOS, IN THE CITY OF SAN MARCOS, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP NO. 806, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, DECEMBER 21, 1895.

GENERAL NOTES:

1. APN: 217-161-18-00, 217-161-19-00
2. GROSS ACREAGE: 2.50 AC
3. GROSS ACREAGE WITHOUT LAS FLORES ROW: 2.23 AC
4. NET ACREAGE : 2.23 AC
5. NUMBER OF DWELLING UNITS: 50
6. EXISTING ZONING: COMMERCIAL (C) AND LIGHT INDUSTRIAL (LI)
   PROPOSED ZONING: RESIDENTIAL-3-10 (R-3-10)
7. EXISTING GENERAL PLAN: COMMERCIAL (C) AND LIGHT INDUSTRIAL (LI)
   PROPOSED GENERAL PLAN: MEDIUM HIGH DENSITY RESIDENTIAL (MHDR)
8. FINISH GRADES SHOWN HEREON ARE APPROXIMATE AND ARE SUBJECT TO CHANGE IN FINAL DESIGN.
9. PROPOSED DENSITY: 22.42 DU/AC
10. CUT AND FILL SLOPES NO STEEPER THAN 2:1
11. PUBLIC SERVICES AND DISTRICTS:
    GAS & ELECTRIC: SAN DIEGO GAS AND ELECTRIC
    TELEPHONE: AT&T
    WATER: VISTA IRRIGATION DISTRICT
    SEWER: BUENA SANITATION DISTRICT/ CITY OF VISTA
    FIRE DISTRICT: CITY OF SAN MARCOS
    SCHOOL DISTRICT: SAN MARCOS UNIFIED SCHOOL DISTRICT
12. PROPOSED SETBACKS: FRONT YARD = MINIMUM 15'
    SIDE YARD = MINIMUM 15'
    REAR YARD= MINIMUM 10'
13. SEE STORM WATER QUALITY MANAGMENT PLAN PREPARED BY: PASCO LARET SUITER & ASSOCIATES (DATED: APRIL 2022)
14. SEE PRELIMINARY DRAINAGE STUDY PREPARED BY: PASCO LARET SUITER & ASSOCIATES (DATED: APRIL 2022)
15. SEE PRELIMINARY GEOTECHNICAL EVALUATION PREPARED BY: GHOSTRIDER , INC. DATED: JULY 1, 2020 W.O. (PROJECT NO. 19-2118C)

PROJECT DESCRIPTION

A GENERAL PLAN AMENDMENT, REZONE AND LOT CONSOLIDATION PROPOSING A 50-UNIT MULTIFAMILY DEVELOPMENT WITH PARKING LOTS, ACCESS DRIVE, OUTDOOR GARDEN AREA, MISCELLANEOUS HARDSCAPE AND LANDSCAPING.

PASCO LARET SUITER & ASSOCIATES
San Diego | Encinitas | Orange County
Phone 949.661.6695 | www.plsaengineering.com

SAN MARCOS RESIDENCES

TITLE SHEET

PLSA JOB NO.3527
4-28-2022
SHEET 1 OF 3

SAVE DATE: 04/26/22 ~ PLOT DATE: 04/28/22 ~ FILE NAME: J:\ACTIVE JOBS\3527 WATER-SOUTH SANTA FE AVE\CIVIL\DRAWING\DISCRETIONARY PLANS\3527-PRLM-GRAD-01-TITL.dwg

SAVE DATE: 04/26/22 ~ PLOT DATE: 04/26/22 ~ FILE NAME: J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\DRAWING\DISCRETIONARY PLANS\3527-PRLM-GRAD-02-03.dwg

EX. SDMH
EX. 18" RCP SD PER COSM IP-4589
(51')
(102')
EX. SMH
(51')
EX. CURB INLET
APN: 217-161-25
EXISTING COMMERCIAL BUILDING
S. SANTA FE AVENUE
EX. 60" RCP SD PER COSM IP-4589
EX. 6" PVC S PER COV DWG. NO. 3804
EX. 10" PVC W PER D-2140
EX. NCTD BUS STOP
EX. AC PARKING LOT
APN: 217-161-17
REGRADE EX. SLOPE TO CONSTRUCT LEVEL TRASH ENCLOSURE
MATCH EX. GRADE
PROP. RIP-RAP DISSIPATOR
PROP. CONCRETE RETAINING J DITCH
EX. TRASH ENCLOSURE TO BE RELOCATED
EX. PARKING STALLS TO BE RELOCATED
EX. ACCESS ESMT PER DOC NO. 73-184604 (DATED JULY 5, 1973)
PROP. RECIPROCAL DRAINAGE ESMT
PROP. CONCRETE BROW DITCH
PROP. CONC. PAVEMENT
PROPERTY BOUNDARY
N23°37'25"E
302.74'
PROPERTY BOUNDARY
N71°25'17"W
120.21'
N23°19'42"E
222.07'
PROPERTY BOUNDARY
N66°39'44"W
250.78'
PROP. CONCRETE RETAINING J DITCH
PROP. CONC. PAVEMENT
PROP AC PAVEMENT
PROP. 3' WIDE RIBBON GUTTER
PROP. CURB OUTLET PER SDRSD D-25A
PROP. DRIVEWAY PER CITY OF SAN MARCOS RADIUS TYPE DRIVEWAY
PROP. CONNECTION TO EX. 8" PVC S
PROP. IRRG. WATER METER & BACKFLOW
PROP. CONNECTION TO EX. 10" W
PROP. DOM. WATER METER & BACKFLOW
PROP. SDCO (TYPE A) PER SDRSD D-09
PROP. FIRE SERVICE BACKFLOW
PROP. CONNECTION TO EX. 10" W
PROPERTY BOUNDARY
N61°15'13"W
87.61'
EX. ELEC. VAULT
PROP. STORMGARDEN BIOFILTRATION SYSTEM FG=494.07
PROP. CURB OPENING & RIP RAP DISSIPATOR
PROP. CURB OPENING & RIP-RAP DISSIPATOR
PROP. STORMGARDEN BIOFILTRATION SYSTEM, FG=493.70
PROP. 8" S
PROP. 8" FS
PROP. BLDG FS POC
PROP. BLDG DOM. W POC
PROP. UNDERGROUND DETENTION SYSTEM
PROP. FH
PROP. STORMGARDEN BIOFILTRATION SYSTEM FG=529.64
PROP. CARPORT CANOPY (TYP.)
PROP. TRANSFORMER
PROP. FH
PROP. CURB OPENING & RIP-RAP DISSIPATOR
PROP. UNDERGROUND DETENTION SYSTEM
PROP. AC PAVEMENT
TOP OF TANK=527.49
526.49 INV SD INLET
BOT OF TANK=521.91
TOP OF TANK=527.49
521.91 INV SD OUTLET
BOT OF TANK=521.91
TOP OF TANK=492.04
488.50 IE SD OUTLET
BOT OF TANK=488.50
TOP OF TANK=492.04
491.04 INV SD INLET
BOT OF TANK=488.50
PRKG LEVEL
FF=500.00
P=499.33
LOWER LEVEL BUILDING
LOWER 3RD FLOOR FF=533.00
LOWER 2ND FLOOR FF=523.00
LOWER 1ST FLOOR FF=513.00
LOWER 1ST FLOOR PAD=512.33
UPPER LEVEL BUILDING
UPPER 3RD FLOOR FF=553.00
UPPER 2ND FLOOR FF=543.00
UPPER 1ST FLOOR FF=533.00
UPPER 1ST FLOOR PAD=532.33
PATIO
VISITOR
MAIL
COMPACT
PROP. PRIVATE STORM DRAIN
PROP. TRASH ENCLOSURE
PROP. STAIRS
PROP. SCREEN WALL
PROP. RIGHT-OF-WAY
REMOVE AND DISPOSE OF EX. ON-SITE 18" RCP SD AND CAP HERE.
EX. VID EASEMENT FOR WATER FACILITIES TO REMAIN
REMOVE AND DISPOSE OF EX. ON-SITE 18" RCP SD AND CAP AT PROPERTY LINE
PROP. TRASH ENCLOSURE
PROP. AC PAVEMENT
PROP. CONCRETE RETAINING J DITCH
PROP. DRAINAGE EASEMENT TO THE BENEFIT OF APN 219-114-28
PROTECT IN PLACE EX. IRRIGATION WATER SERVICE
EX. RIGHT-OF-WAY
EX. 42" RCP SD PER COSM GP-2280
EX. 24" RCP PER COSM GP-2280
EX. CURB INLET
EX. 24" RCP SD PER COSM IP-4589
EX. 8" PVC S PER COV D-3804
EX. 8" W PER D-2140
EX. 10" PVC W PER D-2140
EX. 42" RCP SD PER COSM IP-4589
EX. 18" RCP SD
EX. 6" PVC W PER D-2140
ABANDON EX. WM & LATERAL
PROPERTY BOUNDARY
N23°30'31"E
47.03'
PROPERTY BOUNDARY
N61°17'56"W
40.16'
PROPERTY BOUNDARY
LAS FLORES DRIVE
EX. VEHICULAR GUARDRAIL
EX. 18" RCP SD PER COSM GP-2280
EX. 8" PVC S PER COV D-3810
EX. 10" PVC W PER I-3007
EX. RAISED MEDIAN
EX. 10" W
EX. 8" S
EX. 18" RCP SD PER COSM GP-2280
EX. RIGHT-OF-WAY
APN: 219-114-28
APN: 217-560-51
VARIES PER DOC 2005-0887132 & 2005-0887133
PROP. CONNECTION TO EX. 18" SD
EX. 18" RCP SD
ABANDON EX. WM & LATERAL
EX. 18" RCP SD
PROP. CONCRETE RETAINING J DITCH
PROP. DRAINAGE EASEMENT TO THE BENEFIT OF APN 219-114-28
EX. FENCING
PROP. CONCRETE RETAINING J DITCH
EX. FH
EX. SDMH
EX. SMH
EX. G.B.
EX. FG
EX. FS
EX. TC
EX. TW
EX. BW
EX. IE
EX. FL
EX. EG
PROP. TC
PROP. FS
PROP. TW
PROP. BW
PROP. IE
PROP. FL
PROP. EG
PROP. FF
PROP. G.B.
PROP. H.P.
PROP. INV
PROP. DOM. W
PROP. IRRG. W
PROP. SDCO
PROP. FH
PROP. SD
PROP. S
PROP. W
PROP. BS
PROP. TS
PROP. FG
PROP. HT
PROP. INV SD
PROP. SD OUTLET
PROP. SD INLET
PROP. BOT OF TANK
PROP. TOP OF TANK
PROP. 3' WIDE RIBBON GUTTER
PROP. CURB OUTLET PER SDRSD D-25A
PROP. DRIVEWAY PER CITY OF SAN MARCOS RADIUS TYPE DRIVEWAY
PROP. CONNECTION TO EX. 8" PVC S
PROP. IRRG. WATER METER & BACKFLOW
PROP. CONNECTION TO EX. 10" W
PROP. DOM. WATER METER & BACKFLOW
PROP. SDCO (TYPE A) PER SDRSD D-09
PROP. FIRE SERVICE BACKFLOW
PROP. CONNECTION TO EX. 10" W
PROP. STORMGARDEN BIOFILTRATION SYSTEM FG=494.07
PROP. CURB OPENING & RIP RAP DISSIPATOR
PROP. CURB OPENING & RIP-RAP DISSIPATOR
PROP. STORMGARDEN BIOFILTRATION SYSTEM, FG=493.70
PROP. 8" S
PROP. 8" FS
PROP. BLDG FS POC
PROP. BLDG DOM. W POC
PROP. UNDERGROUND DETENTION SYSTEM
PROP. FH
PROP. STORMGARDEN BIOFILTRATION SYSTEM FG=529.64
PROP. CARPORT CANOPY (TYP.)
PROP. TRANSFORMER
PROP. FH
PROP. CURB OPENING & RIP-RAP DISSIPATOR
PROP. UNDERGROUND DETENTION SYSTEM
PROP. AC PAVEMENT
TOP OF TANK=527.49
526.49 INV SD INLET
BOT OF TANK=521.91
TOP OF TANK=527.49
521.91 INV SD OUTLET
BOT OF TANK=521.91
TOP OF TANK=492.04
488.50 IE SD OUTLET
BOT OF TANK=488.50
TOP OF TANK=492.04
491.04 INV SD INLET
BOT OF TANK=488.50
PRKG LEVEL
FF=500.00
P=499.33
LOWER LEVEL BUILDING
LOWER 3RD FLOOR FF=533.00
LOWER 2ND FLOOR FF=523.00
LOWER 1ST FLOOR FF=513.00
LOWER 1ST FLOOR PAD=512.33
UPPER LEVEL BUILDING
UPPER 3RD FLOOR FF=553.00
UPPER 2ND FLOOR FF=543.00
UPPER 1ST FLOOR FF=533.00
UPPER 1ST FLOOR PAD=532.33
PATIO
VISITOR
MAIL
COMPACT
PROP. PRIVATE STORM DRAIN
PROP. TRASH ENCLOSURE
PROP. STAIRS
PROP. SCREEN WALL
PROP. RIGHT-OF-WAY
REMOVE AND DISPOSE OF EX. ON-SITE 18" RCP SD AND CAP HERE.
EX. VID EASEMENT FOR WATER FACILITIES TO REMAIN
REMOVE AND DISPOSE OF EX. ON-SITE 18" RCP SD AND CAP AT PROPERTY LINE
PROP. TRASH ENCLOSURE
PROP. AC PAVEMENT
PROP. CONCRETE RETAINING J DITCH
PROP. DRAINAGE EASEMENT TO THE BENEFIT OF APN 219-114-28
PROTECT IN PLACE EX. IRRIGATION WATER SERVICE
EX. RIGHT-OF-WAY
EX. 42" RCP SD PER COSM GP-2280
EX. 24" RCP PER COSM GP-2280
EX. CURB INLET
EX. 24" RCP SD PER COSM IP-4589
EX. 8" PVC S PER COV D-3804
EX. 8" W PER D-2140
EX. 10" PVC W PER D-2140
EX. 42" RCP SD PER COSM IP-4589
EX. 18" RCP SD
EX. 6" PVC W PER D-2140
ABANDON EX. WM & LATERAL
PROPERTY BOUNDARY
N23°30'31"E
47.03'
PROPERTY BOUNDARY
N61°17'56"W
40.16'
PROPERTY BOUNDARY
LAS FLORES DRIVE
EX. VEHICULAR GUARDRAIL
EX. 18" RCP SD PER COSM GP-2280
EX. 8" PVC S PER COV D-3810
EX. 10" PVC W PER I-3007
EX. RAISED MEDIAN
EX. 10" W
EX. 8" S
EX. 18" RCP SD PER COSM GP-2280
EX. RIGHT-OF-WAY
APN: 219-114-28
APN: 217-560-51
VARIES PER DOC 2005-0887132 & 2005-0887133
PROP. CONNECTION TO EX. 18" SD
EX. 18" RCP SD
ABANDON EX. WM & LATERAL
EX. 18" RCP SD
PROP. CONCRETE RETAINING J DITCH
PROP. DRAINAGE EASEMENT TO THE BENEFIT OF APN 219-114-28
EX. FENCING
PROP. CONCRETE RETAINING J DITCH

SCALE: 1" = 20'
20 10 0 20 40 60

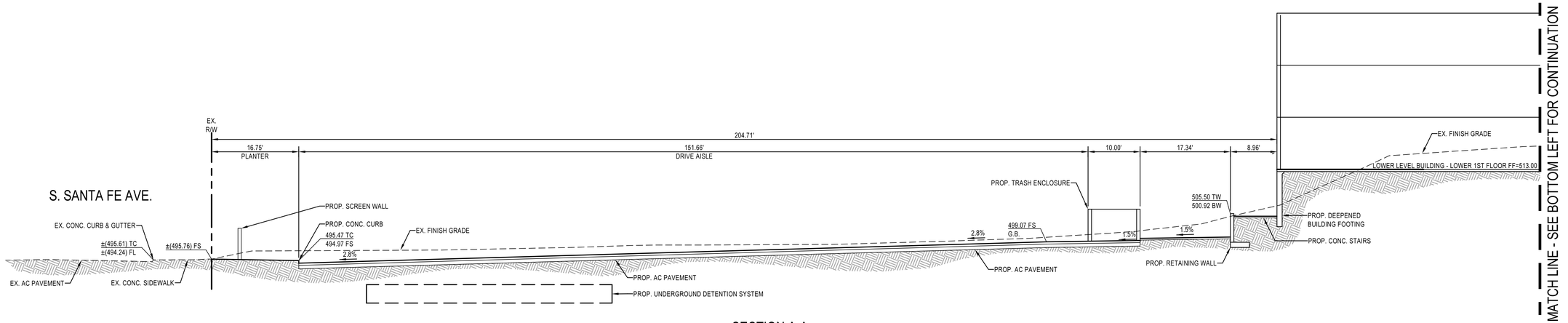
PASCO LARET SUITER & ASSOCIATES
San Diego | Encinitas | Orange County
Phone 949.661.6695 | www.plsaengineering.com

SAN MARCOS RESIDENCES

PRELIMINARY GRADING PLAN

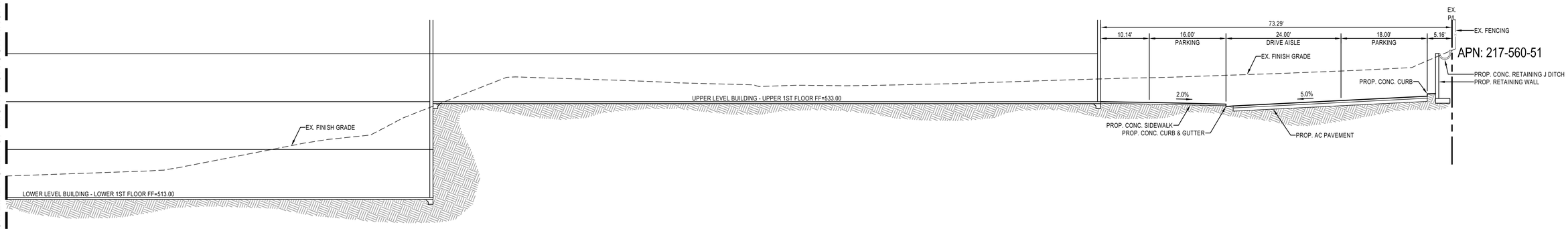
PLSA JOB NO.3527
4-28-2022
SHEET 2 OF 3

896



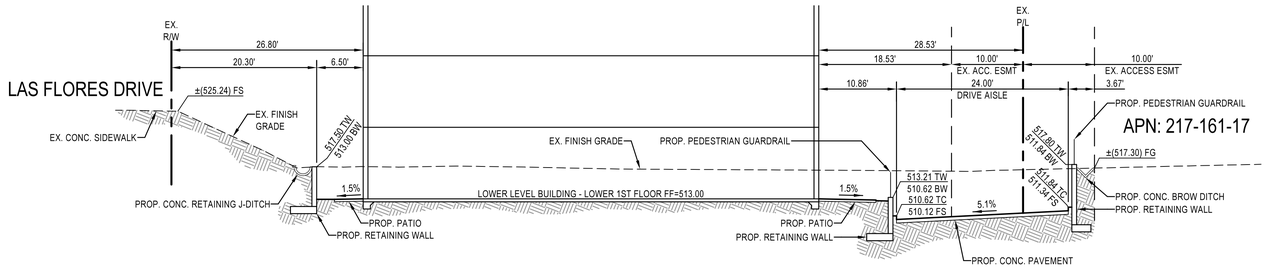
SECTION A-A

SCALE: 1"=10'



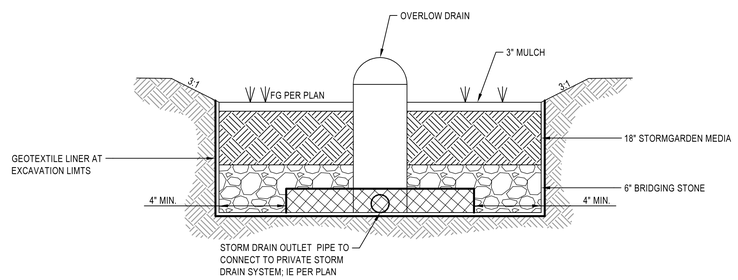
SECTION A-A (CONTINUED)

SCALE: 1"=10'



SECTION B-B

SCALE: 1"=10'



TYPICAL SECTION - STORMGARDEN BIOFILTRATION SYSTEM

SCALE: NOT TO SCALE

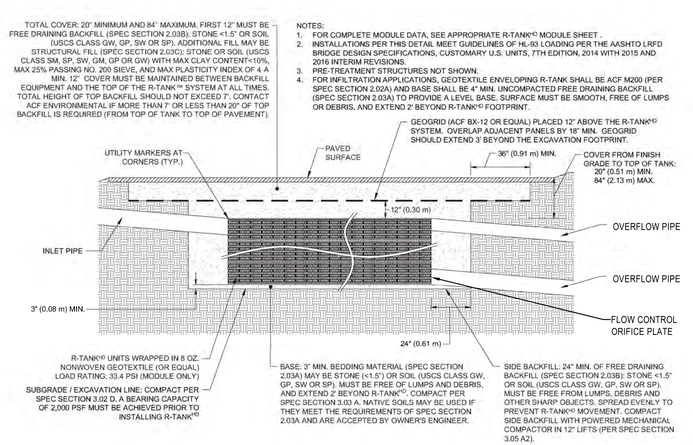
StormGarden Biofilttration System
San Marcos Residences
3/1/2022

DMA	BMP type	DMA AREA (SF)	Total DMA AREA (acres)	RFQ flow for dma (cfs)	StormGarden Filter Bed Size (SF)	StormGarden System Flow Rate (cfs)
1	StormGarden Boxless BioFiltration	43,958	1.01		70	0.226
2	StormGarden Boxless BioFiltration	22,743	0.52		41	0.132
3	StormGarden Boxless BioFiltration	23,845	0.55		34	0.110
Totals					***145***	

NOTES:
1. StormGarden loading rate at 145"/HR is 1.45 GPM/SF of Filter Bed
2. The StormGarden width and length can be customized to any size and shape conceivable because it is a boxless system and indipendent of a concrete form.

STORMGARDEN BIOFILTRATION SYSTEM SIZING TABLE

SCALE: NOT TO SCALE



TYPICAL SECTION - R-TANK STORMWATER DETENTION SYSTEM

SCALE: NOT TO SCALE

SAN MARCOS RESIDENCES

SITE SECTIONS & DETAILS

PASCO LARET SUITER & ASSOCIATES
San Diego | Encinitas | Orange County
Phone 949.661.6695 | www.plsaengineering.com

PLSA JOB NO.3527
4-28-2022
SHEET 3 OF 3

SAVE DATE: 04/26/22 ~ PLOT DATE: 04/26/22 ~ FILE NAME: J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\DRAWING\DISCRETIONARY PLANS\3527-PRLM-GRAD-02-03.dwg

APPENDIX G

Hydrology Study

PRELIMINARY HYDROLOGY STUDY

FOR

SAN MARCOS RESIDENCES
2972 &2982 S SANTA FE AVENUE
APN: 217-161-18

CITY OF SAN MARCOS, CA

PREPARED FOR:

SANTA FE FLORES LP
P.O. BOX 903
RANCHO SANTA FE, CA 92067

PREPARED BY:

PASCO LARET SUITER & ASSOCIATES, INC.
27127 CALLE ARROYO, SUITE 1904
SAN JUAN CAPISTRANO, CA 92675
949-661-6695

Prepared: October 2021
Revised: March 2022
Revised: April 2022

William J. Suiter, RCE 68964 DATE

TABLE OF CONTENTS

	SECTION
Executive Summary	**1.0**
Introduction	1.1
Existing Conditions	1.2
Proposed Project	1.3
Conclusions	1.4
References	1.5
Methodology	**2.0**
Rational Method	2.1
County of San Diego Criteria	2.2
AES Rational Method Computer Model	2.3
Hydrologic Analysis	**3.0**
Existing Condition Hydrologic Model Output (100-Year Event)	3.1
Proposed Condition Hydrologic Model Output (100-Year Event Undetained)	3.2
Detention Analysis	3.3
Proposed Condition Hydrologic Model Output (100-Year Event Detained)	3.4
Hydromodification Management	3.5
Storm Water Pollutant Control	3.6

Appendices

Appendix A: Hydrology Support Material

Appendix B: Detention Support Material

Appendix C: Existing and Proposed Hydrology Maps

1.0 EXECUTIVE SUMMARY

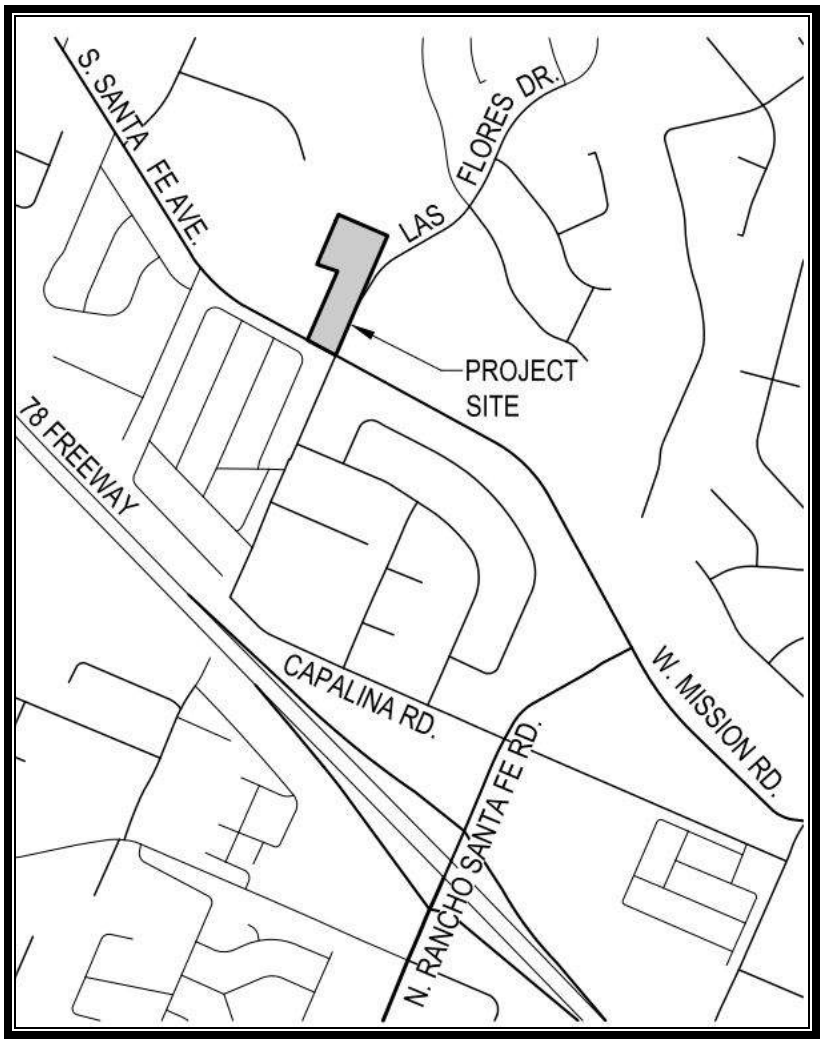
1.1 Introduction

This Hydrology Study for the proposed development has been prepared to analyze the hydrologic characteristics of the existing and proposed project site. This report presents both the methodology and the calculations used for determining the storm water runoff from the project site in the pre-developed (existing) conditions and the post-developed (proposed) conditions produced by the 100-year, 6-hour storm event.

1.2 Existing Conditions

The subject property is located at 2972 & 2982 S. Santa Fe Avenue in the City of Vista. The site is west of Las Flores Drive, north of South Santa Fe Avenue, and approximately 1/4 mile north of the 78 freeway.

Vicinity Map



The site is surrounded by residential homes to the north, east and south, and industrial offices to the west. The site is primarily undeveloped with a shared access driveway at the property's southerly boundary. The driveway also provides access to the adjacent commercial property's parking lot and commercial building. The southern portion of the site is relatively flat while the central portion slopes up to an elevated pad at the north end of the site. Las Flores Drive along the property's eastern boundary has approximately a 15-20% grade upward to the north to allow vehicle access over the railroad tracks north of the property. Elevations across the site range from a high of approximately 546 feet in the northeast corner of the property to a low of approximately 494.50 feet at the southwest corner of the property.

The project site is approximately 2.23 acres. In the existing condition, the project site is divided into four drainage basins (see Pre-Project Hydrology Map in Appendix C).

Drainage basin E1 consists of the northerly half graded pad where runoff flows overland and into an existing storm drain inlet structure in the center of the pad. Captured runoff exits the site through an existing 18" RCP at the easterly boundary and into the public storm drain system within Las Flores Drive. Drainage Basin E2 is a similar, but much smaller, sump condition into a storm drain inlet structure exists just southerly of the north half sump condition mentioned above. Captured runoff also exits the site through a separate 18" RCP at the easterly boundary and into the public storm drain system within Las Flores Drive where it confluences with the north half pad runoff. Pipe flows continue to travel southerly down Las Flores Drive before combining with flows from a 54" RCP and 24" RCP. Combined pipe flows are then diverted to the west along South Santa Fe Avenue through a 60" RCP.

Drainage Basin E3 consists of the southern half of the site where runoff generated from the adjacent liquor store property and the project site combines to surface flow southerly. Surface runoff exits the drainage basin through the existing shared access driveway on South Santa Fe Avenue then into the public street's curb and gutter and flows northerly approximately 100' before being captured by an existing curb inlet structure. Captured runoff is diverted across South Santa Fe Avenue through an 18" RCP storm drain pipe and into a 60" RCP that continues flowing westerly.

Drainage Basin E4 is located along the west edge of Drainage Basin E1 north half pad, a small area of existing graded slopes that surface flows to the west and onto the adjacent property.

Per the United States Department of Agriculture Web Soil Survey, the project site is underlain with Hydrologic Soil Group C and D. Refer to Appendix A for soil information.

Area weighted runoff coefficients were calculated using the methodology described in section 3.2.1 of the San Diego County Hydrology Manual and Table 3-1 Runoff Coefficients for Urban Areas. Using the Rational Method Procedure outlined in the San Diego County Hydrology Manual, a peak flow rate was calculated for the existing condition 100-year, 6-hour storm event. The following table summarizes the existing condition hydrologic data.

Summary of Existing Condition 100-yr Peak Discharge Rates

Drainage Basin ID	Area (ac)	Q100 (cfs)
E1	1.24	2.35
E2	0.04	0.10
E3	1.65	5.16
E4	0.12	0.31

Refer to the existing condition hydrologic calculations included in Section 3.1 for detailed analysis.

1.3 Proposed Project

The project proposes to develop the existing site into a 54-unit multifamily residential development consisting of 1-bed/1-bath units and 2-bed/2-bath units, access drive, parking stalls, landscape, associated utilities and improvements, proprietary biofiltration systems to meet the requirements for pollutant control and underground storm water storage facilities to meet the requirements for hydromodification management flow control and to mitigate for the 100-year 6-hour storm event.

In the proposed condition, onsite storm water runoff will be collected in a proposed storm drain system and conveyed to the proposed proprietary biofiltration system (BMPs) and subsequently the proposed underground storage facilities (BMPs). Two storm drain systems, each with their own BMPs, are proposed to maintain the site's historical points of discharge.

In the proposed condition, the project site consists of five drainage basins (see Post-Project Hydrology Map in Appendix C).

Drainage Basin P1 consists of the proposed site's upper level building, north parking lot area and a portion of existing public ROW hillside area that drains into the project site at the northeast corner of the property. Surface runoff will sheet flow southwesterly across the parking area, through a curb opening and into a proprietary biofiltration system. Treated flows and peak flows will enter the private storm drain pipe system then divert pipe flows to an underground storm water storage facility before exiting the project site through an existing 18" RCP storm drain pipe that flows out into the public storm drain system in Las Flores Drive.

Drainage Basin P2 consists of the proposed sites' lower level building, south parking lot area, and access road. Surface runoff will sheet flow southerly down the access road, across the parking area then through curb openings into one of two proprietary biofiltration systems. Treated flows and peak flows will enter the private storm drain pipe system then divert pipe flows to an underground storm water storage facility before exiting the project site through a new 18" RCP storm drain pipe and connect to the existing 60" RCP storm drain pipe in South Santa Fe Avenue.

Drainage Basin P3 consists of the adjacent property's existing commercial building, existing parking area and existing undeveloped hillside to the west of the project site. A new concrete ditch is proposed along the project site's westerly boundary along the new access road and a new ribbon gutter along the existing parking area to capture off-site runoff without comingling with on-site runoff and divert the surface flows out onto South Santa Fe Avenue as in the existing condition.

Drainage Basin P4 consists of the existing hillside area at the northwest corner of the site. Storm water runoff will surface flow westerly and onto the adjacent property as in the existing condition.

Drainage Basin P5 consists of the existing public right-of-way hillside area at the northeast corner of the project site. A new concrete ditch is proposed along the project's easterly boundary to capture off-site runoff from the hillside without comingling with on-site runoff and divert the surface flow to an underground storm drain piping system to confluence with runoff from Drainage Basin 1. Pipe flows will combine with Drainage Basin 1 pipe flows (downstream of its BMP systems) and exit the site through an existing 18" RCP storm drain pipe that flows out into the public storm drain system in Las Flores Drive.

The BMPs will provide hydromodification management flow control and storm water pollutant control to meet the requirements the California Regional Water Quality Control Board San Diego Region municipal storm water permit (Order No. R9-2013-0001, referred to as MS4 Permit). For detailed pollutant control and HMP calculations refer to the report titled "Priority Development Project (PDP) Storm Water Quality Management Plan (SWQMP) for San Marcos Residences" dated March 2021, prepared by Pasco Laret Suiter & Associates.

Area weighted runoff coefficients were calculated using the methodology described in section 3.2.1 of the San Diego County Hydrology Manual and Table 3-1 Runoff Coefficients for Urban Areas. Using the Rational Method Procedure outlined in the San Diego County Hydrology Manual, a peak flow rate was calculated for the proposed condition 100-year, 6-hour storm event. The underground storm water storage facilities provide mitigation for the 100-year 6-hour storm event. A detention analysis was performed to evaluate the effects of the storage facilities on the 100-year, 6-hour storm event peak discharge rates. The following table summarizes the proposed condition hydrologic data.

Summary of Proposed Condition 100-yr Peak Discharge Rates

Drainage Basin ID	Area (ac)	Q100 (cfs) Undetained	Q100 (cfs) Detained
P1 & P2	1.25	5.71	0.69
P3	1.07	6.44	4.02
P4	0.66	2.90	N/A
P5	0.06	0.16	N/A

Refer to the proposed undetained and detained hydrologic calculations and detention analysis included in Sections 3.2, 3.3, 3.4 and Appendix B for detailed analysis.

1.4 Conclusions

Based upon the analyses included in this report, the proposed proprietary biofiltration devices and underground storage facilities are sized to accommodate the increase in peak runoff in the proposed condition and are designed to meet the requirements of the MS4 Permit for both pollutant control and hydromodification management.

1.5 References

"San Diego County Hydrology Manual", revised June 2003, County of San Diego, Department of Public Works, Flood Control Section.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov.

2.0 METHODOLOGY

Pursuant to the San Diego County Hydrology Manual (SDCHM) dated June 2003, the Rational Method is recommended for analyzing the runoff response from drainage areas up to approximately 1 square mile in size. The proposed project and associated watershed basins are less than 1 square mile, therefore the Rational Method was used to analyze the project's hydrologic characteristics in the existing and proposed conditions.

2.1 Rational Method

The Rational Method (RM) formula estimates the peak rate of runoff based on the variables of area, runoff coefficient, and rainfall intensity. The rainfall intensity (I) is equal to:

$$I = 7.44 \times P_6 \times D^{-0.645}$$

Where:

I = Intensity (in/hr)
P_6 = 6-hour precipitation (in)
D = duration (min – use Tc)

Using the Time of Concentration (Tc) which is the time required for a given element of water that originates at the most remote point of the basin being analyzed to reach the point at which the runoff from the basin is being analyzed, the RM equation determines the storm water runoff rate (Q) for a given basin in terms of flow, typically in cubic feet per second (cfs). The RM equation is as follows:

$$Q = CIA$$

Where:

Q= flow (cfs)
C = runoff coefficient, ratio of rainfall that produces storm water runoff (runoff vs. infiltration/evaporation/absorption/etc)
I = average rainfall intensity for a duration equal to the Tc for the area (in/hr)
A = drainage area contributing to the basin (ac)

The RM equation assumes that the storm event being analyzed delivers precipitation to the entire basin uniformly, and therefore the peak discharge rate will occur when a raindrop that falls at the most remote portion of the basin arrives at the point of analysis. The RM also assumes that the fraction of rainfall that becomes runoff or the runoff coefficient, C, is not affected by the storm intensity, I, or the precipitation zone number.

2.2 County of San Diego Criteria

The County of San Diego has developed its own tables, nomographs, and methodologies for analyzing storm water runoff for areas within the County. The County has also developed precipitation isopluvial contour maps that show even lines of rainfall anticipated from a given storm event (i.e. 100-year, 6-hour storm). The 100-year 6-hour storm event rainfall isopluvial map is included in Appendix A.

One of the variables of the RM equation is the runoff coefficient, C, which is dependent upon land use and soil type. Table 3-1 Runoff Coefficients for Urban Areas in the SDCHM categorizes the land use, the associated development density (dwelling units per acre) and the percentage of impervious area. Each of the categories listed has an associated runoff coefficient for each soil type class. A composite runoff coefficient can also be calculated for an area based on soil type and impervious percentage using the following equation from Section 3.1.2 of the SDCHM:

$$C = 0.90 \times (\% \text{ Impervious}) + Cp \times (1 - \% \text{ Impervious})$$

Where: Cp = Pervious Coefficient Runoff Value for the soil type
(shown in Table 3-1 as Undisturbed Natural Terrain/Permanent Open Space, 0% Impervious)

The onsite hydrologic calculations contained herein figure a composite runoff coefficient for the onsite project areas based on the percentage of impervious area and the percentage of pervious or landscape area. Refer to Appendix A for runoff coefficient calculations.

The County has also illustrated in detail the methodology for determining the time of concentration, in particular the initial time of concentration. The County has adopted the Federal Aviation Agency's (FAA) overland time of flow equation. This equation essentially limits the flow path length for the initial time of concentration to lengths of 100 feet or less, and is dependent on land use and slope.

2.3 AES Rational Method Computer Model

The Rational Method computer program developed by Advanced Engineering Software (AES) satisfies the County of San Diego design criteria, therefore it is the computer model used for this study. The AES hydrologic model is capable of creating independent node-link models of each interior drainage basin and linking these sub-models together at confluence points to determine peak flow rates. The program utilizes base information input by the user to perform calculations for up to 15 hydrologic processes. The required base information includes drainage basin area, storm water facility locations and sizes, land uses, flow patterns, and topographic elevations. The hydrologic conditions were analyzed in accordance with the 2003 County of San Diego Hydrology Manual criteria as follows:

Design Storm	100-year, 6-hour
100-year, 6-hour Precipitation	3.3 inches

Rainfall Intensity	Based on the 2003 County of San Diego Hydrology Manual criteria	
Runoff Coefficient*	Pervious C soil	C = 0.30
	Pervious D soil	C =0.35
	Impervious C soil	C = 0.90
	Impervious D soil	C = 0.90
Soil Type	C & D	

*Weighted runoff coefficients were calculated where appropriate. Refer to Appendix A.

3.0 HYDROLOGIC ANALYSIS

Table 1 below compares and summarizes the hydrologic calculations provided in Sections 3.1, 3.2 and 3.4.

Table 1: Summary of 100-yr Peak Discharge Rates

Existing			**Proposed**			**Proposed (Detained)**		
Drainage Basin ID	*Area (ac)*	*Q100 (cfs)*	*Drainage Basin ID*	*Area (ac)*	*Q100 (cfs)*	*Drainage Basin ID*	*Area (ac)*	*Q100 (cfs)*
E1	1.24	2.35	P1 & P2	1.25	5.71	P1 & P2	1.25	0.69
E2	0.04	0.10	P3	1.07	6.44	P3	1.07	4.02
E3	1.65	5.16	P4	0.66	2.90	N/A		
E4	0.12	0.31	P5	0.06	0.16	N/A		

Existing			**Proposed (Detained, Cumulative)**		
Drainage Basin ID	*Area (ac)*	*Q100 (cfs)*	*Drainage Basin ID*	*Area (ac)*	*Q100 (cfs)*
E1, E2 & E3	2.93	**7.61**	P1, P2, P3 & P4	2.98	**7.61**
E4	0.12	0.31	P5	0.06	0.16

3.1 Existing Condition Hydrologic Model Output (100-Year Event)

```
**************************************************************************

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2016 Advanced Engineering Software (aes)
              Ver. 23.0 Release Date: 07/01/2016  License ID 1452

                            Analysis prepared by:
```


PASCO LARET SUITER & ASSOCIATES
27127 CALLE ARROYO, SUITE 1904
SAN JUAN CAPISTRANO, CA 92675
ph 949.661.6695
plsaengineering.com


```
 ************************** DESCRIPTION OF STUDY **************************
* 3527 SOUTH SANTA FE                                                    *
* EXISTING CONDITION                                                     *
* 100-YEAR                                                               *
 ************************************************************************
--------------------------------------------------------------------------
  FILE NAME: 100PRE.DAT
  TIME/DATE OF STUDY: 15:49 03/01/2022
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   3.300
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
```

```
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    105.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  USER-SPECIFIED RUNOFF COEFFICIENT = .3000
  S.C.S. CURVE NUMBER (AMC II) =  85
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    575.97
  DOWNSTREAM ELEVATION(FEET) =    538.97
  ELEVATION DIFFERENCE(FEET) =     37.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.684
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.210
  SUBAREA RUNOFF(CFS) =      0.28
  TOTAL AREA(ACRES) =      0.13   TOTAL RUNOFF(CFS) =      0.28

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    110.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    538.97  DOWNSTREAM(FEET) =    532.40
  CHANNEL LENGTH THRU SUBAREA(FEET) =   149.00   CHANNEL SLOPE =  0.0441
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  20.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   2.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.321
  USER-SPECIFIED RUNOFF COEFFICIENT = .3000
  S.C.S. CURVE NUMBER (AMC II) =  85
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.34
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.64
  AVERAGE FLOW DEPTH(FEET) =   0.07   TRAVEL TIME(MIN.) =   1.51
  Tc(MIN.) =    8.20
  SUBAREA AREA(ACRES) =     1.11       SUBAREA RUNOFF(CFS) =    2.10
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.300
  TOTAL AREA(ACRES) =        1.2         PEAK FLOW RATE(CFS) =       2.35

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.10   FLOW VELOCITY(FEET/SEC.) =   2.05
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    110.00 =     249.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    115.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
```

```
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   530.34  DOWNSTREAM(FEET) =   528.21
  FLOW LENGTH(FEET) =    92.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   4.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.22
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.35
  PIPE TRAVEL TIME(MIN.) =   0.25    Tc(MIN.) =    8.44
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    115.00 =     341.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    120.00 TO NODE    125.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
  USER-SPECIFIED RUNOFF COEFFICIENT = .3000
  S.C.S. CURVE NUMBER (AMC II) =  85
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    57.00
  UPSTREAM ELEVATION(FEET) =    543.68
  DOWNSTREAM ELEVATION(FEET) =    517.12
  ELEVATION DIFFERENCE(FEET) =     26.56
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.047
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.643
  SUBAREA RUNOFF(CFS) =      0.10
  TOTAL AREA(ACRES) =      0.04   TOTAL RUNOFF(CFS) =      0.10

****************************************************************************
  FLOW PROCESS FROM NODE    125.00 TO NODE    130.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   517.12  DOWNSTREAM(FEET) =   516.53
  FLOW LENGTH(FEET) =    29.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   1.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   2.39
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.10
  PIPE TRAVEL TIME(MIN.) =   0.20    Tc(MIN.) =    5.25
  LONGEST FLOWPATH FROM NODE    120.00 TO NODE    130.00 =      86.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    135.00 TO NODE    140.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
  *USER SPECIFIED(SUBAREA):
```

```
  USER-SPECIFIED RUNOFF COEFFICIENT = .4500
  S.C.S. CURVE NUMBER (AMC II) =  85
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    538.13
  DOWNSTREAM ELEVATION(FEET) =    517.74
  ELEVATION DIFFERENCE(FEET) =     20.39
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.431
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.243
  SUBAREA RUNOFF(CFS) =      0.82
  TOTAL AREA(ACRES) =      0.22   TOTAL RUNOFF(CFS) =      0.82

****************************************************************************
  FLOW PROCESS FROM NODE    140.00 TO NODE    145.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    517.74  DOWNSTREAM(FEET) =    494.68
  CHANNEL LENGTH THRU SUBAREA(FEET) =   270.00   CHANNEL SLOPE =  0.0854
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  20.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   2.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.947
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4500
  S.C.S. CURVE NUMBER (AMC II) =  85
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.06
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.73
  AVERAGE FLOW DEPTH(FEET) =   0.09   TRAVEL TIME(MIN.) =   1.65
  Tc(MIN.) =    7.08
  SUBAREA AREA(ACRES) =     1.43       SUBAREA RUNOFF(CFS) =    4.47
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.450
  TOTAL AREA(ACRES) =        1.6         PEAK FLOW RATE(CFS) =       5.16

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.13   FLOW VELOCITY(FEET/SEC.) =   3.24
  LONGEST FLOWPATH FROM NODE    135.00 TO NODE    145.00 =     370.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    150.00 TO NODE    155.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3000
  S.C.S. CURVE NUMBER (AMC II) =  85
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    34.00
  UPSTREAM ELEVATION(FEET) =    538.66
  DOWNSTREAM ELEVATION(FEET) =    527.29
  ELEVATION DIFFERENCE(FEET) =     11.37
```

```
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.898
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.695
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.31
  TOTAL AREA(ACRES) =      0.12   TOTAL RUNOFF(CFS) =      0.31

****************************************************************************
  FLOW PROCESS FROM NODE    150.00 TO NODE    155.00 IS CODE =  22
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3000
  S.C.S. CURVE NUMBER (AMC II) =  85
  USER SPECIFIED Tc(MIN.) =    5.000
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.695
  SUBAREA RUNOFF(CFS) =      0.31
  TOTAL AREA(ACRES) =      0.12   TOTAL RUNOFF(CFS) =      0.31
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        0.1  TC(MIN.) =      5.00
  PEAK FLOW RATE(CFS)   =       0.31
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

3.2 Proposed Undetained Condition Hydrologic Model Output (100-Year Event)

```
**************************************************************************

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2016 Advanced Engineering Software (aes)
              Ver. 23.0 Release Date: 07/01/2016  License ID 1452

                             Analysis prepared by:
                           PASCO LARET SUITER & ASSOCIATES
                           27127 CALLE ARROYO, SUITE 1904
                           SAN JUAN CAPISTRANO, CA 92675
                                  ph 949.661.6695
                                plsaengineering.com

 ************************* DESCRIPTION OF STUDY *************************
* 3527 SOUTH SANTA FE                                                    *
* PROPOSED CONDITION                                                     *
* 100-YR                                                                 *
 **************************************************************************

  FILE NAME: 100PST.DAT
  TIME/DATE OF STUDY: 10:31 03/02/2022
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   3.300
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

**************************************************************************
```

```
  FLOW PROCESS FROM NODE    200.00 TO NODE    205.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7700
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    75.00
  UPSTREAM ELEVATION(FEET) =    535.41
  DOWNSTREAM ELEVATION(FEET) =    532.13
  ELEVATION DIFFERENCE(FEET) =      3.28
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.146
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.695
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.33
  TOTAL AREA(ACRES) =      0.05   TOTAL RUNOFF(CFS) =      0.33

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    205.00 IS CODE =  22
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7700
  S.C.S. CURVE NUMBER (AMC II) =   0
  USER SPECIFIED Tc(MIN.) =    5.000
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.695
  SUBAREA RUNOFF(CFS) =      0.33
  TOTAL AREA(ACRES) =      0.05   TOTAL RUNOFF(CFS) =      0.33

****************************************************************************
  FLOW PROCESS FROM NODE    205.00 TO NODE    210.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    532.13  DOWNSTREAM(FEET) =    529.64
  CHANNEL LENGTH THRU SUBAREA(FEET) =   304.00   CHANNEL SLOPE =  0.0082
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =  50.000
  MANNING'S FACTOR = 0.013   MAXIMUM DEPTH(FEET) =   1.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.649
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7700
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.82
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.96
  AVERAGE FLOW DEPTH(FEET) =   0.14   TRAVEL TIME(MIN.) =   2.58
  Tc(MIN.) =    7.58
  SUBAREA AREA(ACRES) =     0.96       SUBAREA RUNOFF(CFS) =    4.91
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.770
```

```
  TOTAL AREA(ACRES) =        1.0         PEAK FLOW RATE(CFS) =       5.17

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.19   FLOW VELOCITY(FEET/SEC.) =   2.26
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    210.00 =    7804.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    210.00 TO NODE    215.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   527.39  DOWNSTREAM(FEET) =   526.49
  FLOW LENGTH(FEET) =    90.00   MANNING'S N =  0.009
  DEPTH OF FLOW IN  15.0 INCH PIPE IS   8.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.49
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.17
  PIPE TRAVEL TIME(MIN.) =   0.20    Tc(MIN.) =    7.78
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    215.00 =    7894.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    215.00 TO NODE    220.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   521.91  DOWNSTREAM(FEET) =   519.88
  FLOW LENGTH(FEET) =   138.00   MANNING'S N =  0.009
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   8.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.50
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.17
  PIPE TRAVEL TIME(MIN.) =   0.27    Tc(MIN.) =    8.05
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    220.00 =    8032.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    220.00 TO NODE    220.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.05
  RAINFALL INTENSITY(INCH/HR) =   6.40
  TOTAL STREAM AREA(ACRES) =     1.01
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.17

****************************************************************************
  FLOW PROCESS FROM NODE    225.00 TO NODE    230.00 IS CODE =  21
```

```
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    90.00
  UPSTREAM ELEVATION(FEET) =    575.94
  DOWNSTREAM ELEVATION(FEET) =    536.32
  ELEVATION DIFFERENCE(FEET) =     39.62
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.945
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.776
  SUBAREA RUNOFF(CFS) =      0.65
  TOTAL AREA(ACRES) =      0.24   TOTAL RUNOFF(CFS) =      0.65

****************************************************************************
  FLOW PROCESS FROM NODE    230.00 TO NODE    220.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   532.00  DOWNSTREAM(FEET) =   519.88
  FLOW LENGTH(FEET) =    42.00   MANNING'S N =  0.009
  DEPTH OF FLOW IN   6.0 INCH PIPE IS   1.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.29
  ESTIMATED PIPE DIAMETER(INCH) =   6.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.65
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =    5.99
  LONGEST FLOWPATH FROM NODE    225.00 TO NODE    220.00 =     132.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    220.00 TO NODE    220.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.99
  RAINFALL INTENSITY(INCH/HR) =   7.74
  TOTAL STREAM AREA(ACRES) =     0.24
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      0.65

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        5.17     8.05        6.395          1.01
      2        0.65     5.99        7.738          0.24
```

```
  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1        4.50     5.99       7.738
      2        5.71     8.05       6.395

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       5.71   Tc(MIN.) =    8.05
  TOTAL AREA(ACRES) =        1.2
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    220.00 =    8032.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    220.00 TO NODE    235.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   519.88  DOWNSTREAM(FEET) =   517.05
  FLOW LENGTH(FEET) =   193.00   MANNING'S N =  0.009
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   9.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.57
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.71
  PIPE TRAVEL TIME(MIN.) =   0.38    Tc(MIN.) =    8.42
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    235.00 =    8225.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    240.00 TO NODE    245.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    82.00
  UPSTREAM ELEVATION(FEET) =    532.03
  DOWNSTREAM ELEVATION(FEET) =    524.56
  ELEVATION DIFFERENCE(FEET) =      7.47
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.420
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.695
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.27
  TOTAL AREA(ACRES) =      0.04   TOTAL RUNOFF(CFS) =      0.27

****************************************************************************
  FLOW PROCESS FROM NODE    240.00 TO NODE    245.00 IS CODE =  22
----------------------------------------------------------------------------
```

```
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
================================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  USER SPECIFIED Tc(MIN.) =    5.000
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.695
  SUBAREA RUNOFF(CFS) =      0.27
  TOTAL AREA(ACRES) =      0.04   TOTAL RUNOFF(CFS) =      0.27

********************************************************************************
  FLOW PROCESS FROM NODE    245.00 TO NODE    250.00 IS CODE =  51
--------------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    524.56  DOWNSTREAM(FEET) =    494.20
  CHANNEL LENGTH THRU SUBAREA(FEET) =   349.00   CHANNEL SLOPE =  0.0870
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =  50.000
  MANNING'S FACTOR = 0.013   MAXIMUM DEPTH(FEET) =   1.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.617
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.37
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.11
  AVERAGE FLOW DEPTH(FEET) =   0.09   TRAVEL TIME(MIN.) =   1.14
  Tc(MIN.) =    6.14
  SUBAREA AREA(ACRES) =     1.03       SUBAREA RUNOFF(CFS) =    6.20
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
  TOTAL AREA(ACRES) =        1.1         PEAK FLOW RATE(CFS) =       6.44

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.12   FLOW VELOCITY(FEET/SEC.) =   6.03
  LONGEST FLOWPATH FROM NODE    240.00 TO NODE    250.00 =  750349.00 FEET.

********************************************************************************
  FLOW PROCESS FROM NODE    250.00 TO NODE    255.00 IS CODE =  31
--------------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   491.45  DOWNSTREAM(FEET) =   491.04
  FLOW LENGTH(FEET) =    41.00   MANNING'S N =  0.009
  DEPTH OF FLOW IN  15.0 INCH PIPE IS   9.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.86
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       6.44
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =    6.22
  LONGEST FLOWPATH FROM NODE    240.00 TO NODE    255.00 =  750390.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    255.00 TO NODE    260.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   488.50  DOWNSTREAM(FEET) =   486.47
  FLOW LENGTH(FEET) =    39.00   MANNING'S N =  0.009
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.70
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       6.44
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =    6.27
  LONGEST FLOWPATH FROM NODE    240.00 TO NODE    260.00 =  750429.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    265.00 TO NODE    270.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .5700
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    531.96
  DOWNSTREAM ELEVATION(FEET) =    518.31
  ELEVATION DIFFERENCE(FEET) =     13.65
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.428
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.695
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.74
  TOTAL AREA(ACRES) =      0.15   TOTAL RUNOFF(CFS) =      0.74

****************************************************************************
  FLOW PROCESS FROM NODE    265.00 TO NODE    270.00 IS CODE =  22
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .5700
  S.C.S. CURVE NUMBER (AMC II) =   0
  USER SPECIFIED Tc(MIN.) =    5.000
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.695
  SUBAREA RUNOFF(CFS) =      0.74
  TOTAL AREA(ACRES) =      0.15   TOTAL RUNOFF(CFS) =      0.74

****************************************************************************
  FLOW PROCESS FROM NODE    270.00 TO NODE    275.00 IS CODE =  51
```

```
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    518.31  DOWNSTREAM(FEET) =    494.55
  CHANNEL LENGTH THRU SUBAREA(FEET) =   276.00   CHANNEL SLOPE =  0.0861
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =  50.000
  MANNING'S FACTOR = 0.013   MAXIMUM DEPTH(FEET) =   1.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.709
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .5700
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.86
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   4.49
  AVERAGE FLOW DEPTH(FEET) =   0.07   TRAVEL TIME(MIN.) =   1.02
  Tc(MIN.) =    6.02
  SUBAREA AREA(ACRES) =     0.51       SUBAREA RUNOFF(CFS) =    2.24
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.570
  TOTAL AREA(ACRES) =        0.7         PEAK FLOW RATE(CFS) =       2.90

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.09   FLOW VELOCITY(FEET/SEC.) =   4.55
  LONGEST FLOWPATH FROM NODE    265.00 TO NODE    275.00 = ********** FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    280.00 TO NODE    285.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3000
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    37.00
  UPSTREAM ELEVATION(FEET) =    531.96
  DOWNSTREAM ELEVATION(FEET) =    527.86
  ELEVATION DIFFERENCE(FEET) =      4.10
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.066
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.695
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.16
  TOTAL AREA(ACRES) =      0.06   TOTAL RUNOFF(CFS) =      0.16

****************************************************************************
  FLOW PROCESS FROM NODE    280.00 TO NODE    285.00 IS CODE =  22
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3000
```

```
  S.C.S. CURVE NUMBER (AMC II) =   0
  USER SPECIFIED Tc(MIN.) =    5.000
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.695
  SUBAREA RUNOFF(CFS) =      0.16
  TOTAL AREA(ACRES) =      0.06   TOTAL RUNOFF(CFS) =      0.16
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        0.1  TC(MIN.) =      5.00
  PEAK FLOW RATE(CFS)   =       0.16
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

3.3 Detention Analysis (100-Year Event)

The underground storm water storage facilities (BMPs) provide hydromodification management flow control and mitigation of the 100-year storm event peak flow rate. The 100-year storm event detention analysis was performed using HydroCAD Stormwater Modeling software. The inflow runoff hydrographs to the BMPs were modeled using RatHydro which is a Rational Method Design Storm Hydrograph software that creates a hydrograph using the results of the Rational Method calculations. HydroCAD has the ability to route the 100-year 6-hour storm event inflow hydrograph through the BMPs. Based on the BMP cross sectional geometry, stage storage and outlet structure data, HydroCAD calculates the detained peak flow rate and detained time to peak.

Each underground storm water storage facility has a low-flow orifice to comply with HMP requirements and an overflow weir for larger storm events. Refer to the plans for facility details.

The proposed BMP at the north end of the project site will discharge via proposed storm drain to the east and into the existing public storm drain system within Las Flores Drive. The proposed BMP at the south end of the project site will discharge via proposed storm drain pipe to the south and into the existing public storm drain system within South Santa Fe Drive.

For the proposed detained hydrologic analysis, the effects of the detention provided by the two (2) underground storage facilities were incorporated into the AES analysis. This was done by inserting the results from the HydroCAD analysis, detained peak flow rate and detained time to peak, into the proposed undetained condition AES model to create the proposed detained condition model. Refer to Section 3.4 for the detained AES output.

Based on the results of the HydroCAD analysis, mitigation for the 100-year storm event peak flow rate is provided. Refer to Appendix B for the HydroCAD detention detailed output.

3.4 Proposed Detained Condition Hydrologic Model Output (100-Year Event)

```
**************************************************************************

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2016 Advanced Engineering Software (aes)
              Ver. 23.0 Release Date: 07/01/2016  License ID 1452

                              Analysis prepared by:

                            PASCO LARET SUITER & ASSOCIATES
                            27127 CALLE ARROYO, SUITE 1904
                            SAN JUAN CAPISTRANO, CA 92675
                                   ph 949.661.6695
                                plsaengineering.com

 ************************* DESCRIPTION OF STUDY *************************
* 3527 SOUTH SANTA FE                                                    *
* PROPOSED CONDITION DETAINED                                            *
* 100-YR                                                                 *
 **************************************************************************

  FILE NAME: 100PSTD.DAT
  TIME/DATE OF STUDY: 11:06 03/02/2022
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   3.300
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    205.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7700
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    75.00
  UPSTREAM ELEVATION(FEET) =    535.41
  DOWNSTREAM ELEVATION(FEET) =    532.13
  ELEVATION DIFFERENCE(FEET) =      3.28
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.146
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.695
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.33
  TOTAL AREA(ACRES) =      0.05   TOTAL RUNOFF(CFS) =      0.33

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    205.00 IS CODE =  22
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7700
  S.C.S. CURVE NUMBER (AMC II) =   0
  USER SPECIFIED Tc(MIN.) =    5.000
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.695
  SUBAREA RUNOFF(CFS) =      0.33
  TOTAL AREA(ACRES) =      0.05   TOTAL RUNOFF(CFS) =      0.33

****************************************************************************
  FLOW PROCESS FROM NODE    205.00 TO NODE    210.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    532.13  DOWNSTREAM(FEET) =    529.64
  CHANNEL LENGTH THRU SUBAREA(FEET) =   304.00   CHANNEL SLOPE =  0.0082
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =  50.000
  MANNING'S FACTOR = 0.013   MAXIMUM DEPTH(FEET) =   1.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.649
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7700
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.82
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.96
  AVERAGE FLOW DEPTH(FEET) =   0.14   TRAVEL TIME(MIN.) =   2.58
  Tc(MIN.) =    7.58
  SUBAREA AREA(ACRES) =     0.96       SUBAREA RUNOFF(CFS) =    4.91
```

```
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.770
  TOTAL AREA(ACRES) =        1.0         PEAK FLOW RATE(CFS) =       5.17

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.19   FLOW VELOCITY(FEET/SEC.) =   2.26
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    210.00 =    7804.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    210.00 TO NODE    215.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   527.39  DOWNSTREAM(FEET) =   526.49
  FLOW LENGTH(FEET) =    90.00   MANNING'S N =  0.009
  DEPTH OF FLOW IN  15.0 INCH PIPE IS   8.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.49
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.17
  PIPE TRAVEL TIME(MIN.) =   0.20    Tc(MIN.) =    7.78
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    215.00 =    7894.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    215.00 TO NODE    215.00 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) =  55.68   RAIN INTENSITY(INCH/HOUR) =  1.84
  TOTAL AREA(ACRES) =     1.01   TOTAL RUNOFF(CFS) =      0.30

****************************************************************************
  FLOW PROCESS FROM NODE    215.00 TO NODE    220.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   521.91  DOWNSTREAM(FEET) =   519.88
  FLOW LENGTH(FEET) =   138.00   MANNING'S N =  0.009
  DEPTH OF FLOW IN   6.0 INCH PIPE IS   2.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.26
  ESTIMATED PIPE DIAMETER(INCH) =   6.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.30
  PIPE TRAVEL TIME(MIN.) =   0.54    Tc(MIN.) =   56.22
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    220.00 =    8032.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    220.00 TO NODE    220.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
```

```
==========================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   56.22
  RAINFALL INTENSITY(INCH/HR) =   1.83
  TOTAL STREAM AREA(ACRES) =     1.01
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      0.30

**************************************************************************
  FLOW PROCESS FROM NODE    225.00 TO NODE    230.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    90.00
  UPSTREAM ELEVATION(FEET) =    575.94
  DOWNSTREAM ELEVATION(FEET) =    536.32
  ELEVATION DIFFERENCE(FEET) =     39.62
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.945
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.776
  SUBAREA RUNOFF(CFS) =      0.65
  TOTAL AREA(ACRES) =      0.24   TOTAL RUNOFF(CFS) =      0.65

**************************************************************************
  FLOW PROCESS FROM NODE    230.00 TO NODE    220.00 IS CODE =  31
--------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   532.00  DOWNSTREAM(FEET) =   519.88
  FLOW LENGTH(FEET) =    42.00   MANNING'S N =  0.009
  DEPTH OF FLOW IN   6.0 INCH PIPE IS   1.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.29
  ESTIMATED PIPE DIAMETER(INCH) =   6.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.65
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =    5.99
  LONGEST FLOWPATH FROM NODE    225.00 TO NODE    220.00 =     132.00 FEET.

**************************************************************************
  FLOW PROCESS FROM NODE    220.00 TO NODE    220.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
==========================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.99
```

```
  RAINFALL INTENSITY(INCH/HR) =   7.74
  TOTAL STREAM AREA(ACRES) =     0.24
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      0.65

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        0.30    56.22        1.826          1.01
      2        0.65     5.99        7.738          0.24

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1        0.69     5.99       7.738
      2        0.45    56.22       1.826

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       0.69   Tc(MIN.) =    5.99
  TOTAL AREA(ACRES) =        1.2
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    220.00 =    8032.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    220.00 TO NODE    235.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   519.88  DOWNSTREAM(FEET) =   517.05
  FLOW LENGTH(FEET) =   193.00   MANNING'S N =  0.009
  DEPTH OF FLOW IN   6.0 INCH PIPE IS   3.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.19
  ESTIMATED PIPE DIAMETER(INCH) =   6.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.69
  PIPE TRAVEL TIME(MIN.) =   0.62    Tc(MIN.) =    6.61
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    235.00 =    8225.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    240.00 TO NODE    245.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    82.00
  UPSTREAM ELEVATION(FEET) =    532.03
  DOWNSTREAM ELEVATION(FEET) =    524.56
```

```
  ELEVATION DIFFERENCE(FEET) =      7.47
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.420
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.695
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.27
  TOTAL AREA(ACRES) =      0.04   TOTAL RUNOFF(CFS) =      0.27

****************************************************************************
  FLOW PROCESS FROM NODE    240.00 TO NODE    245.00 IS CODE =  22
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  USER SPECIFIED Tc(MIN.) =    5.000
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.695
  SUBAREA RUNOFF(CFS) =      0.27
  TOTAL AREA(ACRES) =      0.04   TOTAL RUNOFF(CFS) =      0.27

****************************************************************************
  FLOW PROCESS FROM NODE    245.00 TO NODE    250.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    524.56  DOWNSTREAM(FEET) =    494.20
  CHANNEL LENGTH THRU SUBAREA(FEET) =   349.00   CHANNEL SLOPE =  0.0870
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =  50.000
  MANNING'S FACTOR = 0.013   MAXIMUM DEPTH(FEET) =   1.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.617
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.37
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.11
  AVERAGE FLOW DEPTH(FEET) =   0.09   TRAVEL TIME(MIN.) =   1.14
  Tc(MIN.) =    6.14
  SUBAREA AREA(ACRES) =     1.03       SUBAREA RUNOFF(CFS) =    6.20
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
  TOTAL AREA(ACRES) =        1.1         PEAK FLOW RATE(CFS) =       6.44

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.12   FLOW VELOCITY(FEET/SEC.) =   6.03
  LONGEST FLOWPATH FROM NODE    240.00 TO NODE    250.00 =  750349.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    250.00 TO NODE    255.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
```

```
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   491.45  DOWNSTREAM(FEET) =   491.04
  FLOW LENGTH(FEET) =    41.00   MANNING'S N =  0.009
  DEPTH OF FLOW IN  15.0 INCH PIPE IS   9.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.86
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       6.44
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =    6.22
  LONGEST FLOWPATH FROM NODE    240.00 TO NODE    255.00 =  750390.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    255.00 TO NODE    255.00 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) =   8.92   RAIN INTENSITY(INCH/HOUR) =  5.99
  TOTAL AREA(ACRES) =     1.07   TOTAL RUNOFF(CFS) =      4.02

****************************************************************************
  FLOW PROCESS FROM NODE    255.00 TO NODE    260.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   488.50  DOWNSTREAM(FEET) =   486.47
  FLOW LENGTH(FEET) =    39.00   MANNING'S N =  0.009
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   6.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.94
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       4.02
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =    8.97
  LONGEST FLOWPATH FROM NODE    240.00 TO NODE    260.00 =  750429.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    265.00 TO NODE    270.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .5700
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    531.96
  DOWNSTREAM ELEVATION(FEET) =    518.31
  ELEVATION DIFFERENCE(FEET) =     13.65
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.428
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.695
```

```
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.74
  TOTAL AREA(ACRES) =      0.15   TOTAL RUNOFF(CFS) =      0.74

****************************************************************************
  FLOW PROCESS FROM NODE    265.00 TO NODE    270.00 IS CODE =  22
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .5700
  S.C.S. CURVE NUMBER (AMC II) =   0
  USER SPECIFIED Tc(MIN.) =    5.000
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.695
  SUBAREA RUNOFF(CFS) =      0.74
  TOTAL AREA(ACRES) =      0.15   TOTAL RUNOFF(CFS) =      0.74

****************************************************************************
  FLOW PROCESS FROM NODE    270.00 TO NODE    275.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    518.31  DOWNSTREAM(FEET) =    494.55
  CHANNEL LENGTH THRU SUBAREA(FEET) =   276.00   CHANNEL SLOPE =  0.0861
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =  50.000
  MANNING'S FACTOR = 0.013   MAXIMUM DEPTH(FEET) =   1.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.709
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .5700
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.86
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   4.49
  AVERAGE FLOW DEPTH(FEET) =   0.07   TRAVEL TIME(MIN.) =   1.02
  Tc(MIN.) =    6.02
  SUBAREA AREA(ACRES) =     0.51       SUBAREA RUNOFF(CFS) =    2.24
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.570
  TOTAL AREA(ACRES) =        0.7         PEAK FLOW RATE(CFS) =       2.90

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.09   FLOW VELOCITY(FEET/SEC.) =   4.55
  LONGEST FLOWPATH FROM NODE    265.00 TO NODE    275.00 = ********** FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    280.00 TO NODE    285.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3000
```

```
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    37.00
  UPSTREAM ELEVATION(FEET) =    531.96
  DOWNSTREAM ELEVATION(FEET) =    527.86
  ELEVATION DIFFERENCE(FEET) =      4.10
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.066
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.695
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.16
  TOTAL AREA(ACRES) =      0.06   TOTAL RUNOFF(CFS) =      0.16

****************************************************************************
  FLOW PROCESS FROM NODE    280.00 TO NODE    285.00 IS CODE =  22
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3000
  S.C.S. CURVE NUMBER (AMC II) =   0
  USER SPECIFIED Tc(MIN.) =    5.000
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.695
  SUBAREA RUNOFF(CFS) =      0.16
  TOTAL AREA(ACRES) =      0.06   TOTAL RUNOFF(CFS) =      0.16
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        0.1  TC(MIN.) =      5.00
  PEAK FLOW RATE(CFS)   =       0.16
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

3.5 Hydromodification Management

To satisfy the requirements of the MS4 Permit, a hydromodification management strategy has been developed for the project based on the Final Hydromodification Management Plan dated March 2011, (Final HMP). A continuous simulation model, the Environmental Protection Agency (EPA) Storm Water Management Model (SWMM) version 5.1, was selected to size mitigation measures. The SWMM model is capable of modeling hydromodification management facilities to mitigate the effects of increased runoff from the post-development conditions and use changes that may cause negative impacts (i.e. erosion) to downstream channels. For HMP calculations refer to the report titled "Priority Development Project (PDP) Storm Water Quality Management Plan (SWQMP) for San Marcos Residences" dated March 2021,, prepared by Pasco Laret Suiter & Associates.

3.6 Storm Water Pollutant Control

To meet the requirements of the MS4 Permit, the Modular Wetlands Systems are designed to treat onsite storm water pollutants for the 24-hour, 85th percentile storm event. For detailed pollutant control calculations refer to the report titled ""Priority Development Project (PDP) Storm Water Quality Management Plan (SWQMP) for San Marcos Residences" dated March 2021,, prepared by Pasco Laret Suiter & Associates.

APPENDIX A

Hydrology Support Material

San Marcos Residences
PLSA Project No. 3527
3/4/2022

C = 0.9(%Impervious)+Cp(1 - %Impervious)

Runoff Coefficient Table		
Soil Type	C	D
Impervious	0.9	0.9
Pervious, Cp	0.3	0.35

PRE-PROJECT CONDITION						
Drainage Basin ID	**Total Area (sf)**	**Soil Type**	**Impervious Area (sf)**	**Pervious Area (sf)**	**% Impervious**	**Weighted Runoff Coefficient, C**
E1	53762	C	0	53762	0	0.30
E2	1834	C	0	1834	0	0.30
E3	71987	D	12919	59068	17.9%	0.45
E4	5243	C	0	5243	0	0.30

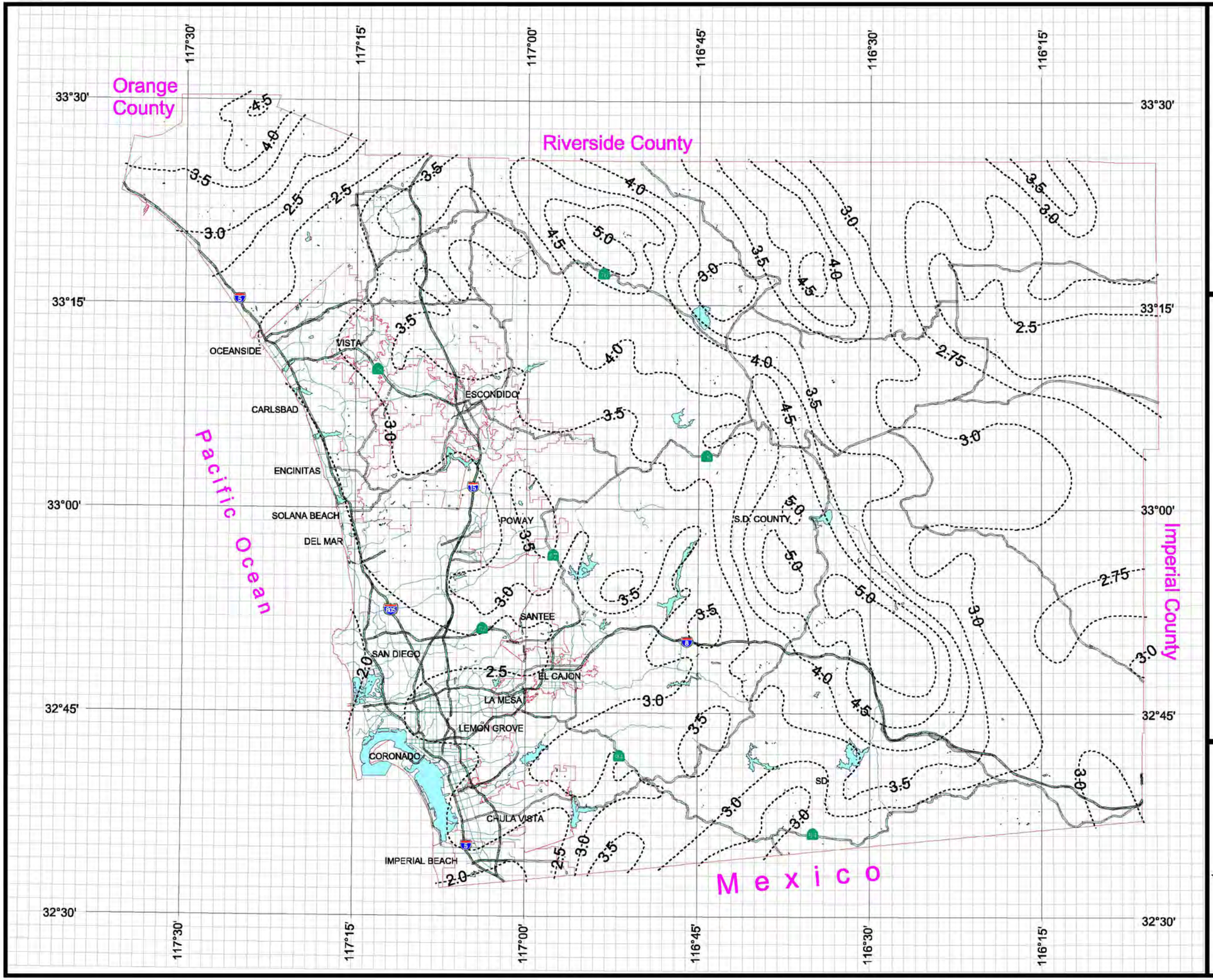
POST-PROJECT CONDITION						
Drainage Basin ID	**Total Area (sf)**	**Soil Type**	**Impervious Area (sf)**	**Pervious Area (sf)**	**% Impervious**	**Weighted Runoff Coefficient, C**
P1	43998	C	34828	9170	79.2%	0.77
P2	10531	C	829	9702	7.9%	0.35
P3	46587	D	37689	8898	80.9%	0.79
P4	28583	D	11520	17063	40.3%	0.57
P5	2470	C	0	2470	0.0%	0.30

County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 6 Hours

Isopluvial (inches)



DPW GIS — Department of Public Works Geographic Information Services

SanGIS — We Have San Diego Covered!

N W E S

3 0 3 Miles

THIS MAP IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
Copyright SanGIS. All Rights Reserved.

This products may contain information from the SANDAG Regional Information System which cannot be reproduced without the written permission of SANDAG.

This product may contain information which has been reproduced with permission granted by Thomas Brothers Maps.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Diego County Area, California

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Information for All Uses.....8
Soil Properties and Qualities.....8
Soil Qualities and Features.....8
Hydrologic Soil Group (2972/2982 South Santa Fe Avenue).....8
References.....13

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Map—Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)

Map Scale: 1:1,060 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 15, May 27, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 24, 2020—Feb 12, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DaD	Diablo clay, 9 to 15 percent slopes, warm MAAT	C	1.7	72.6%
HrC	Huerhuero loam, 2 to 9 percent slopes	D	0.6	27.4%
Totals for Area of Interest			**2.3**	**100.0%**

Rating Options—Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

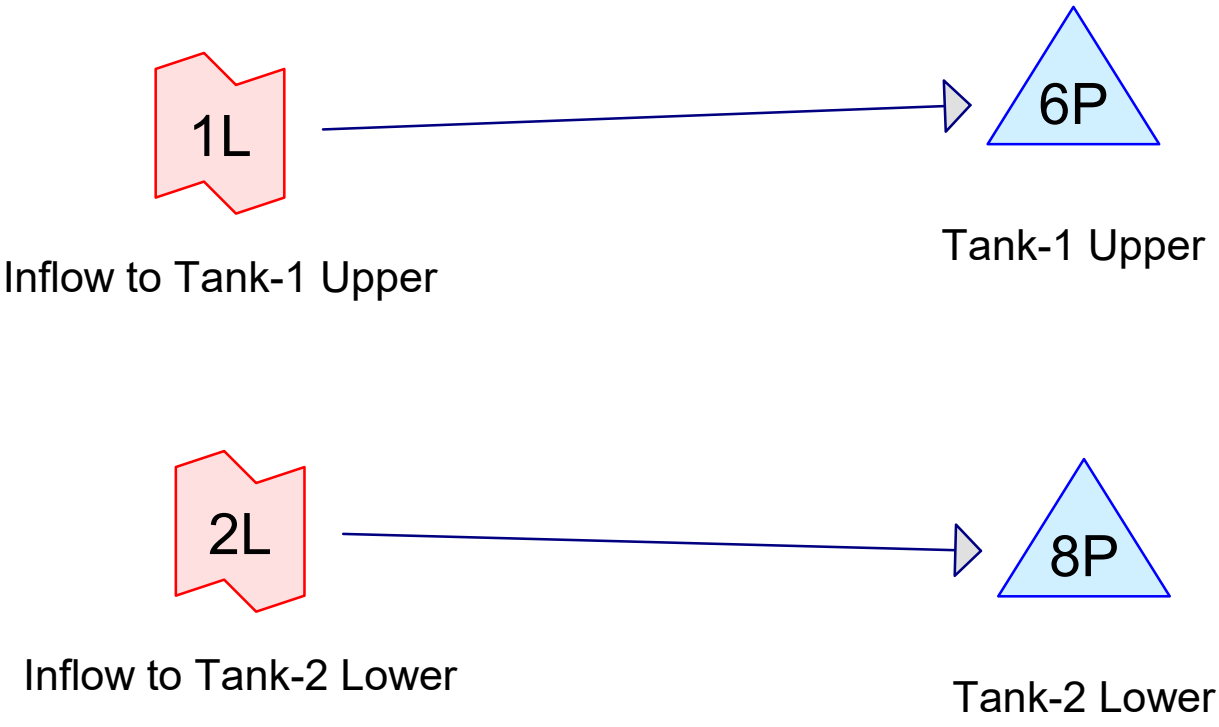
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

APPENDIX B

Detention Support Material



Subcat Reach Pond Link

Routing Diagram for 3527
Prepared by Pasco Laret Suiter & Associates, Printed 3/2/2022
HydroCAD® 10.10-7a s/n 10097 © 2021 HydroCAD Software Solutions LLC

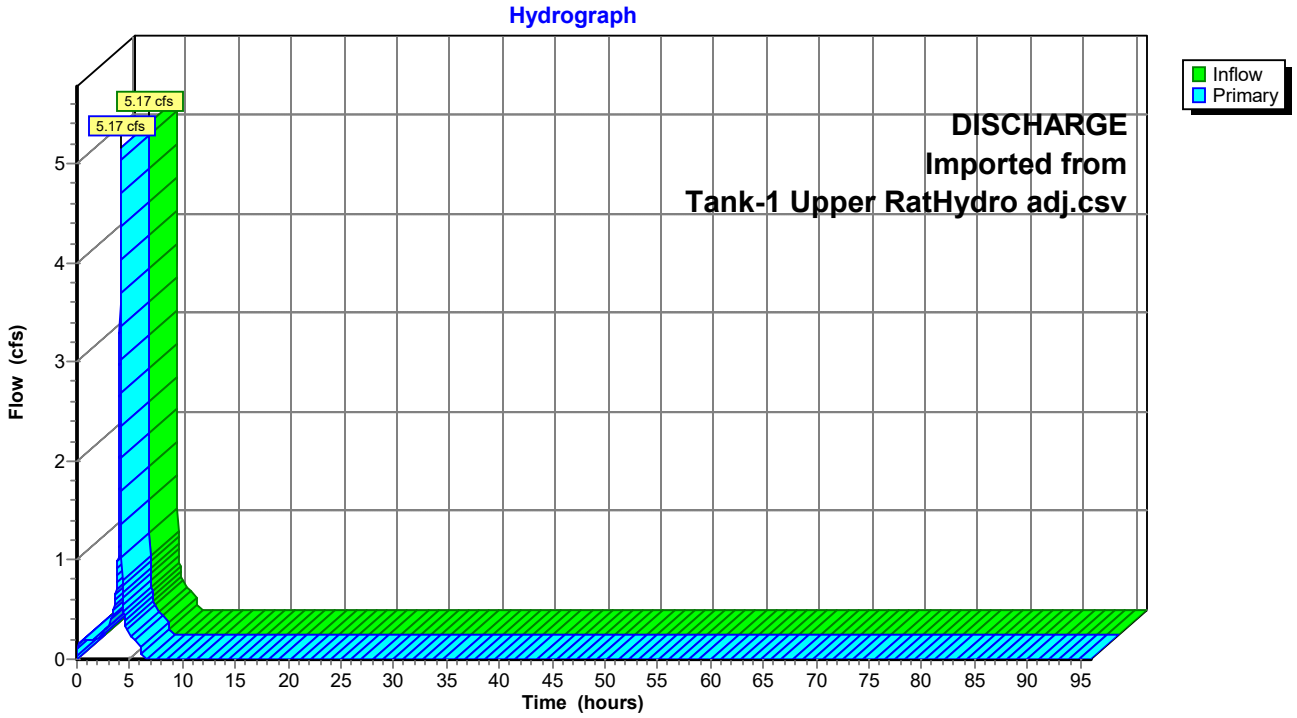
Summary for Link 1L: Inflow to Tank-1 Upper

Inflow = 5.17 cfs @ 4.13 hrs, Volume= 0.216 af
Primary = 5.17 cfs @ 4.13 hrs, Volume= 0.216 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 6P : Tank-1 Upper

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

DISCHARGE Imported from Tank-1 Upper RatHydro adj.csv

Link 1L: Inflow to Tank-1 Upper



Summary for Pond 6P: Tank-1 Upper

Inflow = 5.17 cfs @ 4.13 hrs, Volume= 0.216 af
Outflow = 0.30 cfs @ 4.93 hrs, Volume= 0.214 af, Atten= 94%, Lag= 47.9 min
Primary = 0.30 cfs @ 4.93 hrs, Volume= 0.214 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 105.13' @ 4.93 hrs Surf.Area= 1,600 sf Storage= 7,805 cf

Plug-Flow detention time= 1,616.3 min calculated for 0.214 af (99% of inflow)
Center-of-Mass det. time= 1,615.9 min (1,828.4 - 212.5)

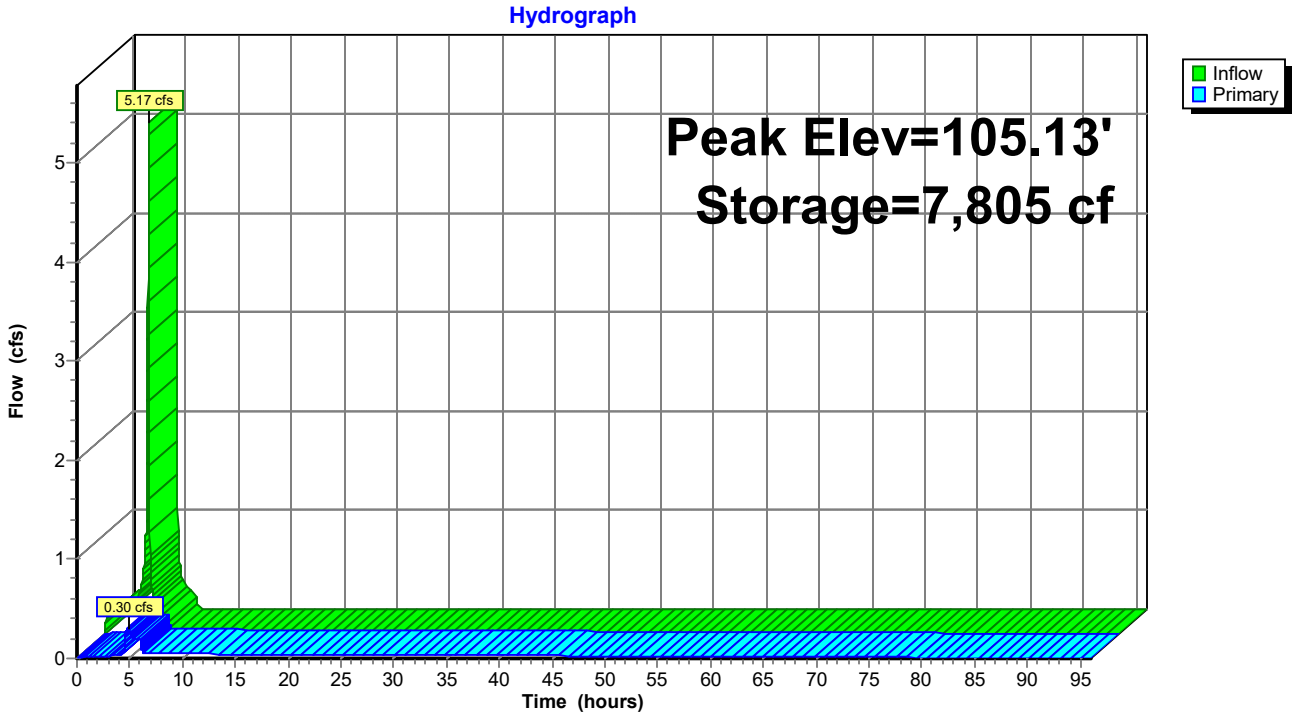
Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	8,482 cf	**Tank-1 Upper (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
100.00	1,600	0.0	0	0	1,600
101.00	1,600	95.0	1,520	1,520	1,742
102.00	1,600	95.0	1,520	3,040	1,884
103.00	1,600	95.0	1,520	4,560	2,025
104.00	1,600	95.0	1,520	6,080	2,167
105.00	1,600	95.0	1,520	7,600	2,309
105.08	1,600	95.0	122	7,722	2,320
105.58	1,600	95.0	760	8,482	2,391

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**12.00" Round Culvert** L= 100.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 100.00' / 99.00' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	100.00'	**0.90" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	105.08'	**Custom Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.50 0.50 Width (feet) 6.00 6.00 0.00

Primary OutFlow Max=0.30 cfs @ 4.93 hrs HW=105.13' (Free Discharge)
└**1=Culvert** (Passes 0.30 cfs of 6.86 cfs potential flow)
  ├**2=Orifice** (Orifice Controls 0.05 cfs @ 10.87 fps)
  └**3=Custom Weir** (Weir Controls 0.25 cfs @ 0.77 fps)

Pond 6P: Tank-1 Upper



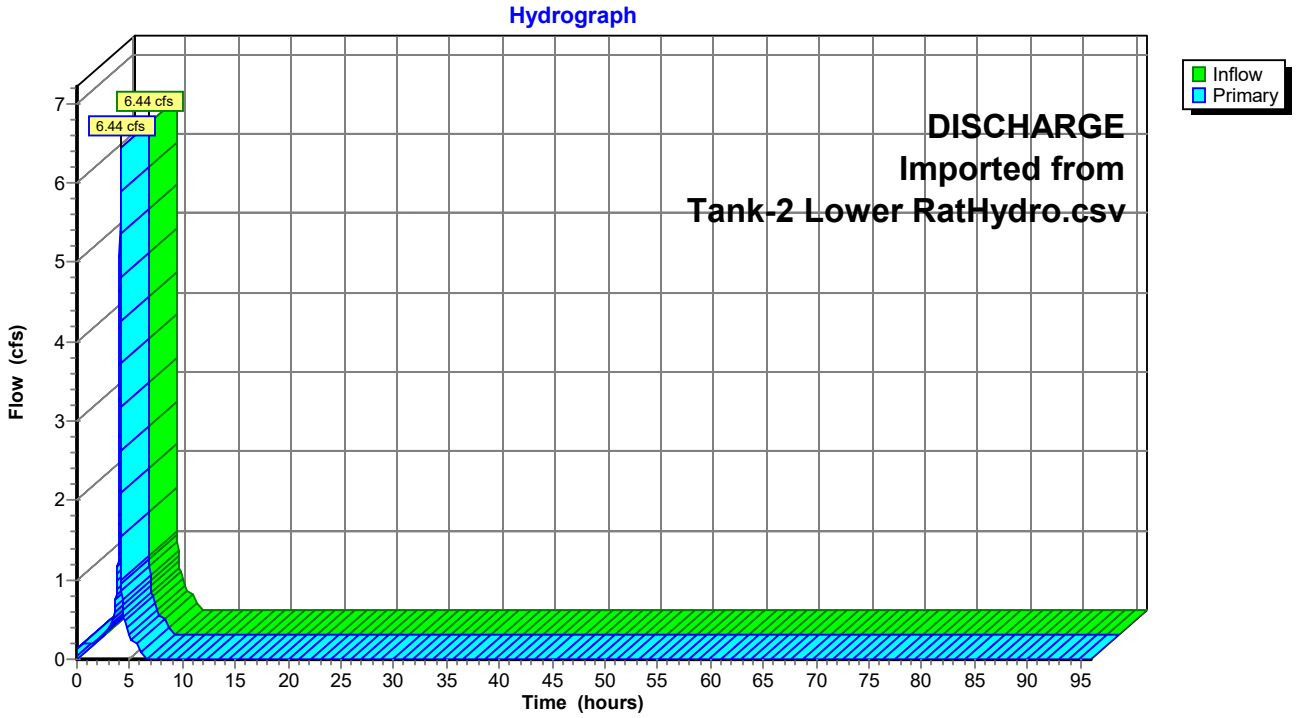
Summary for Link 2L: Inflow to Tank-2 Lower

Inflow = 6.44 cfs @ 4.10 hrs, Volume= 0.233 af
Primary = 6.44 cfs @ 4.10 hrs, Volume= 0.233 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 8P : Tank-2 Lower

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

DISCHARGE Imported from Tank-2 Lower RatHydro.csv

Link 2L: Inflow to Tank-2 Lower



Summary for Pond 8P: Tank-2 Lower

Inflow	=	6.44 cfs @	4.10 hrs,	Volume=	0.233 af
Outflow	=	4.02 cfs @	4.14 hrs,	Volume=	0.231 af, Atten= 38%, Lag= 2.7 min
Primary	=	4.02 cfs @	4.14 hrs,	Volume=	0.231 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 103.35' @ 4.14 hrs Surf.Area= 2,100 sf Storage= 6,686 cf

Plug-Flow detention time= 1,202.2 min calculated for 0.231 af (99% of inflow)
Center-of-Mass det. time= 1,201.2 min (1,413.6 - 212.4)

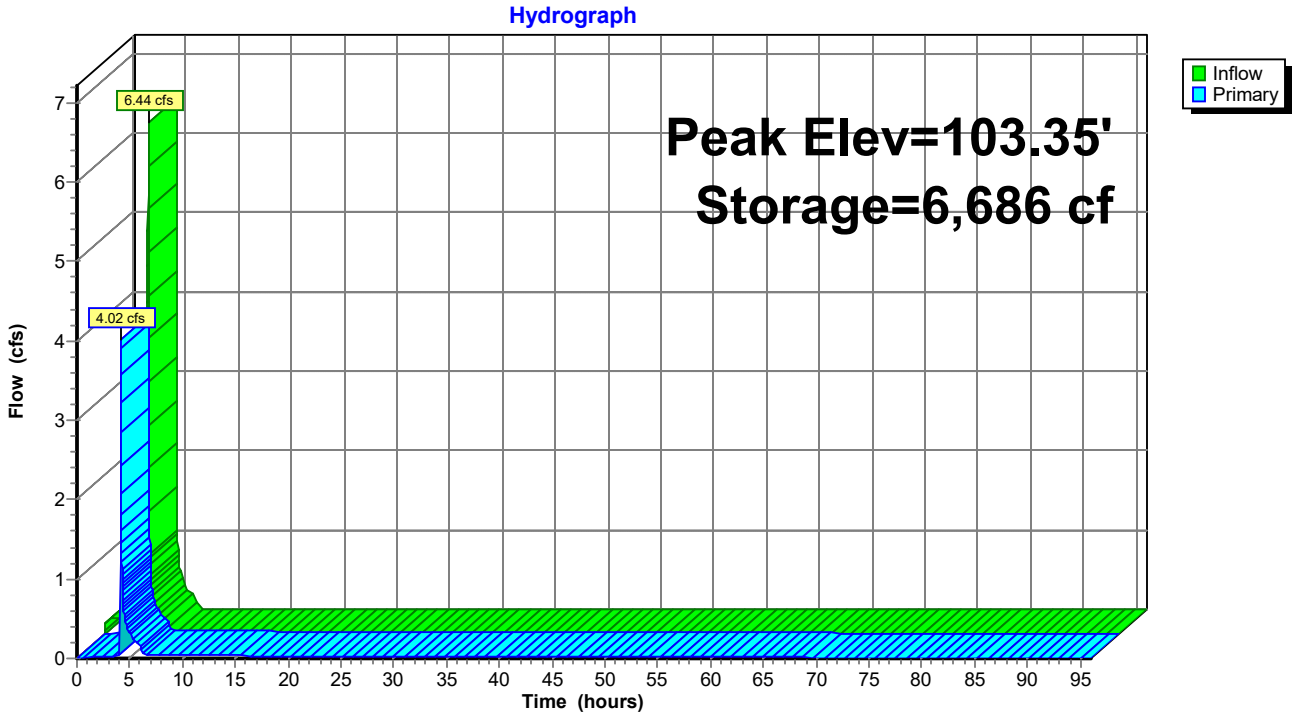
Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	7,062 cf	**Tank-2 Lower (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
100.00	2,100	0.0	0	0	2,100
101.00	2,100	95.0	1,995	1,995	2,262
102.00	2,100	95.0	1,995	3,990	2,425
103.00	2,100	95.0	1,995	5,985	2,587
103.04	2,100	95.0	80	6,065	2,594
103.54	2,100	95.0	998	7,062	2,675

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**12.00" Round Culvert** L= 100.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 100.00' / 99.00' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	100.00'	**0.90" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	103.04'	**Custom Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.50 0.50 Width (feet) 7.00 7.00 0.00

Primary OutFlow Max=3.99 cfs @ 4.14 hrs HW=103.35' (Free Discharge)
└**1=Culvert** (Passes 3.99 cfs of 5.54 cfs potential flow)
  ├**2=Orifice** (Orifice Controls 0.04 cfs @ 8.76 fps)
  └**3=Custom Weir** (Weir Controls 3.95 cfs @ 1.82 fps)

Pond 8P: Tank-2 Lower

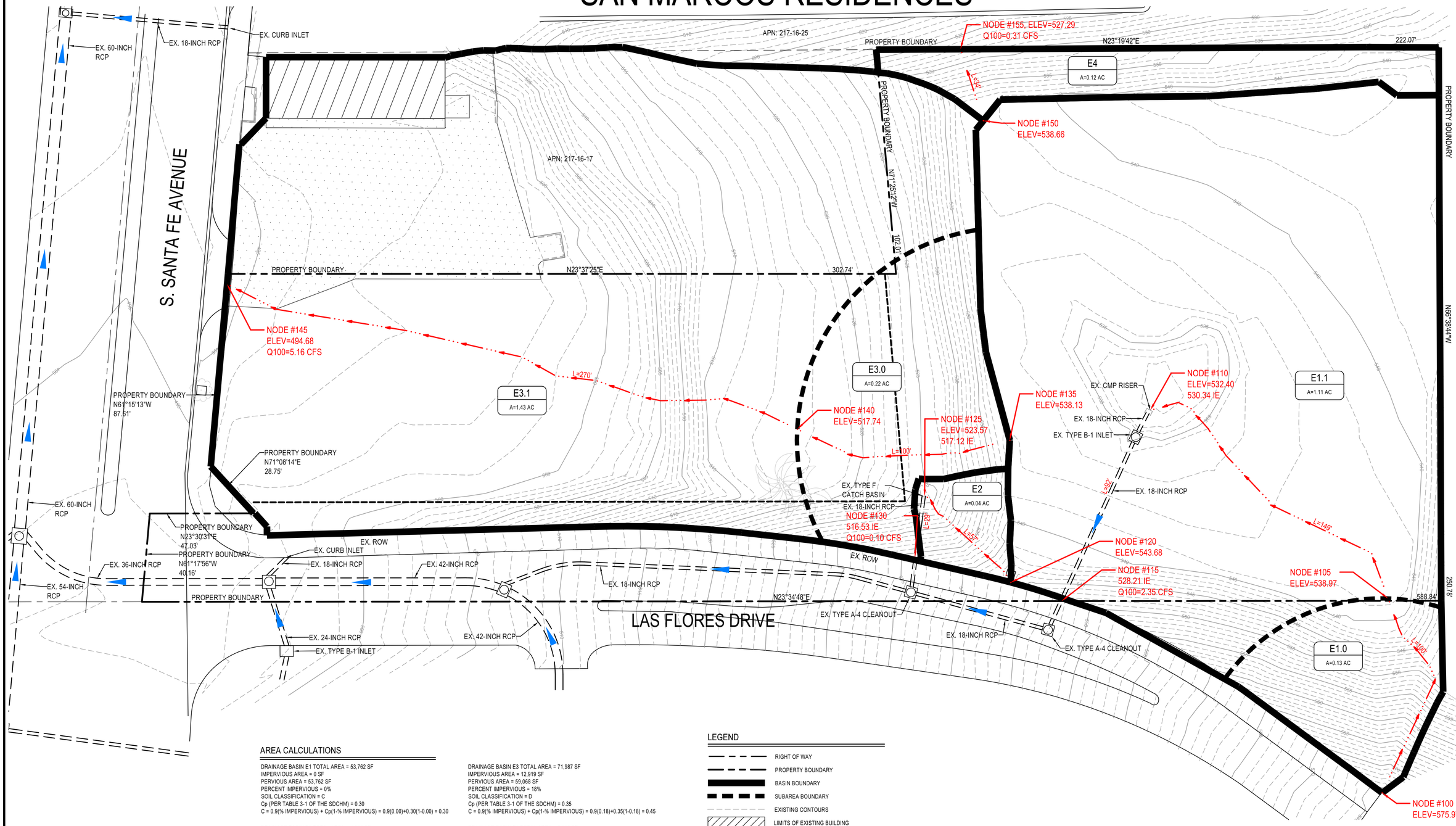


APPENDIX C

Existing and Proposed Hydrology Maps

PRE-PROJECT HYDROLOGY MAP

SAN MARCOS RESIDENCES



AREA CALCULATIONS

DRAINAGE BASIN E1 TOTAL AREA = 53,762 SF
IMPERVIOUS AREA = 0 SF
PERVIOUS AREA = 53,762 SF
PERCENT IMPERVIOUS = 0%
SOIL CLASSIFICATION = C
Cp (PER TABLE 3-1 OF THE SDCHM) = 0.30
C = 0.9(% IMPERVIOUS) + Cp(1-% IMPERVIOUS) = 0.9(0.00)+0.30(1-0.00) = 0.30

DRAINAGE BASIN E2 TOTAL AREA = 1,834 SF
IMPERVIOUS AREA = 0 SF
PERVIOUS AREA = 1,834 SF
PERCENT IMPERVIOUS = 0%
SOIL CLASSIFICATION = C
Cp (PER TABLE 3-1 OF THE SDCHM) = 0.30
C = 0.9(% IMPERVIOUS) + Cp(1-% IMPERVIOUS) = 0.9(0.00)+0.30(1-0.00) = 0.30

DRAINAGE BASIN E3 TOTAL AREA = 71,987 SF
IMPERVIOUS AREA = 12,919 SF
PERVIOUS AREA = 59,068 SF
PERCENT IMPERVIOUS = 18%
SOIL CLASSIFICATION = D
Cp (PER TABLE 3-1 OF THE SDCHM) = 0.35
C = 0.9(% IMPERVIOUS) + Cp(1-% IMPERVIOUS) = 0.9(0.18)+0.35(1-0.18) = 0.45

DRAINAGE BASIN E4 TOTAL AREA = 5,243 SF
IMPERVIOUS AREA = 0 SF
PERVIOUS AREA = 5,243 SF
PERCENT IMPERVIOUS = 0%
SOIL CLASSIFICATION = C
Cp (PER TABLE 3-1 OF THE SDCHM) = 0.30
C = 0.9(% IMPERVIOUS) + Cp(1-% IMPERVIOUS) = 0.9(0.00)+0.30(1-0.00) = 0.30

LEGEND

- RIGHT OF WAY
- PROPERTY BOUNDARY
- BASIN BOUNDARY
- SUBAREA BOUNDARY
- EXISTING CONTOURS
- LIMITS OF EXISTING BUILDING
- LIMITS OF EXISTING AC PAVEMENT
- STREET CENTERLINE
- SURFACE DRAINAGE PATH
- UNDERGROUND PIPE DRAINAGE PATH
- STORM DRAINAGE PIPE

SCALE: 1" = 20'

20 10 0 20 40 60

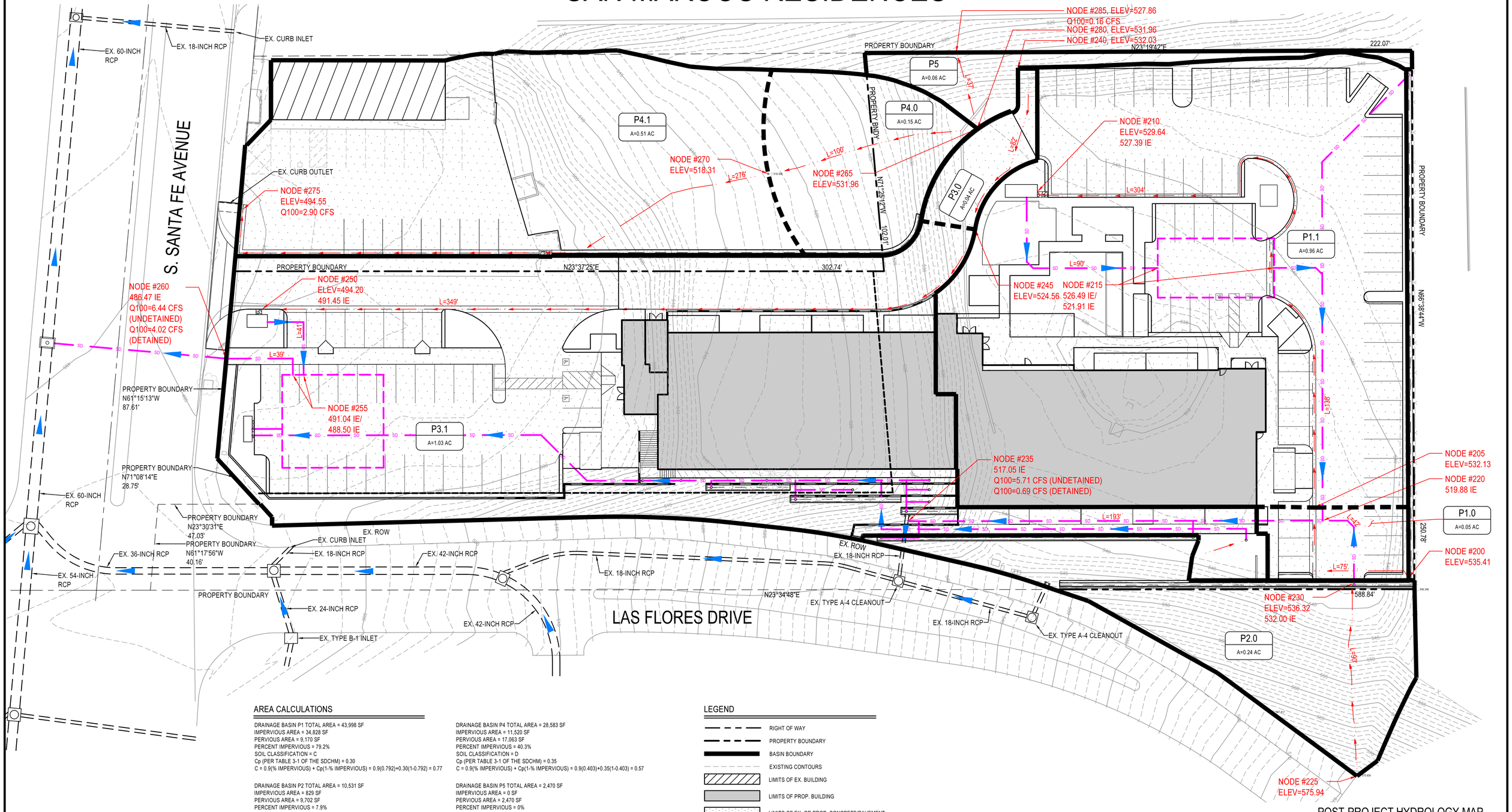
PRE-PROJECT HYDROLOGY MAP
SAN MARCOS RESIDENCES
CITY OF SAN MARCOS

PASCO LARET SUITER & ASSOCIATES
San Diego | Solana Beach | Orange County
Phone 858.259.8212 | www.plsaengineering.com

SAVE DATE: 03/04/22 ~ PLOT DATE: 04/25/22 ~ FILE NAME: J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\REPORTS\HYDROLOGY\Pre and Post Project Conditions Maps\3527-HYDRO-Pre Project Conditions Map.dwg

POST-PROJECT HYDROLOGY MAP

SAN MARCOS RESIDENCES



AREA CALCULATIONS

DRAINAGE BASIN P1 TOTAL AREA = 43,998 SF
IMPERVIOUS AREA = 34,828 SF
PERVIOUS AREA = 9,170 SF
PERCENT IMPERVIOUS = 79.2%
SOIL CLASSIFICATION = C
Cp (PER TABLE 3-1 OF THE SDCHM) = 0.30
C = 0.9(% IMPERVIOUS) + Cp(1-% IMPERVIOUS) = 0.9(0.792)+0.30(1-0.792) = 0.77

DRAINAGE BASIN P2 TOTAL AREA = 10,531 SF
IMPERVIOUS AREA = 829 SF
PERVIOUS AREA = 9,702 SF
PERCENT IMPERVIOUS = 7.9%
SOIL CLASSIFICATION = C
Cp (PER TABLE 3-1 OF THE SDCHM) = 0.30
C = 0.9(% IMPERVIOUS) + Cp(1-% IMPERVIOUS) = 0.9(0.079)+0.30(1-0.079) = 0.35

DRAINAGE BASIN P3 TOTAL AREA = 46,587 SF
IMPERVIOUS AREA = 37,689 SF
PERVIOUS AREA = 8,898 SF
PERCENT IMPERVIOUS = 80.9%
SOIL CLASSIFICATION = D
Cp (PER TABLE 3-1 OF THE SDCHM) = 0.35
C = 0.9(% IMPERVIOUS) + Cp(1-% IMPERVIOUS) = 0.9(0.809)+0.35(1-0.809) = 0.79

DRAINAGE BASIN P4 TOTAL AREA = 28,583 SF
IMPERVIOUS AREA = 11,520 SF
PERVIOUS AREA = 17,063 SF
PERCENT IMPERVIOUS = 40.3%
SOIL CLASSIFICATION = D
Cp (PER TABLE 3-1 OF THE SDCHM) = 0.35
C = 0.9(% IMPERVIOUS) + Cp(1-% IMPERVIOUS) = 0.9(0.403)+0.35(1-0.403) = 0.57

DRAINAGE BASIN P5 TOTAL AREA = 2,470 SF
IMPERVIOUS AREA = 0 SF
PERVIOUS AREA = 2,470 SF
PERCENT IMPERVIOUS = 0%
SOIL CLASSIFICATION = C
Cp (PER TABLE 3-1 OF THE SDCHM) = 0.30
C = 0.9(% IMPERVIOUS) + Cp(1-% IMPERVIOUS) = 0.9(0.00)+0.30(1-0.00) = 0.30

LEGEND

- RIGHT OF WAY
- PROPERTY BOUNDARY
- BASIN BOUNDARY
- EXISTING CONTOURS
- LIMITS OF EX. BUILDING
- LIMITS OF PROP. BUILDING
- LIMITS OF EX. OR PROP. CONCRETE/PAVEMENT
- STREET CENTERLINE
- SURFACE DRAINAGE PATH
- UNDERGROUND PIPE DRAINAGE PATH
- EX. STORM DRAINAGE PIPE
- PROP. STORM DRAINAGE PIPE
- PROP. UNDERGROUND DETENTION SYSTEM

SCALE: 1" = 20'

20 10 0 20 40 60

POST-PROJECT HYDROLOGY MAP
SAN MARCOS RESIDENCES
CITY OF SAN MARCOS

PASCO LARET SUITER & ASSOCIATES
San Diego | Encinitas | Orange County
Phone 949.661.6695 | www.plsaengineering.com

APPENDIX H

Water Supply Study

S. SANTA FE & LAS FLORES WATER SUPPLY STUDY

LN 2022-004

January 25, 2022

Prepared By: Robert Scholl, P.E.

Approvals:_____

GENERAL POLICY STATEMENT

This water supply study is based on current criteria. It is not a representation, expressed or implied, that the Vista Irrigation District (District) will furnish water at a future date. Applications for service are governed by separate rules and regulations, and are the subject of separate District proceedings, apart from this water supply study.

The location of existing improvements and the recommendations of this hydraulic analysis are presented in schematic form only. It is the responsibility of the Developer/Engineer to design the final improvements, including independent investigation of existing conditions.

This Study is based on the current adopted land use utilized in the City of San Marcos's General Plan, adopted in 2012 (General Plan). The study addresses the incremental facility impacts of this Project only and does not include or consider any additional projects within District's service area that have deviated from General Plan land uses. Any land use changes within the vicinity of the Study area may necessitate a revision to the Study. The District shall determine if and when revisions to the Study are necessary. Costs for revising this Study shall be borne by the Developer.

INTRODUCTION AND PURPOSE

The proposed development at 2972 and 2982 S. Santa Fe Avenue (Project) consists of 54 multi-family residential units on 2.23 acres (APNs 217-161-18 & 19). Another 0.27 acre of the Project is being dedicated as public right-of-way along Las Flores Drive. The property is located on the northwestern side of the S. Santa Fe Avenue and Las Flores Drive intersection in the City of San Marcos. The Project is located within the District's Sphere of Influence and water service boundary.

The purpose of this study is to serve as a nexus document for setting development conditions. It evaluates the configuration of the proposed water system, District service rights, and the ability of the existing water distribution system to serve the Project during peak hour and maximum day plus fire flow demand conditions. Evaluation includes:

- Water distribution system; including the need to upsize or install new pipelines and appurtenances.

- Access and utility easements; including evaluation of the adequacy of existing easements, and the need for new easements.

SOURCE OF WATER, PROPOSED FACILITIES, AND EASEMENTS

The proposed Project lies completely within the District's 837 Pressure Zone, which is supplied by gravity from the 20.0 million gallon (mg) Pechstein Reservoir and multiple pressure regulating stations. Figures 1 through 3 show the development's location, existing water infrastructure within the vicinity of the development, and the proposed facilities.

The site is currently vacant and undeveloped; however, 2972 S. Santa Fe Avenue is served by a 5/8-inch domestic meter (account #3745-0261) on the southern side of the parcel that is connected to the District's 10-inch pipeline within S. Santa Fe Avenue. In addition, 2982 S. Santa Fe Avenue is served by a 1-inch domestic meter (account #3745-0265) and a 1-inch irrigation meter (account #3745-0139) on the eastern side of the parcel which are both connected to the District's 10-inch pipeline within N. Las Flores Drive. The Developer proposes to remove the two domestic services while keeping the irrigation service. Based on the utility site plan provided by the Developer, new domestic water service and fire service (size to be determined) lines would connect to the District's 10-inch pipeline within S. Santa Fe Avenue. The fire service would supply two private on-site fire hydrants. An extension of the public water system is not considered necessary to allow a connection point for the new services.

The proposed Project lies within the District's Blanket Easement BF59 and Specific Easement SW24. Since an extension of the public water system is not necessary, the District does not need any access and utility easements for the Project. However, the District will require being signatory on any mapping for the Project.

WATER FLOW PROJECTIONS AND DESIGN CRITERIA

The existing zoning designations by the City of San Marcos's General Plan are commercial for 2972 S. Santa Fe Avenue and light industrial for 2982 S. Santa Fe Avenue. The District's 2018 Potable Water Master Plan (Master Plan) based its water demand planning on these approved land uses. The Project developer proposes to build 54 multi-family residential townhomes on 2.23 acres, which equates to approximately 24 dwelling units per acre. In order to accommodate this dwelling unit density, the developer is proposing a General Plan Amendment to modify the property's land use to Multi-Family Residential.

Based on the unit demand factor of 3,650 gallons per day (gpd)/acre developed in the Master Plan for multi-family residential land use and site size of 2.23 acres, the projected average annual water demand for the Project is 8,140 gpd.

The Master Plan outlines the District's water system design criteria, which are as follows:

Peaking Factors

- Maximum day demands: 200% of average annual demands
- Peak hour demands: 300% of average annual demands

System Pressure

- Peak hour demand conditions: 40 pounds per square inch (psi) minimum
- Maximum day demand plus fire flow: 20 psi minimum
- Static: 150 psi maximum

Fire Flow

- The City of San Marcos Fire Marshal has set the required fire demand at 1,500 gallons per minute (gpm) for the Project.

Pipeline Fluid Velocity

- Peak hour demand conditions: 8 feet per second (fps) maximum
- Maximum day demand plus fire flow: 16 fps maximum

Pipeline Diameter

- Short dead-end, no hydrants: 4-inch diameter minimum
- Feeding hydrants: 8-inch diameter minimum

HYDRAULIC ANALYSES

A hydraulic analysis was performed on the District's distribution system with the Project's proposed water demands on the District's 10-inch pipeline within S. Santa Fe Avenue. The analysis was carried out using the District's InfoWater® v12.4 water distribution computer model. The modeled pressure results are summarized in the table below.

Hydraulic Modeling Results

Node Location	Elevation (ft)	Static Pressure (psi)	Peak Hour Pressure (psi)	Max Day + FF Pressure (psi)*
S. Santa Fe Water Main South of Project	492.3	149	110	N/A
Proposed Fire Hydrant #1 in Project	495.5	148	N/A	80**
Proposed Fire Hydrant #2 in Project	528.0	134	N/A	60**

*Simulated fire flows are within the distribution system water mains, analyses do not represent actual flow available through a fire hydrant assembly or fire sprinkler system.

**Maximum day plus fire flow pressure results for the private infrastructure within the limits of the development assumes a 15-psi headloss through the reduced pressure detector assembly (RPDA) and an 8-inch private fire service pipeline.

No existing system deficiencies were identified in any pipe segments in the vicinity of the development during any scenario. Results from the analysis show that the required fire flow

demand of 1,500 gpm can be met at both of the proposed private fire hydrants within the development.

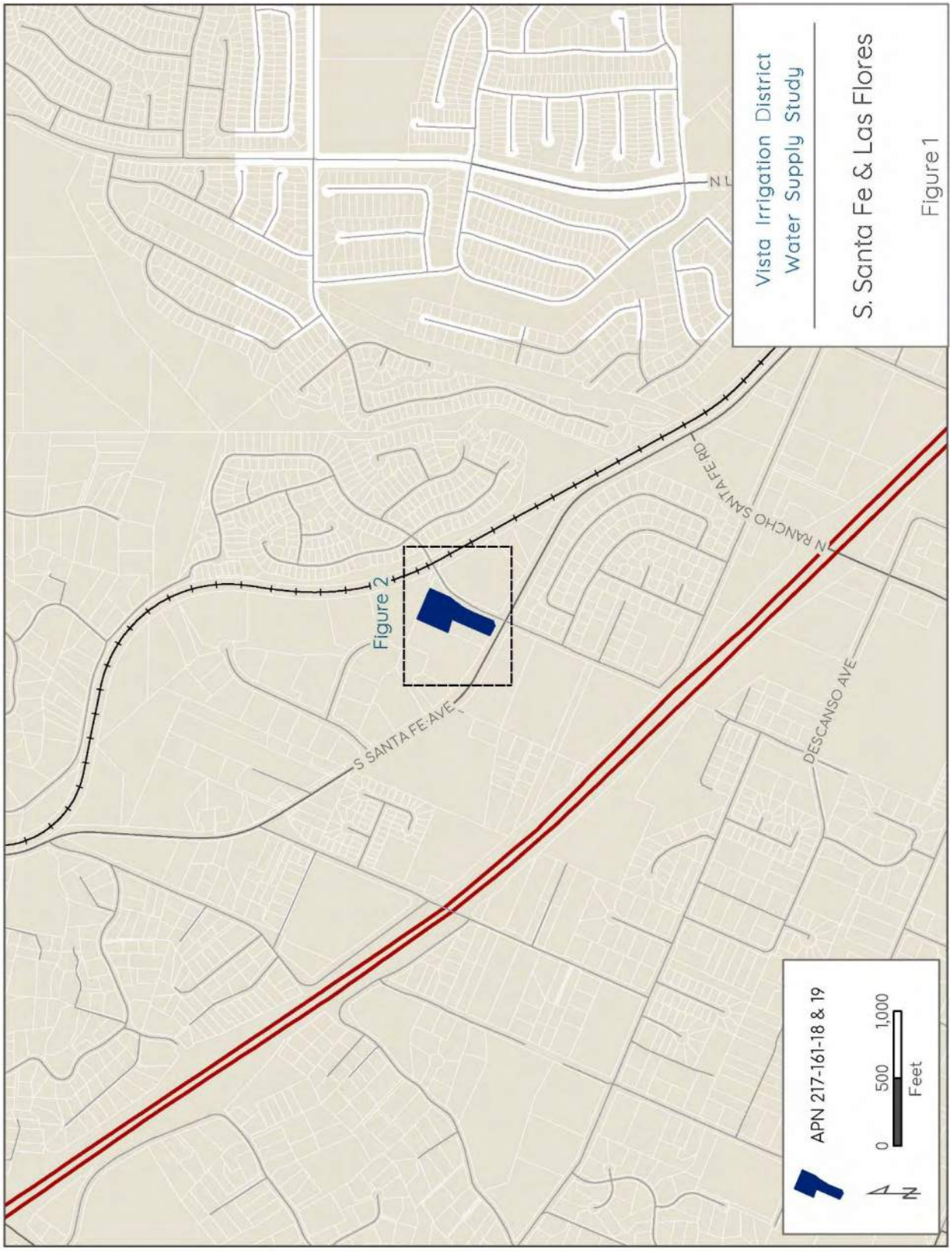
The District makes no guarantee that the available fire flow and pressures are presently available, nor guarantee that the flow and pressure will be available in the future due to continued growth that places additional demands for water on the water distribution system. Availability of flow and pressure is also subject to shutdowns and variations required by the operation of the District's distribution system.

CONCLUSION AND CONDITIONS

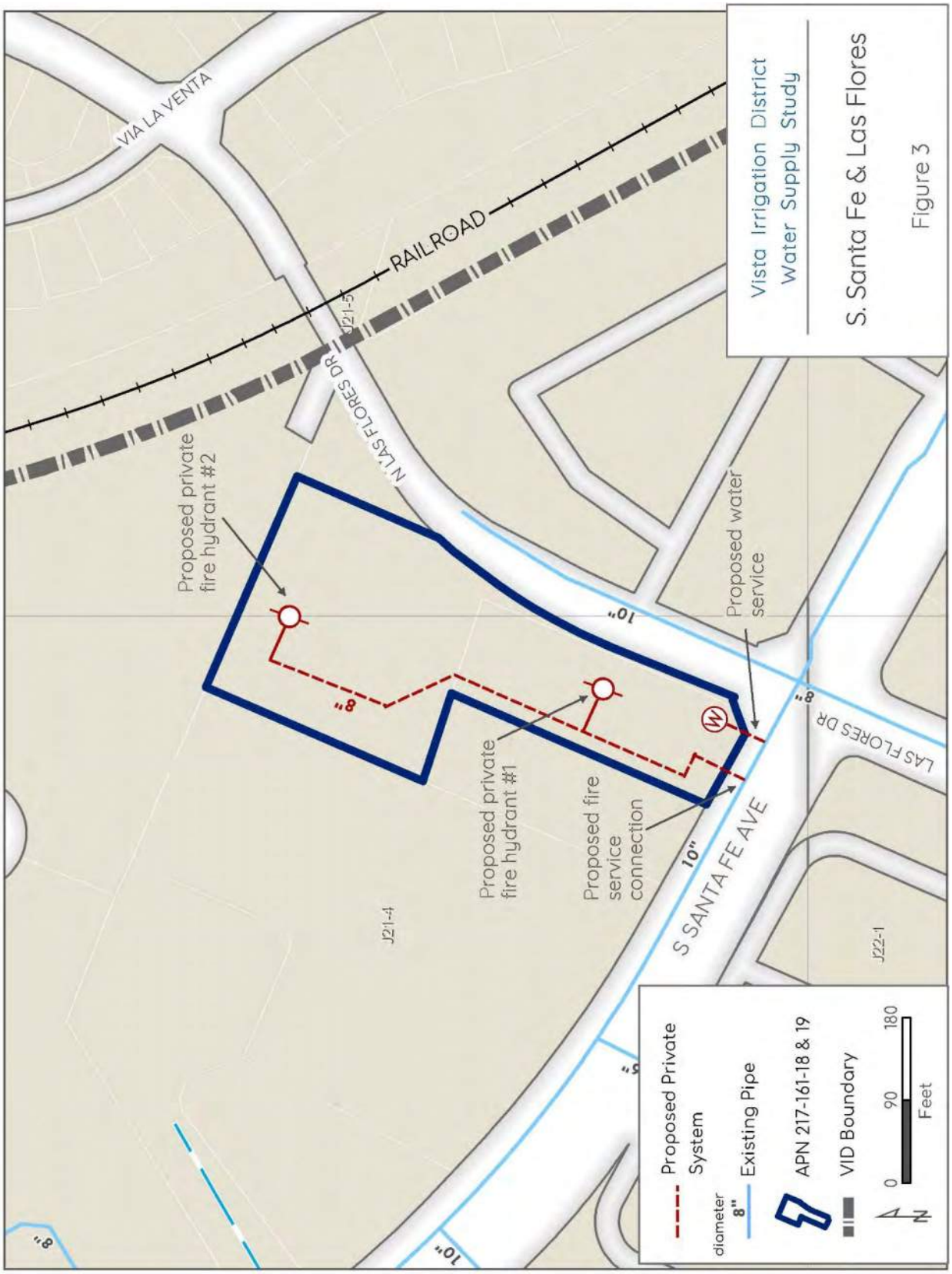
The Project is proposing a General Plan Amendment to modify the property's land use to Multi-Family Residential. Based on the unit demand factor of 3,650 gpd/acre for multi-family residential development and site size of 2.23 acres, the projected average annual water demand for the Project is 8,140 gpd.

The Study did not identify any existing system deficiencies within the Project limits or in the vicinity of the development during peak hour demand or maximum day plus fire flow demand scenarios. The following improvements were assumed to be constructed as part of this development:

- Installation of a water service and master meter sized to accommodate the development, and connected to the District's 10-inch main in S. Santa Fe Avenue. The site is currently served by a 5/8-inch domestic meter and a 1-inch domestic meter, both of which will be removed.
- Installation of an RPDA and fire service connected to the District's main in S. Santa Fe Avenue.
- Installation of an 8-inch minimum private fire system sized to serve the 54 multi-family residential units.


Vista Irrigation District
Water Supply Study
S. Santa Fe & Las Flores
Figure 1
N L
N RANCHO SANTA FE RD
Figure 2
S SANTA FE AVE
DESCANSO AVE
APN 217-161-18 & 19
0
500
1,000
Feet
N

Vista Irrigation District
Water Supply Study
S. Santa Fe & Las Flores
Figure 2
VIA LA VENTA
RAILROAD
N LAS FLORES DR
J21-5
J21-4
J22-1
10"
8"
6"
LAS FLORES DR
S SANTA FE AVE
diameter
Existing Pipe
APN 217-161-18 & 19
VID Boundary
0
90
180
Feet
N


Vista Irrigation District
Water Supply Study
S. Santa Fe & Las Flores
Figure 3
VIA LA VENTA
RAILROAD
N LAS FLORES DR
J21-5
Proposed private fire hydrant #2
Proposed water service
Proposed private fire hydrant #1
Proposed fire service connection
S SANTA FE AVE
LAS FLORES DR
J21-4
J22-1
10"
8"
Proposed Private System
diameter
Existing Pipe
APN 217-161-18 & 19
VID Boundary
0
90
180
Feet
N

APPENDIX I

Noise Analysis

Noise Analysis for the Santa Fe Flores Project San Marcos, California

Prepared for

Santa Fe Flores, LP
P.O. Box 903
Rancho Santa Fe, CA 92067
Contact: Paul Mayer

Prepared by

RECON Environmental, Inc.
3111 Camino del Rio North, Suite 600
San Diego, CA 92108
P 619.308.9333

RECON Number 9865
March 28, 2022

Jessica Fleming
Environmental Specialist
Noise, Air Quality, Greenhouse Gas

TABLE OF CONTENTS

Acronyms and Abbreviations iii
Executive Summary 1
1.0 Introduction 2
1.1 Project Description 2
1.2 Fundamentals of Noise 6
2.0 Applicable Noise Standards 7
2.1 General Plan 7
2.2 Municipal Code 8
2.3 California Green Building Standards Code – Environmental Comfort 9
3.0 Existing Conditions 9
4.0 Analysis Methodology 10
4.1 Construction Noise Analysis 12
4.2 Traffic Noise Analysis 13
4.3 On-site Generated Noise Analysis 15
5.0 Future Acoustical Environment and Impacts 16
5.1 Construction Noise 16
5.2 Traffic Noise 17
5.3 On-site Generated Noise 21
6.0 Conclusions 23
6.1 Construction Noise 23
6.2 Traffic Noise 23
6.3 On-site Generated Noise 24
7.0 References Cited 24

FIGURES

1: Regional Location 3
2: Project Location on Aerial Photograph 4
3: Site Plan 5
4: Noise Measurement Locations 11
5: Construction Noise Contours 18
6: Vehicle and Rail Traffic Noise Contours 19
7: HVAC Noise Contours 22

TABLE OF CONTENTS (cont.)

TABLES

1: Interior and Exterior Noise Guidelines 8
2: Municipal Code Property Line Noise Standards 9
3: Noise Measurements 10
4: 15-minute Traffic Counts 10
5: Typical Construction Equipment Noise Levels 12
6: Modeled Vehicle Traffic Parameters 14
7: Modeled Sprinter Trains 14
8: Future Vehicle Traffic Parameters 15
9: Construction Noise Levels 16
10: Future Vehicle and Rail Traffic Noise Levels 17
11: Traffic Noise Level with and without Project and Ambient Noise Increases 20
12: HVAC Noise Levels at Adjacent Properties 23

ATTACHMENTS

1: Noise Measurement Data
2: HVAC Specifications
3: SoundPLAN Data – Construction Noise
4: SoundPLAN Data – On-site Traffic and Rail Noise
5: FHWA RD-77-108 – Off-site Traffic Noise
6: SoundPLAN Data – On-site Generated Noise

Acronyms and Abbreviations

ADT	average daily traffic
CALGreen	California Green Building Standards
Caltrans	California Department of Transportation
CCR	California Code of Regulations
City	City of San Marcos
CNEL	community noise equivalent level
dB	decibel
dB(A)	A-weighted decibel
FHWA	Federal Highway Administration
HVAC	heating, ventilating, and air conditioning
L_{90}	noise level exceeded 90 percent of the time
L_{eq}	one-hour equivalent noise level
L_{max}	maximum noise level
LOS	Level of Service
L_{pw}	sound power level
project	Santa Fe Flores Project

Executive Summary

The Santa Fe Flores Project (project) is located in the city of San Marcos at 2972 and 2982 South Santa Fe Avenue adjacent to Las Flores Drive. The 2.5-acre project site has been previously graded and is undeveloped, and is currently designated Commercial and Light Industrial in the City of San Marcos (City) General Plan and zoned as Commercial and Light Industrial. The project would require a General Plan Amendment and Rezone to Multi-family Residential to allow the development of 50 multi-family residential units.

This report discusses potential noise impacts from the construction and operation of the project. As part of this assessment, noise levels due to vehicle traffic were calculated and evaluated against City noise and land use compatibility guidelines. In addition to compatibility, the potential for noise to impact adjacent uses from future on-site sources and construction activity was assessed. A summary of the findings is provided below.

Construction Noise

Construction activity is regulated by the City Municipal Code, which limits noise by restricting construction activities to hours unlikely to impact the community. Noise associated with the grading, building, and paving for the project would potentially result in short-term impacts to surrounding residential properties. Construction noise levels would range from 57 to 74 A-weighted decibels equivalent noise level [dB(A) L_{eq}] at the adjacent properties. Construction activities would generally occur over the period between 7:00 a.m. and 6:00 p.m. on weekdays. Although the existing adjacent uses would be exposed to construction noise levels that may be heard above ambient conditions, the exposure would be temporary and would not exceed 75 dB(A) L_{eq}. As construction activities associated with the project would comply with Section 10.24.020 (b)(9) of the City Municipal Code, temporary increases in noise levels from construction activities would be less than significant.

Traffic Noise

The additional vehicle trips associated with the project would increase noise levels on nearby roadways. A noise increase of 3 dB or more would be considered significant because 3 dB is the level at which an increase in noise is perceptible to a person. However, the project would not generate enough trips to result in a direct or cumulative noise increase of more than 3 dB. Therefore, the project would result in less than significant direct and cumulative impacts related to traffic noise.

The main source of noise at the project site is vehicle traffic on South Santa Fe Avenue and Las Flores Drive as well as Sprinters on the adjacent rail line. Exterior noise levels were modeled at the project site to determine compatibility with City standards. The applicable standards for multi-family uses are an exterior noise level of 65 community noise equivalent level (CNEL) and an interior noise level of 45 CNEL. The project's exterior useable spaces include the patios and the open play lawn, tot lot, and seating areas on the western side of the proposed buildings. As calculated in this analysis, exterior noise levels are projected to range from 45 to 63 CNEL at the outdoor use areas and building

façade. Noise levels would be compatible with the City's exterior multi-family noise level standard of 65 CNEL. Exterior noise impacts would be less than significant.

The interior noise level standard is 45 CNEL. Interior noise levels can be reduced through standard construction techniques. When windows are closed, standard construction techniques provide various exterior-to-interior noise level reductions depending on the type of structure and window. Standard light-frame construction would reduce exterior to interior noise levels by at least 20 dB (Federal Highway Administration 2011). Therefore, interior noise levels would be 43 CNEL or less, and are not projected to exceed the interior noise level standard of 45 CNEL. Interior noise impacts would be less than significant.

On-site Generated Noise

The noise sources on the project site after completion of construction are anticipated to be those that would be typical of any residential use, such as vehicles arriving and leaving, children at play, and landscape maintenance machinery. None of these noise sources are anticipated to violate the Municipal Code. Rooftop heating, ventilating, and air conditioning noise levels were modeled at the property line adjacent properties. As calculated in this analysis, HVAC noise levels would range from 33 to 44 dB(A) L_{eq} at the adjacent properties. Noise levels would not exceed the applicable Noise Ordinance limits at the property lines.

1.0 Introduction

1.1 Project Description

The Santa Fe Flores Project (project) is located in the city of San Marcos at 2972 and 2982 South Santa Fe Avenue adjacent to Las Flores Drive on assessor parcel numbers 217-161-1800 and 217-161-1900. Figure 1 shows the regional location. The 2.5-acre project site has been previously graded and is undeveloped, and is currently designated Commercial and Light Industrial in the City of San Marcos (City) General Plan and zoned as Commercial and Light Industrial. Figure 2 shows an aerial photograph of the project site and vicinity.

The project would require a General Plan Amendment and Rezone to Multi-family Residential to allow the development of 50 multi-family residential units in one building that would be three to four stories in height. The project would also include a 1,000-square-foot roof deck for fitness and leisure, a 1,170-square-foot ground floor leasing and amenity center, and 120-square-foot ground floor fire command center. Vehicle parking would include a total of 107 surface parking spaces and bicycle parking would include a total of 11 lockers or bike storage rooms located on the upper and lower levels. Figure 3 shows the proposed site plan.

Project Location

RECON

M:\JOBS5\9865\common_gis\fig1.mxd 03/08/2022 bma

FIGURE 1
Regional Location

Image Source: NearMap (flown January 2022)

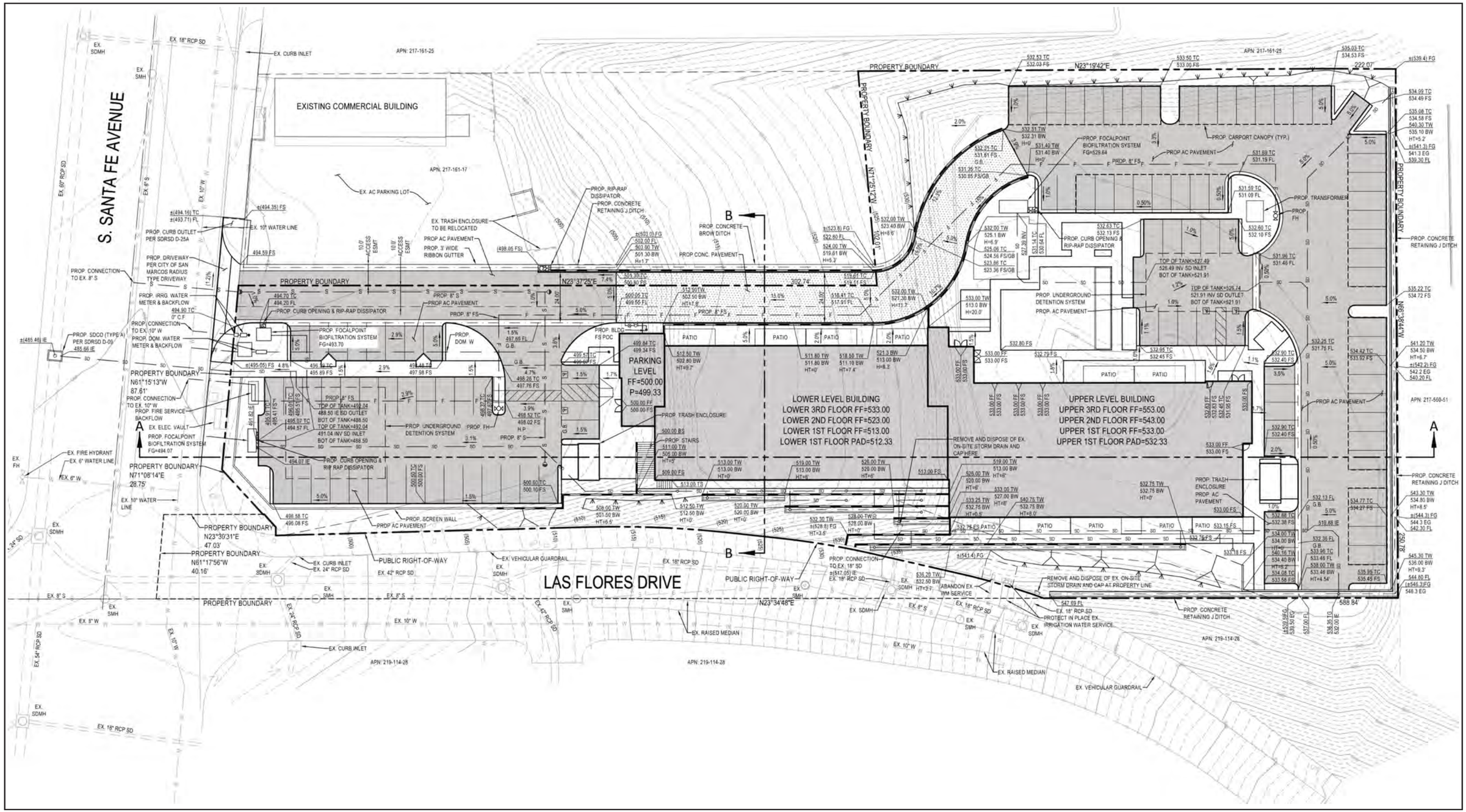
Project Boundary

RECON

M:\JOBS5\9865\common_gis\fig2_air.mxd 03/23/2022 bma

FIGURE 2
Project Location on Aerial Photograph

Map Source: Pasco Laret Suiter & Associates


S. SANTA FE AVENUE
EXISTING COMMERCIAL BUILDING
PROPERTY BOUNDARY
N23°37'25"E
302.74'
N23°19'42"E
229.07'
N71°25'12"W
N61°15'13"W
87.61'
N71°08'14"E
28.75'
N23°30'31"E
47.03'
N61°17'56"W
40.16'
N23°34'48"E
588.84'
N67°38'44"E
PARKING LEVEL FF=500.00 P=499.33
LOWER LEVEL BUILDING
LOWER 3RD FLOOR FF=533.00
LOWER 2ND FLOOR FF=523.00
LOWER 1ST FLOOR FF=513.00
LOWER 1ST FLOOR PAD=512.33
UPPER LEVEL BUILDING
UPPER 3RD FLOOR FF=553.00
UPPER 2ND FLOOR FF=543.00
UPPER 1ST FLOOR FF=533.00
UPPER 1ST FLOOR PAD=532.33
LAS FLORES DRIVE
PUBLIC RIGHT-OF-WAY
APN: 217-161-25
APN: 217-161-17
APN: 217-560-51
APN: 219-114-28
PROP. FOCALPOINT BIOFILTRATION SYSTEM FG=493.70
PROP. FOCALPOINT BIOFILTRATION SYSTEM FG=494.07
PROP. FOCALPOINT BIOFILTRATION SYSTEM FG=529.84
PROP. UNDERGROUND DETENTION SYSTEM
PROP. CARPORT CANOPY (TYP.)
PROP. TRANSFORMER
PROP. TRASH ENCLOSURE
PROP. CONCRETE RETAINING J DITCH
PROP. CURB OPENING & RIP-RAP DISSIPATOR
PROP. RIP-RAP DISSIPATOR
PROP. AC PAVEMENT
PROP. CONCRETE RETAINING J DITCH
PROP. CONCRETE BROW DITCH
PROP. CONC. PAVEMENT
PROP. 8" S
PROP. 8" FS
PROP. 3' WIDE RIBBON GUTTER
PROP. SCREEN WALL
PROP. BLDG FS POC
PROP. TRASH ENCLOSURE
PROP. STAIRS
PROP. CONNECTION TO EX. 18" SD
PROP. CURB OUTLET PER SDRSD D-25A
PROP. DRIVEWAY PER CITY OF SAN MARCOS RADIUS TYPE DRIVEWAY
PROP. IRRG. WATER METER & BACKFLOW
PROP. CONNECTION TO EX. 8" S
PROP. CONNECTION TO EX. 10" W
PROP. DOM. WATER METER & BACKFLOW
PROP. SDCO (TYPE A) PER SDRSD D-09
PROP. FIRE SERVICE BACKFLOW
PROP. DOM. W
PROP. FH
PROP. SCREEN WALL
PROP. AC PAVEMENT
PROP. CURB OPENING & RIP RAP DISSIPATOR
PROP. CURB OPENING & RIP-RAP DISSIPATOR
PROP. UNDERGROUND DETENTION SYSTEM
PROP. AC PAVEMENT
PROP. TRASH ENCLOSURE
PROP. AC PAVEMENT
PROP. CONCRETE RETAINING J DITCH
PROP. CONCRETE RETAINING J DITCH
PROP. CONNECTION TO EX. 18" SD
REMOVE AND DISPOSE OF EX. ON-SITE STORM DRAIN AND CAP HERE
REMOVE AND DISPOSE OF EX. ON-SITE STORM DRAIN AND CAP AT PROPERTY LINE
ABANDON EX WM SERVICE
PROTECT IN PLACE EX. IRRIGATION WATER SERVICE
EX. 18" RCP SD
EX. 24" RCP SD
EX. 42" RCP SD
EX. 54" RCP SD
EX. 8" S
EX. 10" W
EX. 6" W
EX. 10" WATER LINE
EX. 6" WATER LINE
EX. FIRE HYDRANT
EX. SDMH
EX. SMH
EX. FH
EX. CURB INLET
EX. CURB INLET
EX. RAISED MEDIAN
EX. VEHICULAR GUARDRAIL
EX. 60" RCP SD
EX. 18" RCP SD
EX. 8" S
EX. 10" W
EX. 6" S
EX. 10" W
EX. 54" RCP SD
EX. 18" RCP SD
EX. 24" RCP SD
EX. 42" RCP SD
EX. 18" RCP SD
EX. 8" S
EX. 10" W
EX. 10" WATER LINE
EX. 6" WATER LINE
EX. 6" W
EX. 18" RCP SD
EX. 24" RCP SD
EX. 42" RCP SD
EX. 54" RCP SD
EX. 8" S
EX. 10" W
EX. 10" W
EX. 18" RCP SD
EX. 8" S
EX. 10" W
EX. 18" RCP SD
EX. 8" S
EX. 10" W
EX. 18" RCP SD
EX. 8" S

1.2 Fundamentals of Noise

Sound levels are described in units called the decibel (dB). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the energy would result in a 3 dB decrease. However, human perception of noise has no simple correlation with acoustical energy. A change in noise levels is generally perceived as follows: 3 A-weighted dB [dB(A)] barely perceptible, 5 dB(A) readily perceptible, and 10 dB(A) perceived as a doubling or halving of noise (California Department of Transportation 2013).

In technical terms, sound levels are described as either a "sound power level" or a "sound pressure level," which while commonly confused, are two distinct characteristics of sound. Both share the same unit of measure, the dB. However, sound power, expressed as L_{pw}, is the energy converted into sound by the source. As sound energy travels through the air, it creates a sound wave that exerts pressure on receivers such as an eardrum or microphone, the sound pressure level. Sound measurement instruments only measure sound pressure, and limits used in standards are generally sound pressure levels.

The human ear is not equally sensitive to all frequencies within the sound spectrum. To accommodate this phenomenon, the A-scale, which approximates the frequency response of the average young ear when listening to most ordinary everyday sounds, was devised. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Therefore, the "A-weighted" noise scale is used for measurements and standards involving the human perception of noise. Noise levels using A-weighted measurements are designated with the notation dB(A).

1.2.1 Descriptors

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important. In addition, most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors has been developed. The noise descriptors used for this study are the equivalent noise level (L_{eq}) and the community noise equivalent level (CNEL). The L_{eq} is the equivalent steady-state noise level in a stated period of time that is calculated by averaging the acoustic energy over a time period; when no period is specified, a 1-hour period is assumed.

The CNEL is a 24-hour equivalent sound level. The CNEL calculation applies an additional 5 dB(A) penalty to noise occurring during evening hours, between 7:00 p.m. and 10:00 p.m., and a 10 dB(A) penalty is added to noise occurring during the night, between 10:00 p.m. and 7:00 a.m. These increases for certain times are intended to account for the added sensitivity of humans to noise during the evening and night.

1.2.2 Propagation

Sound from a localized source (approximating a "point" source) radiates uniformly outward as it travels away from the source in a spherical pattern, known as geometric spreading. The sound level decreases or drops off at a rate of 6 dB(A) for each doubling of the distance.

Traffic noise is not a single, stationary point source of sound. The movement of vehicles makes the source of the sound appear to emanate from a line (line source) rather than a point when viewed over some time interval. The drop-off rate for a line source is 3 dB(A) for each doubling of distance.

The propagation of noise is also affected by the intervening ground, known as ground absorption. A hard site (such as parking lots or smooth bodies of water) receives no additional ground attenuation, and the changes in noise levels with distance (drop-off rate) are simply the geometric spreading of the source. A soft site (such as soft dirt, grass, or scattered bushes and trees) provides an additional ground attenuation value of 1.5 dB(A) per doubling of distance. Thus, a point source over a soft site would drop off at 7.5 dB(A) per doubling of distance.

2.0 Applicable Noise Standards

2.1 General Plan

The Noise Element of the City General Plan provides land use compatibility guidelines to ensure that new developments are sited, designed, and constructed in such a manner that ambient noise levels would not create an unacceptable noise environment for the occupants and patrons of the new development. Table 1 provides the interior and exterior noise guidelines for various types of uses and developments.

The project proposes multi-family residential uses. As shown in Table 1, the applicable standards for multi-family uses are an exterior noise level of 65 CNEL and an interior noise level of 45 CNEL. The exterior noise level standard is applicable at the proposed exterior use areas. For the proposed project, this includes patios and the open play lawn, tot lot, and seating areas on the western side of the proposed buildings.

Table 1 Interior and Exterior Noise Guidelines		
Land Use	Maximum Noise Level (CNEL)	
	Interior[1]	Exterior[2,3]
Residential – single-family, mobile homes, or age-restricted housing	45	60
Residential – multi-family residences or mixed use	45	65
Lodging – hotels, motels	45	65
Schools, churches, hospitals, residential care facility, child-care facilities	50	65
Passive recreational parks, nature preserves, contemplative spaces, cemeteries	--	65
Active parks, golf courses, athletic fields, outdoor spectator sports, water recreation	--	65
Office/professional, government, medical/dental, commercial, retail, laboratories	50	65
Industrial, manufacturing, utilities, agriculture, mining, stables, ranching, warehouse, maintenance/repair	--	65

SOURCE: City of San Marcos General Plan Update, Noise Element 2013.
CNEL = community noise equivalent level.
[1]Applies only to interior habitable rooms.
[2]Exterior noise standard does not apply for land uses where no exterior use area is proposed or necessary, such as a library.
[3]For single-family detached dwelling units, "exterior noise level" is defined as the noise level measured at an outdoor living area that adjoins and is on the same lot as the dwelling.

2.2 Municipal Code

2.2.1 Title 10, Chapter 10.24 – Construction

Section 10.24.020 (b)(9) of the City Municipal Code identifies permissible hours for general construction activities. Excluding City holidays, construction may occur weekdays from 7:00 a.m. to 6:00 p.m. or Saturdays from 8:00 a.m. to 5:00 p.m. Grading is often the loudest phase of construction. Section 17.32.180 restricts grading and earthworks activities to between the hours of 7:00 a.m. and 4:30 p.m., Monday through Friday.

2.2.2 Title 20 – Zoning Ordinance

City Municipal Code Title 20 – Zoning Ordinance contains General Development Standards. Performance standards in Section 20.300.070 (f) set restrictions on noise levels by zoning. No person shall create or allow the creation of exterior noise that causes the noise level to exceed the noise standards shown in Table 2.

Table 2 Municipal Code Property Line Noise Standards		
Zone	Time	Allowable Property Line Noise Level [dB(A) L_{eq}]
Single-Family Residential (A, R-1, R-2)	7:00 a.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	60 50
Multi-Family Residential (R-3)	7:00 a.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	65 55
Commercial (C, O-P, SR)	7:00 a.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	65 55
Industrial	7:00 a.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	65 60
SOURCE: Section 20.300.070(f) Table 20.300-4, San Marcos Municipal Code Title 20 – Zoning Code dB(A) L_{eq} = A-weighted decibels equivalent noise level		

The project site is surrounded by single-family residential uses to the northeast and southeast, multi-family residential uses to the east, a mobile home park to the south, a commercial use to the southwest, and industrial uses to the west and north.

2.3 California Green Building Standards Code – Environmental Comfort

Interior noise levels for habitable rooms are regulated also by Title 24 of the California Code of Regulations (CCR) California Noise Insulation Standards. Title 24, Chapter 12, Section 1206.4, of the 2019 California Building Code requires that interior noise levels attributable to exterior sources not exceed 45 CNEL in any habitable room (CCR 2019). A habitable room is a room used for living, sleeping, eating, or cooking. Bathrooms, closets, hallways, utility spaces, and similar areas are not considered habitable rooms for this regulation (24 CCR, Chapter 12, Section 1206.4 2019).

3.0 Existing Conditions

Existing noise levels in the vicinity of the project site were measured on March 22, 2022, using one Larson-Davis Model LxT, Type 1 Integrating Sound Level Meter, serial number 3895. The following parameters were used:

Filter:	A-weighted
Response:	Slow
Interval Period	1 minute
Time History Period:	5 seconds

The meter was calibrated before and after each measurement. The meter was set 5 feet above the ground level for each measurement.

Noise measurements were taken to obtain typical ambient noise levels at the project site and in the vicinity. The weather was sunny and warm. Two 15-minute measurements were taken, as described

below. The measurement locations are shown on Figure 4, and detailed data is contained in Attachment 1.

Measurement 1 was located near the southern project boundary, 50 feet north of South Sante Fe Avenue. Noise levels were measured for 15 minutes. The main noise source at this location was vehicle traffic on South Santa Fe Avenue. Vehicle traffic on South Sante Fe Avenue was counted during the measurement period. The average measured noise level was 63.2 dB(A) L_{eq}.

Measurement 2 was located near the eastern project boundary, approximately 50 feet west of Las Flores Drive. Noise levels were measured for 15 minutes. The main noise source at this location was vehicle traffic on Las Flores Drive. Secondary sources of noise included vehicle traffic on South Santa Fe Avenue. Vehicle traffic on Las Flores Drive was counted during the measurement period. The average measured noise level was 57.5dB(A) L_{eq}.

Noise measurements are summarized in Table 3. Traffic counts conducted during Measurements 1 and 2 are summarized in Table 4.

Table 3
Noise Measurements

Measurement	Location	Time	Main Noise Source	L_{eq}
1	50 Feet North of S. Santa Fe Avenue	1:34 p.m. – 1:49 p.m.	Vehicle Traffic on S. Santa Fe Avenue	63.2
2	50 feet west of Las Flores Drive	1:55 p.m. – 2:10 p.m.	Vehicle traffic on Las Flores Drive	57.5

L_{90} = Noise level exceeded 90 percent of the time.
NOTE: Noise measurement data is contained in Attachment 1.

Table 4
15-minute Traffic Counts

Measurement	Roadway	Direction	Autos	Medium Trucks	Heavy Trucks	Buses	Motorcycles
1	S. Santa Fe Avenue	Eastbound	78	8	0	5	0
		Westbound	71	4	1	2	0
2	Las Flores Drive	Northbound	13	0	0	0	0
		Southbound	11	0	0	0	0

4.0 Analysis Methodology

Noise level predictions and contour mapping were developed using noise modeling software, SoundPlan Essential, version 4.1 (Navcon Engineering 2018). SoundPLAN calculates noise propagation based on the International Organization for Standardization method (ISO 9613-2 – Acoustics, Attenuation of Sound during Propagation Outdoors). The model calculates noise levels at selected receiver locations using input parameter estimates such as total noise generated by each noise source; distances between sources, barriers, and receivers; and shielding provided by intervening terrain, barriers, and structures. The model outputs can be developed as noise level contour maps or noise levels at specific receivers. In all cases, receivers were modeled at 5 feet above ground elevation, which represents the average height of the human ear.

Image Source: NearMap (flown January 2022)

RECON

M:\JOBS5\9865\common_gis\fig4_nos.mxd 03/24/2022 bma

FIGURE 4
Noise Measurement Locations

4.1 Construction Noise Analysis

Project construction noise would be generated by diesel engine-driven construction equipment used for site preparation and grading, building construction, loading, unloading, and placing materials and paving. Diesel engine-driven trucks also would bring materials to the site and remove the soils from excavation.

Construction equipment with a diesel engine typically generates maximum noise levels from 70 to 95 dB(A) L_{eq} at a distance of 50 feet (Federal Highway Administration [FHWA] 2006 and 2008, Federal Transit Authority 2006). During construction, equipment moves to different locations and goes through varying load cycles, and there are breaks for the operators and for non-equipment tasks, such as measurement. Table 5 summarizes typical construction equipment noise levels and duty cycles.

Table 5
Typical Construction Equipment Noise Levels

Equipment	Noise Level at 50 Feet [dB(A) L_{eq}]	Typical Duty Cycle
Auger Drill Rig	85	20%
Backhoe	80	40%
Blasting	94	1%
Chain Saw	85	20%
Clam Shovel	93	20%
Compactor (ground)	80	20%
Compressor (air)	80	40%
Concrete Mixer Truck	85	40%
Concrete Pump	82	20%
Concrete Saw	90	20%
Crane (mobile or stationary)	85	20%
Dozer	85	40%
Dump Truck	84	40%
Excavator	85	40%
Front End Loader	80	40%
Generator (25 kilovolt amps or less)	70	50%
Generator (more than 25 kilovolt amps)	82	50%
Grader	85	40%
Hydra Break Ram	90	10%
Impact Pile Driver (diesel or drop)	95	20%
In situ Soil Sampling Rig	84	20%
Jackhammer	85	20%
Mounted Impact Hammer (hoe ram)	90	20%
Paver	85	50%
Pneumatic Tools	85	50%
Pumps	77	50%
Rock Drill	85	20%
Roller	74	40%
Scraper	85	40%
Tractor	84	40%

Table 5 Typical Construction Equipment Noise Levels		
Equipment	Noise Level at 50 Feet [dB(A) L_{eq}]	Typical Duty Cycle
Vacuum Excavator (vac-truck)	85	40%
Vibratory Concrete Mixer	80	20%
Vibratory Pile Driver	95	20%
SOURCE: Federal Highway Administration 2006 and 2008; Federal Transit Authority 2006. dB(A) L_{eq} = A-weighted decibels average noise level		

Construction equipment would generate maximum noise levels between 70 and 95 dB(A) L_{max} at 50 feet from the source when in operation. During excavation, grading, and paving operations, equipment moves to different locations and goes through varying load cycles, and there are breaks for the operators and for non-equipment tasks, such as measurement. Average construction noise levels were calculated for the simultaneous operation of three common pieces of construction equipment: dozer, excavator, and loader. The usage factors were applied to the maximum noise level at 50 feet for each piece of equipment, and then noise levels were added logarithmically. Hourly average noise levels would be approximately 85 dB(A) L_{eq} at 50 feet from the center of construction activity when assessing three pieces of common construction equipment working simultaneously.

4.2 Traffic Noise Analysis

4.2.1 On-Site Traffic and Rail Noise

The SoundPLAN program uses the FHWA Traffic Noise Model algorithms and reference levels to calculate noise levels at selected receiver locations. The model uses various input parameters, such as projected hourly average traffic rates; vehicle mix, distribution, and speed; roadway lengths and gradients; distances between sources, barriers, and receivers; and shielding provided by intervening terrain, barriers, and structures. Receivers, roadways, and barriers were input into the model using three-dimensional coordinates. The locations of future buildings were obtained from project plans and drawings.

The main source of traffic noise at the project site is vehicle traffic on South Santa Fe Avenue and Las Flores Drive as well as Sprinters on the adjacent rail line. Future year 205 with project traffic volumes for South Santa Fe Avenue were obtained from the Traffic Impact Analysis prepared for the project (Linscott, Law and Greenspan, Engineers 2022). Future year 2050 traffic volumes for Las Flores Drive were obtained from San Diego Association of Governments (SANDAG) Series 14 traffic projections (SANDAG 2022). A vehicle classification mix of 93.0 percent automobiles, 3.0 percent medium trucks, 2.0 percent heavy trucks, 1.0 percent buses, and 1.0 percent motorcycles was modeled. Based on the field traffic counts, this classification mix is conservative.

Table 6 summarizes the traffic volumes and vehicle classification mixes for the modeled roadways.

Table 6 Modeled Vehicle Traffic Parameters								
				Vehicle Mix (percent)				
Roadway	Segment	Year 2050 Average Daily Traffic	Speed	Autos	Medium Trucks	Heavy Trucks	Buses	Motorcycles
S. Santa Fe Avenue	Vern Road to Las Flores Drive	22,500	45	93	3	2	1	1
	Las Flores Drive to N. Rancho Santa Fe Road	21,450	45	93	3	2	1	1
Las Flores Drive	South of S. Santa Fe Avenue	2,600	25	93	3	2	1	1
	North of S. Santa Fe Avenue	1,600	25	93	3	2	1	1

The project site is also located approximately 150 feet southwest of the Sprinter rail line. The Sprinter is a light rail commuter train operated by the North County Transit District. The east-west Sprinter rail spans 22 miles from Oceanside to Escondido. The Palomar College Station is the closest Sprinter station to the project site. The number of daytime, evening, and nighttime Sprinter trains was obtained from published schedules and is summarized in Table 7.

Table 7 Modeled Sprinter Trains			
Direction	Daytime 7:00 a.m. – 7:00 p.m.	Evening 7:00 p.m. – 10:00 p.m.	Nighttime 10:00 p.m. – 7:00 a.m.
Eastbound	88	17	22
Westbound	88	15	21
Total	176	32	43

4.2.2 Off-site Traffic Noise

Off-site traffic noise was modeled using the FHWA Traffic Noise Prediction Model algorithms and reference levels. Traffic noise levels were calculated at 50 feet from the centerline of the affected roadways to determine the noise level increase associated with the project. The model uses various input parameters, such as traffic volumes; vehicle mix, distribution, and speed.

The roadways included in the traffic impact analysis are South Santa Fe Avenue, Hollencrest Road, and North Rancho Santa Fe Road. Traffic noise levels were calculated based on the total average daily traffic volumes on each roadway segment. For modeling purposes, "hard" ground conditions were used for the analysis of future conditions, since a majority of the project area is paved and the hard site provides the most conservative impact assessment.

Existing (year 2022), near term (year 2025), and future (year 2050) traffic volumes with and without the project were obtained from the project traffic impact analysis (Linscott, Law, and Greenspan Engineers 2022). Table 8 summarizes the future traffic volumes for the area roadway segments. Modeled noise levels do not account for shielding provided by intervening barriers and structures.

Table 8 Future Vehicle Traffic Parameters							
	Average Daily Traffic						
Roadway Segment	Year 2022	Year 2022 + Project	Year 2025	Year 2025 + Project	Year 2050	Year 2050 + Project	Speed (mph)
S. Santa Fe Avenue							
Similax Road to Bosstick Boulevard	14,850	14,940	15,610	15,700	22,200	22,290	45
Bosstick Boulevard to Vern Road	16,660	16,750	17,510	17,600	22,200	22,290	45
Vern Road to Las Flores Drive	16,660	16,960	17,510	17,810	22,200	22,500	45
Las Flores Drive to N. Rancho Santa Fe Road	14,600	14,750	15,340	15,490	21,300	21,450	45
N. Rancho Santa Fe Road to N. Pacific Street	13,500	13,560	14,190	14,250	24,400	24,460	40
Hollencrest Road							
De Leone Road to Hollenbeck Road	560	590	590	620	830	860	25
N. Rancho Santa Fe Avenue							
S. Santa Fe Avenue to Capalina Road	11,730	11,820	12,330	12,420	16,800	16,890	40
mph = miles per hour SOURCE: Linscott, Law and Greenspan, Engineers, Inc. 2022.							

4.3 On-site Generated Noise Analysis

On-site noise sources on the project site after completion of construction are anticipated to be those that would be typical of any multi-family use, such as vehicles arriving and leaving, children at play, and landscape maintenance machinery. None of these noise sources are anticipated to violate the City Municipal Code or result in a substantial permanent increase in existing noise levels. However, the project would include rooftop heating, ventilation, and air conditioning (HVAC) equipment. Noise levels due to HVAC equipment were modeled and compared to City limits (see Table 2).

The HVAC equipment would be located on the roof with screened walls. It is not known at this time which manufacturer, brand, or model of unit or units will be selected for use in the project. For the purposes of this analysis, to determine what general noise levels the HVAC units would generate, it was assumed that the rooftop units would be similar to a Carrier unit with a sound power level of 75 dB(A). Noise specifications are contained in Attachment 2. All units were modeled at full capacity during the daytime and nighttime hours.

Noise levels due to on-site sources were modeled using SoundPLAN. The SoundPLAN program models noise propagation following the International Organization for Standardization method *ISO 9613-2 – Acoustics, Attenuation of Sound during Propagation Outdoors*. The model calculates noise levels at selected receiver locations using input parameter estimates such as total noise generated by each noise source; distances between sources, barriers, and receivers; and shielding provided by intervening structures.

5.0 Future Acoustical Environment and Impacts

5.1 Construction Noise

Noise associated with the grading, building, and paving for the project would potentially result in short-term impacts to surrounding residential properties. There are residential uses located northeast, east, southeast, and south of the project site. A variety of noise-generating equipment would be used during the construction phase of the project, such as excavators, backhoes, front-end loaders, and concrete saws, along with others. The exact number and pieces of construction equipment required are not known at this time. As discussed, average construction noise levels were calculated. Based on this analysis, hourly average noise levels would be approximately 85 dB(A) L_{eq} at 50 feet from the center of construction activity when assessing three pieces of common construction equipment working simultaneously. Construction noise is considered a point source and would attenuate at approximately 6 dB(A) for every doubling of distance. To reflect the nature of grading and construction activities, equipment was modeled as an area source distributed over the project footprint. Noise levels were modeled at a series of 18 receivers located at the adjacent uses. The results are summarized in Table 9. Modeled receiver locations and construction noise contours are shown in Figure 5. SoundPLAN data is contained in Attachment 3.

Table 9
Construction Noise Levels

Receiver	Land Use	Noise Level [dB(A) L_{eq}]
1	Single-Family Residential	59
2	Single-Family Residential	61
3	Single-Family Residential	61
4	Single-Family Residential	61
5	Single-Family Residential	59
6	Multi-Family Residential	57
7	Multi-Family Residential	58
8	Multi-Family Residential	68
9	Multi-Family Residential	70
10	Single-Family Residential	63
11	Mobile Home Park	66
12	Mobile Home Park	65
13	Mobile Home Park	61
14	Mobile Home Park	59
15	Commercial	72
16	Industrial	65
17	Industrial	66
18	Industrial	74

dB(A) L_{eq} = A-weighted decibels equivalent noise level

As shown, construction noise levels would range from 57 to 74 dB(A) L_{eq} at the adjacent uses. The City's Municipal Code does not place noise limit restrictions on construction activities, however, other jurisdictions commonly apply a noise level limit of 75 dB(A) L_{eq} at residential uses. Construction noise levels would not exceed 75 dB(A) L_{eq}. Construction activities would generally occur over the period between 7:00 a.m. and 6:00 p.m. on weekdays. Although the existing adjacent uses would be exposed

to construction noise levels that may be heard above ambient conditions, the exposure would be temporary and would not exceed 75 dB(A) L_{eq}. As construction activities associated with the project would comply with the time limits established in Section 10.24.020 (b)(9) of the City Municipal Code, temporary increases in noise levels from construction activities would be less than significant.

5.2 Traffic Noise

5.2.1 On-site Traffic and Rail Noise

On-site traffic and rail noise contours were developed using the SoundPLAN program. Noise level contours were modeled at the first-floor level. These contours take into account shielding provided by the proposed building and grading. Future vehicle traffic noise-level contours are shown in Figure 6. SoundPLAN data are contained in Attachment 4.

As discussed in Section 2.1, the exterior noise level standard for multi-family uses is 65 CNEL. This standard is applicable at exterior use areas which include the patios and the open play lawn, tot lot, and seating areas on the western side of the proposed buildings. . The interior noise level standard is 45 CNEL. To refine the noise analysis and determine noise levels at exterior use areas and the building façade, exterior noise levels were calculated at a series of first- through fourth-floor specific receiver locations at the outdoor use areas and around the proposed building. Modeled receiver locations are shown in Figure 6. Table 10 summarizes the projected future noise levels at the 20 modeled receivers.

Table 10
Future Vehicle and Rail Traffic Noise Levels

Receiver	Exterior Noise Level (CNEL)			
	First-Floor	Second-Floor	Third-Floor	Fourth-Floor
1	54	56	57	58
2	51	54	56	57
3	54	56	57	58
4	52	55	56	57
5	47	53	55	56
6	48	53	55	56
7	45	51	57	58
8	47	55	57	58
9	50	56	58	59
10	55	57	58	60
11	58	62	63	63
12	57	60	61	62
13	51	57	60	61
14	55	60	61	61
15	53	59	60	61
16	52	56	60	60
17	51	55	59	60
18	51	54	57	59
19	49	54	55	56
20	50	54	55	56

CNEL = community noise equivalent level

Image Source: NearMap (flown January 2022)

Project Boundary

Receivers

Construction Noise

60 dB(A) L_{eq}

65 dB(A) L_{eq}

70 dB(A) L_{eq}

75 dB(A) L_{eq}

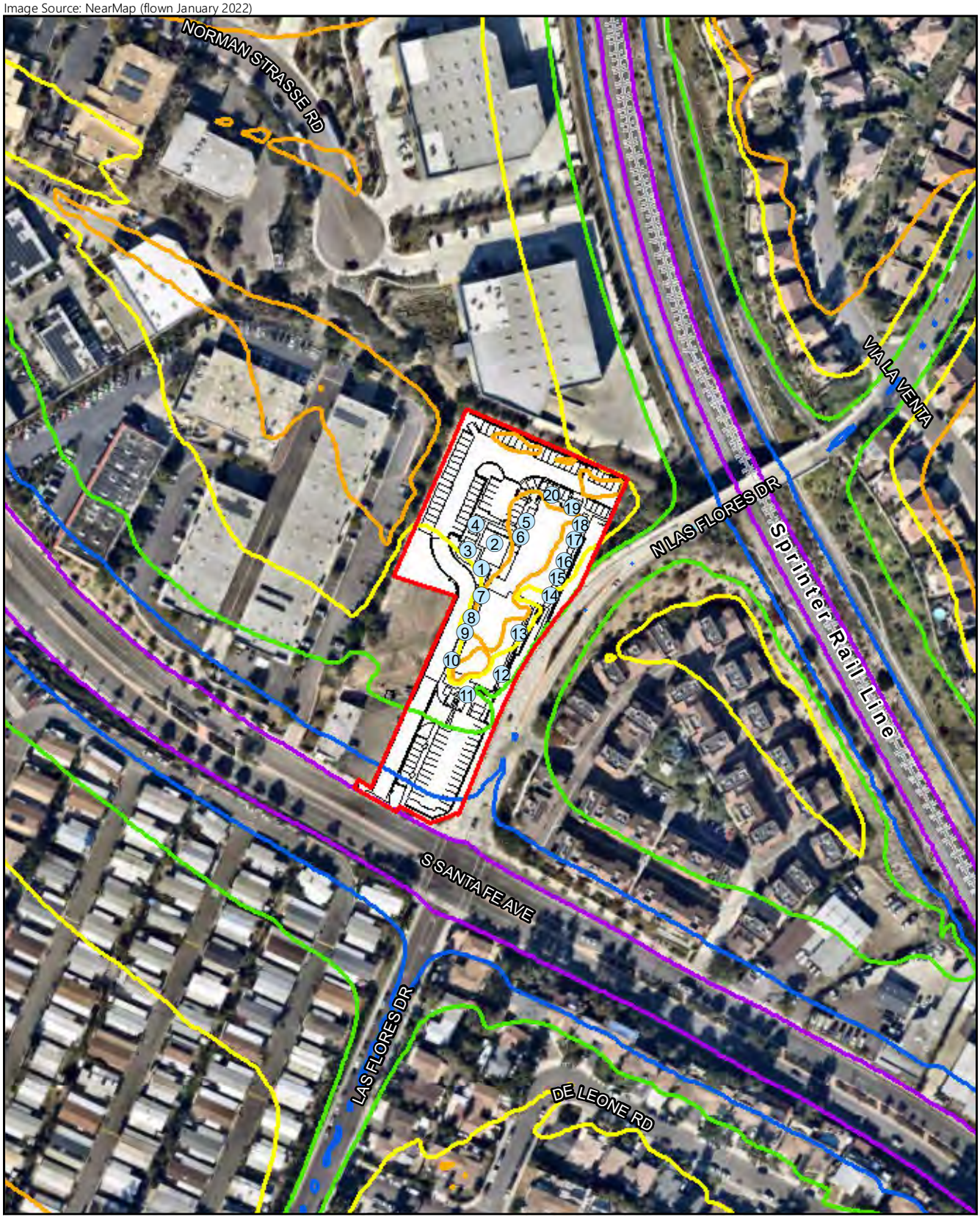
0 Feet 200

RECON

M:\JOBS5\9865\common_gis\fig5_nos.mxd 03/24/2022 bma

FIGURE 5
Construction Noise Contours

Image Source: NearMap (flown January 2022)



Project Boundary
Receivers
Site Plan

Vehicle and Rail Traffic Noise

50 CNEL
55 CNEL
60 CNEL
65 CNEL
70 CNEL

0 Feet 200

FIGURE 6
Future Vehicle and Rail Traffic Noise Contours

RECON

M:\JOBS5\9865\common_gis\fig6_nos.mxd 03/24/2022 bma

As shown, exterior noise levels are projected to range from 45 to 63 CNEL at the outdoor use areas and building façade. Noise levels would be compatible with the City's exterior multi-family noise level standard of 65 CNEL. Exterior noise impacts would be less than significant.

The interior noise level standard is 45 CNEL. Interior noise levels can be reduced through standard construction techniques. When windows are closed, standard construction techniques provide various exterior-to-interior noise level reductions depending on the type of structure and window. Standard light-frame construction would reduce exterior to interior noise levels by at least 20 dB (FHWA 2011). Therefore, interior noise levels would be 43 CNEL or less, and are not projected to exceed the interior noise level standard of 45 CNEL. Interior noise impacts would be less than significant.

5.2.2 Off-site Traffic Noise

The project would increase traffic volumes on local roadways. However, the project would not substantially alter the vehicle classifications mix on local or regional roadways, nor would the project alter the speed on an existing roadway or create a new roadway. Thus, the primary factor affecting off-site noise levels would be increased traffic volumes. While changes in noise levels would occur along any roadway where project-related traffic occurs, for noise assessment purposes, noise level increases are assumed to be greatest nearest the project site, as this location would represent the greatest concentration of project-related traffic. Traffic noise increases attributable to the project were assessed against a significance threshold of 3 dB, which is the level at which an increase in noise is considered to be barely perceptible (Caltrans 2013).

Table 11 presents a conservative assessment of traffic noise levels based on the existing (year 2022), near term (year 2025), and future (year 2050) noise levels without and with the project. Table 11 also summarizes the direct and cumulative traffic noise level increases due to the project. Noise level calculations are contained in Attachment 5.

Table 11
Traffic Noise Level with and without Project and Ambient Noise Increases (CNEL)

Roadway Segment	Year 2022			Year 2025			Year 2050			Cumulative Increase Over Existing
	No Project	Project	Increase	No Project	Project	Increase	No Project	Project	Increase	
S. Santa Fe Avenue										
Similax Road to Bosstick Boulevard	71.3	71.3	0.0	71.5	71.5	0.0	73.0	73.1	0.1	1.8
Bosstick Boulevard to Vern Road	71.8	71.8	0.0	72.0	72.0	0.0	73.0	73.1	0.1	1.3
Vern Road to Las Flores Drive	71.8	71.9	0.1	72.0	72.1	0.1	73.0	73.1	0.1	1.3
Las Flores Drive to N. Rancho Santa Fe Road	71.2	71.3	0.1	71.4	71.5	0.1	72.9	72.9	0.0	1.7
N. Rancho Santa Fe Road to N. Pacific Street	69.8	69.8	0.0	70.0	70.0	0.0	72.3	72.3	0.0	2.5

Table 11 Traffic Noise Level with and without Project and Ambient Noise Increases (CNEL)										
	Year 2022			Year 2025			Year 2050			Cumulative Increase Over Existing
Roadway Segment	No Project	Project	Increase	No Project	Project	Increase	No Project	Project	Increase	
Hollencrest Road										
De Leone Road to Hollenbeck Road	52.7	53.0	0.3	53.0	53.2	0.2	54.4	54.6	0.2	1.9
N. Rancho Santa Fe Avenue										
S. Santa Fe Avenue to Capalina Road	69.1	69.2	0.1	69.4	69.4	0.0	70.7	70.7	0.0	1.6
Note: Increase calculations may vary due to independent rounding.										

As shown, the project would not result in a direct or cumulative noise increase of more than 3 dB. Therefore, the project would result in less than significant direct and cumulative impacts related to traffic noise.

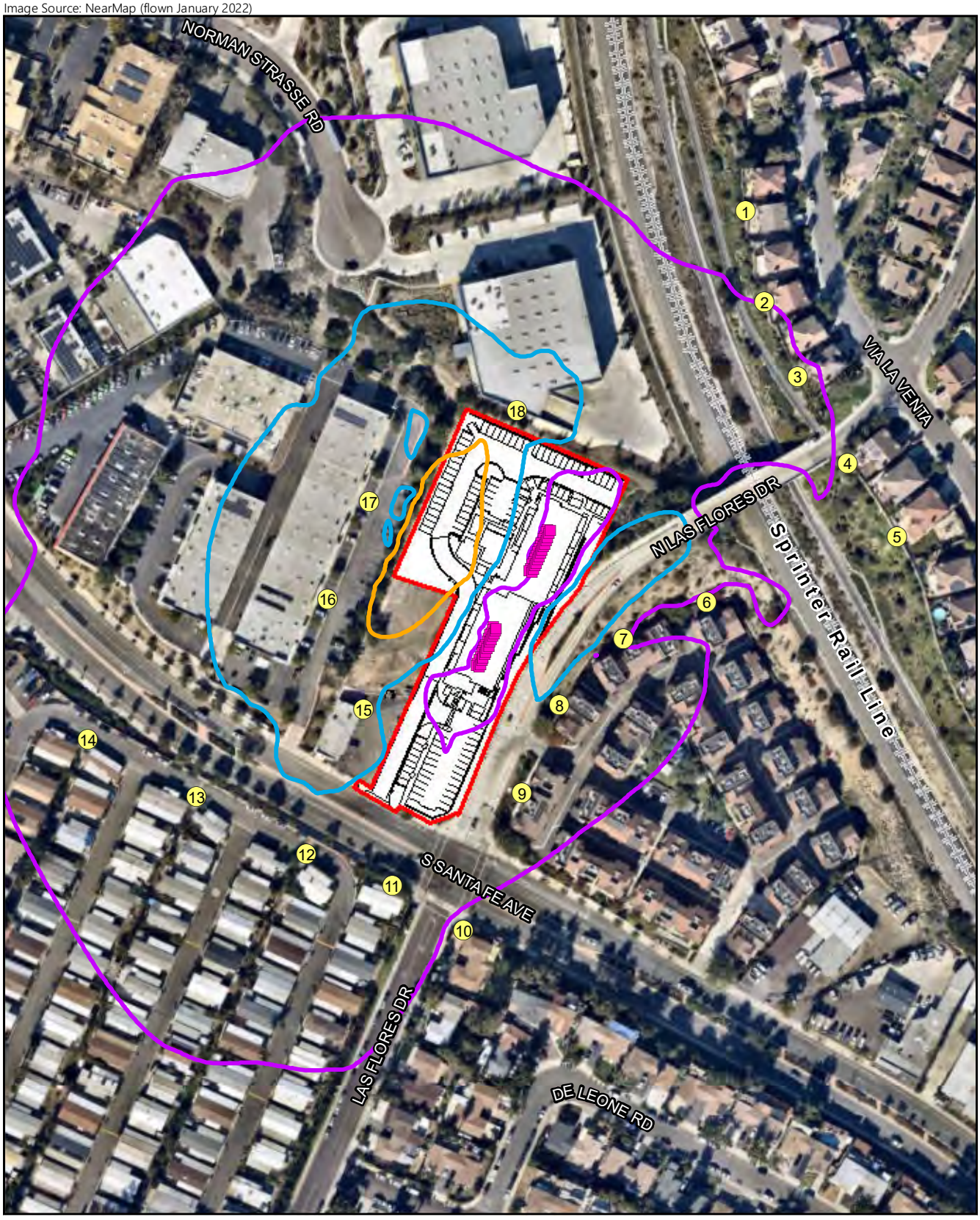
5.3 On-site Generated Noise

The primary noise sources on-site would be HVAC equipment. Rooftop HVAC equipment that would have the potential to produce noise in excess of City limits (see Table 2). Using the on-site noise source parameters discussed in Section 4.3, noise levels were modeled at a series of 18 receivers located at the adjacent properties. The rooftop mechanical equipment would be screened with a six-foot wall. Noise generated by HVAC equipment would occur on an intermittent basis, primarily during the day and evening hours and less frequently during the nighttime hours. For a worst-case analysis, it was assumed that the HVAC units would operate at maximum capacity during the daytime and nighttime hours.

Modeled receivers and the locations of the HVAC units are shown in Figure 7. Modeled data is included in Attachment 6. Future projected noise levels are summarized in Table 12.

As shown, HVAC noise levels would range from 33 to 44 dB(A) L_{eq}. Noise levels would not exceed the applicable Noise Ordinance limits at the property lines and impacts related to on-site generated noise would be less than significant.

Image Source: NearMap (flown January 2022)



RECON

M:\JOBS5\9865\common_gis\fig7_nos.mxd 03/24/2022 bma

FIGURE 7
HVAC Noise Contours

Table 12 HVAC Noise Levels at Adjacent Properties			
Receiver	Land Use	Noise Level [dB(A) L_{eq}]	Noise Ordinance Limit Daytime/Nighttime [dB(A) L_{eq}]
1	Single Family Residential	34	60/50
2	Single Family Residential	36	60/50
3	Single Family Residential	36	60/50
4	Single-Family Residential	35	60/50
5	Single-Family Residential	34	60/50
6	Multi-Family Residential	33	65/55
7	Multi-Family Residential	33	65/55
8	Multi-Family Residential	38	65/55
9	Multi-Family Residential	37	65/55
10	Single-Family Residential	35	60/50
11	Mobile Home Park	37	65/55
12	Mobile Home Park	39	65/55
13	Mobile Home Park	38	65/55
14	Mobile Home Park	37	65/55
15	Commercial	41	60/55
16	Industrial	43	65/60
17	Industrial	43	65/60
18	Industrial	44	65/60
dB(A) L_{eq} = A-weighted decibels equivalent noise level			

6.0 Conclusions

6.1 Construction Noise

As shown in Table 9, construction noise levels would range from 57 to 74 dB(A) L_{eq} at the adjacent property lines. The City's Municipal Code does not place noise limit restrictions on construction activities, however, other jurisdictions commonly apply a noise level limit of 75 dB(A) L_{eq} at residential uses. Construction activities would generally occur over the period between 7:00 a.m. and 6:00 p.m. on weekdays. Although the existing adjacent uses would be exposed to construction noise levels that may be heard above ambient conditions, the exposure would be temporary and would not exceed 75 dB(A) L_{eq}. As construction activities associated with the project would comply with the time limits established in Section 10.24.020 (b)(9) of the City Municipal Code, temporary increases in noise levels from construction activities would be less than significant.

6.2 Traffic Noise

6.2.1 On-site Traffic and Rail Noise

The main source of noise at the project site is vehicle traffic on South Santa Fe Avenue and Las Flores Drive as well as Sprinters on the adjacent rail line. The exterior noise level standard for multi-family

uses is 65 CNEL. This standard is applicable at exterior use areas which include the patios and the open play lawn, tot lot, and seating areas on the western side of the proposed buildings. As shown in Table 10, exterior noise levels are projected to range from 45 to 63 CNEL at the outdoor use areas and building façade. Noise levels would be compatible with the City's exterior multi-family noise level standard of 65 CNEL. Exterior noise impacts would be less than significant.

The interior noise level standard is 45 CNEL. Interior noise levels can be reduced through standard construction techniques. When windows are closed, standard construction techniques provide various exterior-to-interior noise level reductions depending on the type of structure and window. Standard light-frame construction would reduce exterior to interior noise levels by at least 20 dB (FHWA 2011). Therefore, interior noise levels would be 43 CNEL or less, and are not projected to exceed the interior noise level standard of 45 CNEL. Interior noise impacts would be less than significant.

6.2.2 Off-site Traffic Noise

The additional vehicle trips associated with the project would increase noise levels on nearby roadways. A noise increase of 3 dB or more would be considered significant because 3 dB is the level at which an increase in noise is perceptible to a person. As shown in Table 11, the project would not result in a direct or cumulative noise increase of more than 3 dB. Therefore, the project would result in less than significant direct and cumulative impact related to traffic noise.

6.3 On-site Generated Noise

The noise sources on the project site after completion of construction are anticipated to be those that would be typical of any residential use, such as vehicles arriving and leaving, children at play, and landscape maintenance machinery. None of these noise sources are anticipated to violate the City Municipal Code. Rooftop HVAC noise levels were modeled at the adjacent properties. As shown in Table 12, HVAC noise levels would range from 33 to 44 dB(A) L_{eq}. Noise levels would not exceed the applicable Noise Ordinance limits at the property lines.

7.0 References Cited

California Code of Regulations

2019 2019 California Building Code, California Code of Regulations, Title 24, Chapter 12 Interior Environment, Section 1206, Sound Transmission. http://www.bsc.ca.gov/codes.aspx.

California Department of Transportation (Caltrans)

2013 Technical Noise Supplement. November.

Federal Highway Administration (FHWA)

2006 Roadway Construction Noise Model. FHWA-HEP-05-054, SOT-VNTSC-FHWA-05-01. Final Report. January 2006.

2008 Roadway Construction Noise Mode, V1.1. Washington, DC.

2011 Highway Traffic Noise: Analysis and Abatement Guidance. FHWA-HEP-10-025. December 2011.

Federal Transit Administration (FTA)
2006 Transit Noise and Vibration Impact Assessment. Washington, DC. May.

Linscott, Law, and Greenspan, Engineers, Inc. (LLG)
2022 Existing, Year 2025, and Year 2050 Forecasted Traffic Volumes and Trip Generation Data emailed to RECON by Amelia Giacalone, Senior Transportation Planner, on March 21, 2022.

Navcon Engineering, Inc.
2018 SoundPLAN Essential version 4.1.

San Diego Association of Governments (SANDAG)
2022 Transportation Forecast Information Center. Year 2050 Traffic Volumes. Accessed at https://tfic.sandag.org/ on March 23, 2022.

San Marcos, City of
2013 City of San Marcos General Plan Update, Noise Element.

ATTACHMENTS

ATTACHMENT 1

Noise Measurement Data

9865 Santa Fe Flores
Noise Measurement Data

Summary				
Start	2022/03/22	13:34:51		
Stop	2022/03/22	13:49:56		
Duration		0:15:04.7		
Run Time		0:15:02.6		
Pause		0:00:02.1		
Pre Calibration	2022/03/22	13:33:32		
Post Calibration		None		
Calibration Deviation		---		
Overall Settings				
RMS Weight		A Weighting		
Peak Weight		A Weighting		
Detector		Slow		
Preamp		PRMLxT1		
Microphone Correction		Off		
Integration Method		Linear		
Overload		144.6 dB		
		A	**C**	**Z**
Under Range Peak		**100.6**	97.6	102.6 dB
Under Range Limit		**37.8**	37.4	44.5 dB
Noise Floor		28.6	28.3	35.3 dB
Results				
LAeq		63.2 dB		
LAE		92.8 dB		
EA		210.368 µPa²h		
EA8		6.712 mPa²h		
EA40		33.562 mPa²h		
LApeak (max)	2022/03/22	13:37:15	101.8 dB	
LASmax	2022/03/22	13:39:26	74.7 dB	
LASmin	2022/03/22	13:46:59	51.6 dB	
SEA		-99.9 dB		
LAS > 60.0 dB (Exceedence Counts / Duration)		31	563.6 s	
LAS > 70.0 dB (Exceedence Counts / Duration)		6	27.3 s	
LApeak > 135.0 dB (Exceedence Counts / Duration)		0	0.0 s	
LApeak > 137.0 dB (Exceedence Counts / Duration)		0	0.0 s	
LApeak > 140.0 dB (Exceedence Counts / Duration)		0	0.0 s	
LCeq		75.2 dB		
LAeq		63.2 dB		
LCeq - LAeq		12.0 dB		
LAIeq		65.0 dB		
LAeq		63.2 dB		
LAIeq - LAeq		1.8 dB		
# Overloads		0		
Overload Duration		0.0 s		

Dose Settings			
Dose Name	OSHA-1	OSHA-2	
Exch. Rate	5	5	dB
Threshold	90	80	dB
Criterion Level	90	90	dB
Criterion Duration	8	8	h
Results			
Dose	-99.9	-99.9	%
Projected Dose	-99.9	-99.9	%
TWA (Projected)	-99.9	-99.9	dB
TWA (t)	-99.9	-99.9	dB
Lep (t)	48.2	48.2	dB

Statistics		
LAS5.00	68.6	dB
LAS10.00	66.6	dB
LAS33.30	62.9	dB
LAS50.00	60.5	dB
LAS66.60	58.4	dB
LAS90.00	55.0	dB

Summary				
Start	2022/03/22	13:55:50		
Stop	2022/03/22	14:10:51		
Duration		0:15:00.5		
Run Time		0:15:00.5		
Pause		0:00:00.0		
Pre Calibration	2022/03/22	13:33:30		
Post Calibration		None		
Calibration Deviation		---		
Overall Settings				
RMS Weight		A Weighting		
Peak Weight		A Weighting		
Detector		Slow		
Preamp		PRMLxT1		
Microphone Correction		Off		
Integration Method		Linear		
Overload		144.6 dB		

	A	C	Z	
Under Range Peak	**100.6**	97.6	102.6	dB
Under Range Limit	**37.8**	37.4	44.5	dB
Noise Floor	28.6	28.3	35.3	dB

Results				
LAeq		57.5	dB	
LAE		87.0	dB	
EA		55.989	μPa²h	
EA8		1.791	mPa²h	
EA40		8.953	mPa²h	
LApeak (max)	2022/03/22	14:03:57	102.3	dB
LASmax	2022/03/22	14:09:26	66.5	dB
LASmin	2022/03/22	14:03:45	49.9	dB
SEA		-99.9	dB	
LAS > 60.0 dB (Exceedence Counts / Duration)		19	185.3	s
LAS > 70.0 dB (Exceedence Counts / Duration)		0	0.0	s
LApeak > 135.0 dB (Exceedence Counts / Duration)		0	0.0	s
LApeak > 137.0 dB (Exceedence Counts / Duration)		0	0.0	s
LApeak > 140.0 dB (Exceedence Counts / Duration)		0	0.0	s
LCeq		66.1	dB	
LAeq		57.5	dB	
LCeq - LAeq		8.6	dB	
LAIeq		59.3	dB	
LAeq		57.5	dB	
LAIeq - LAeq		1.8	dB	
# Overloads		0		
Overload Duration		0.0	s	

Dose Settings				
Dose Name	OSHA-1	OSHA-2		
Exch. Rate	5	5	dB	
Threshold	90	80	dB	
Criterion Level	90	90	dB	
Criterion Duration	8	8	h	
Results				
Dose	-99.9	-99.9	%	
Projected Dose	-99.9	-99.9	%	
TWA (Projected)	-99.9	-99.9	dB	
TWA (t)	-99.9	-99.9	dB	
Lep (t)	42.4	42.4	dB	
Statistics				
LAS5.00		61.7	dB	
LAS10.00		60.6	dB	
LAS33.30		57.6	dB	
LAS50.00		56.1	dB	
LAS66.60		54.4	dB	
LAS90.00		52.7	dB	

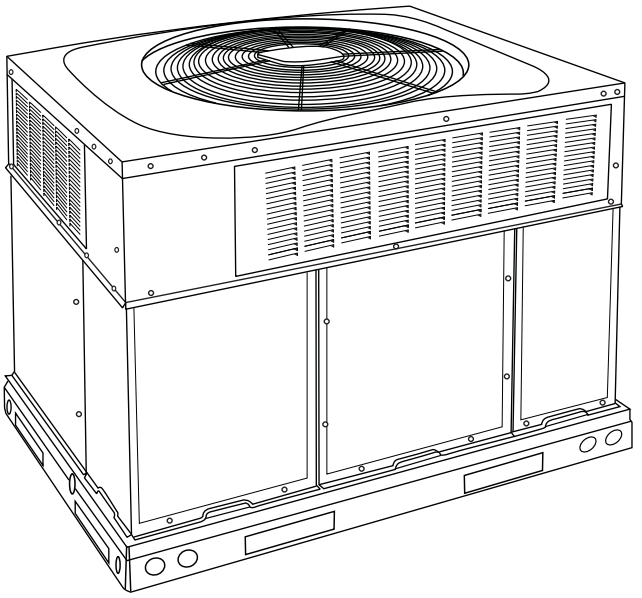
ATTACHMENT 2

HVAC Specifications

50VG–A
Performance™ 16 SEER 2–Stage Packaged Air Conditioner System with Puron® (R–410A) Refrigerant
Single and Three Phase
2 to 5 Nominal Tons (Sizes 24–60)

Carrier
turn to the experts

Product Data



A09033

Fig. 1 - Unit 50VG-A

Single-Packaged Products with Energy-Saving Features and Puron® refrigerant.

- 15.0-16.0 SEER / 12.0-12.5 EER
- Factory-Installed TXV
- Multi-speed ECM Blower Motor - Standard
- Sound levels as low as 72dBA
- Two Stages of Cooling
- Dehumidification Feature

FEATURES/BENEFITS

One-piece cooling unit with optional electric heater, low sound levels, easy installation, low maintenance, and dependable performance.

Puron Environmentally Sound Refrigerant is Carrier's unique refrigerant designed to help protect the environment. Puron is an HFC refrigerant which does not contain chlorine that can harm the ozone layer. Puron refrigerant is in service in millions of systems proving highly reliable, environmentally sound performance.

Easy Installation

Factory-assembled package is a compact, fully self-contained, electric cooling unit that is prewired, pre-piped, and pre-charged for minimum installation expense. These units are available in a variety of standard cooling sizes with voltage options to meet residential and light commercial requirements. Units are lightweight and install easily on a rooftop or at ground level. The high tech composite base eliminates rust problems associated with ground level applications.

Innovative Unit Base Design

On the inside a high-tech composite material will not rust and incorporates a sloped drain pan which improves drainage and helps inhibit mold, algae and bacterial growth. On the outside metal base rails provide added stability as well as easier handling and rigging.

Convertible duct configuration

Unit is designed for use in either downflow or horizontal applications. Each unit is converted from horizontal to downflow and includes horizontal duct covers. Downflow operation is provided in the field to allow vertical ductwork connections. The basepan seals on the bottom openings to ensure a positive seal in the vertical airflow mode.

Efficient operation High-efficiency design offers SEER (Seasonal Energy Efficiency Ratios) of up to 16.0. (See page 4.)

Durable, dependable components

Scroll Compressors have 2 stages of cooling and are designed for high efficiency. Each compressor is hermetically sealed against contamination to help promote longer life and dependable operation. Each compressor also has vibration isolation to provide quieter operation. All compressors have internal high pressure and overcurrent protection.

Multi-speed ECM Blower Motor is standard on all 50VG-A.

Direct-drive PSC (Permanent Split Capacitor) condenser-fan motors are designed to help reduce energy consumption and provide for cooing operation down to 40°F (4.4°C) outdoor temperature. Motormaster® II low ambient kit is available as a field-installed accessory.

Thermostatic Expansion Valve - A hard shutoff, balance port TXV maintains a constant superheat at the evaporator exit (cooling cycle) resulting in higher overall system efficiency.

Refrigerant system is designed to provide dependability. Liquid filter driers are used to promote clean, unrestricted operation. Each unit leaves the factory with a full refrigerant charge. Refrigerant service connections make checking operating pressures easier.

High and Low Pressure Switches provide added reliability for the compressor.

Indoor and Outdoor coils are computer-designed for optimum heat transfer and efficiency. The indoor coil is fabricated from copper tube and aluminum fins and is located inside the unit for protection against damage. The outdoor coil is internally mounted on the top tier of the unit.

Low sound ratings ensure a quiet indoor and outdoor environment with sound ratings as low as 72dBA. (See Page 4.)

Easy to service cabinets provide easy 3 panel accessibility to serviceable components during maintenance and installation. The basepan with integrated drain pan provides easy ground level installation with a mounting pad. A nesting feature ensures a positive basepan to roof curb seal when the unit is roof mounted. A convenient 3/4-in. (19.05 mm) wide perimeter flange makes frame mounting on a rooftop easy.

AHRI* CAPACITIES

Cooling Capacities and Efficiencies

Unit Model 50VG-A	Nominal Tons	Standard CFM (High / Low Stage)	Net Cooling Capacities - Btuh (High Stage)	EER @A**	SEER†
24	2	800 / 600	23000	12.0	15.0
30	2-1/2	1000 / 750	29000	12.0	15.0
36	3	1200 / 900	35400	12.5	16.0
42	3-1/2	1400 / 1050	42000	12.5	16.0
48	4	1600 / 1200	47500	12.3	16.0
60	5	1750 / 1200	57000	12.3	16.0

LEGEND
dB–Sound Levels (decibels)
db—Dry Bulb
SEER—Seasonal Energy Efficiency Ratio
wb—Wet Bulb
COP–Coefficient of Performance
* Air Conditioning, Heating & Refrigeration Institute.
**At "A" conditions–80°F (26.7°C) indoor db/67°F (19.4°C) indoor wb & 95°F (35°C) outdoor db.
† Rated in accordance with U.S. Government DOE Department of Energy) test procedures and/or AHRI Standards 210/240.

Notes:
1. Ratings are net values, reflecting the effects of circulating fan heat. Ratings are based on:
Cooling Standard: 80°F (26.7°C) db, 67°F wb (19.4°C) indoor entering–air temperature and 95°F db (35°C) outdoor entering–air temperature.
2. Before purchasing this appliance, read important energy cost and efficiency information available from AHRIdirectory.org.

A-WEIGHTED SOUND POWER LEVEL (dBA)

Model 50VG-A	Sound Ratings (dBA)	TYPICAL OCTAVE BAND SPECTRUM (dBA without tone adjustment)						
		125	250	500	1000	2000	4000	8000
24	73	60.0	62.5	68.5	68.5	64.0	60.0	53.0
30	77	57.5	67.0	73.5	72.0	67.0	61.0	52.5
36	73	62.5	65.5	67.5	68.0	65.5	60.0	52.5
42	73	60.5	63.5	68.0	68.0	66.0	60.5	53.0
48	72	60.0	63.5	66.0	67.0	63.5	58.5	49.5
60	75	69.0	67.0	69.0	68.0	65.0	61.5	54.0

NOTE: Tested in accordance with AHRI Standard 270 (not listed in AHRI).

ATTACHMENT 3

SoundPLAN Data – Construction Noise

SoundPLAN Data - Construction

		Level	Corrections		
Source name	Reference	Leq1	Cwall	CI	CT
		dB(A)	dB(A)	dB(A)	dB(A)
Construction	Lw/unit	116.3	-	-	-

9865 Santa Fe Flores

SoundPLAN Data - Construction

No.	Coordinates X (meters)	Coordinates Y (meters)	Height (meters)	Noise Level dB(A)
1	481468.23	3668972.47	182.38	58.9
2	481477.03	3668933.16	185.26	60.9
3	481491.51	3668901.09	186.46	61.4
4	481513.24	3668863.85	186.82	60.5
5	481534.96	3668832.30	186.16	59.2
6	481452.72	3668803.33	161.69	56.8
7	481417.03	3668787.30	160.02	58.2
8	481389.61	3668758.33	159.09	67.7
9	481373.58	3668720.06	157.61	70.1
10	481348.75	3668660.57	154.54	63.4
11	481317.72	3668679.71	153.92	66.4
12	481280.47	3668693.16	153.14	64.9
13	481232.89	3668717.47	152.07	61.3
14	481185.82	3668741.78	151.46	58.7
15	481304.72	3668755.81	153.73	72.3
16	481288.85	3668803.43	156.64	65.3
17	481306.71	3668845.77	157.91	66.3
18	481370.21	3668885.46	167.46	74.2

ATTACHMENT 4

SoundPLAN Data – On-site Traffic and Rail Noise

Station	ADT	Traffic values Vehicles type	Vehicle name	day	evening	night	Speed	Control device	Constr. Speed	Affect. veh.	Road surface	Gradient Min / Max
km	Veh/24h			Veh/h	Veh/h	Veh/h	km/h		km/h	%		%
Santa Fe Avenue		Traffic direction:	In entry direction									
0+000	21447	Total	-	1376	715	310	-	none	-	-	Average (of DGAC and PCC)	2.407407407
0+000	21447	Automobiles	-	1280	665	288	72	none	-	-	Average (of DGAC and PCC)	2.407407407
0+000	21447	Medium trucks	-	41	21	9	72	none	-	-	Average (of DGAC and PCC)	2.407407407
0+000	21447	Heavy trucks	-	28	14	6	72	none	-	-	Average (of DGAC and PCC)	2.407407407
0+000	21447	Buses	-	14	7	3	72	none	-	-	Average (of DGAC and PCC)	2.407407407
0+000	21447	Motorcycles	-	14	7	3	72	none	-	-	Average (of DGAC and PCC)	2.407407407
0+000	21447	Auxiliary vehicle	-	-	-	-	-	none	-	-	Average (of DGAC and PCC)	2.407407407
0+426	22503	Total	-	1444	750	325	-	none	-	-	Average (of DGAC and PCC)	-2.923076923
0+426	22503	Automobiles	-	1343	698	302	72	none	-	-	Average (of DGAC and PCC)	-2.923076923
0+426	22503	Medium trucks	-	43	23	10	72	none	-	-	Average (of DGAC and PCC)	-2.923076923
0+426	22503	Heavy trucks	-	29	15	7	72	none	-	-	Average (of DGAC and PCC)	-2.923076923
0+426	22503	Buses	-	14	8	3	72	none	-	-	Average (of DGAC and PCC)	-2.923076923
0+426	22503	Motorcycles	-	14	8	3	72	none	-	-	Average (of DGAC and PCC)	-2.923076923
0+426	22503	Auxiliary vehicle	-	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-2.923076923
0+985	-	-	-	-	-	-						
Las Flores Drive		Traffic direction:	In entry direction									
0+000	2607	Total	-	167	87	38	-	none	-	-	Average (of DGAC and PCC)	1.75
0+000	2607	Automobiles	-	155	81	35	40	none	-	-	Average (of DGAC and PCC)	1.75
0+000	2607	Medium trucks	-	5	3	1	40	none	-	-	Average (of DGAC and PCC)	1.75
0+000	2607	Heavy trucks	-	3	2	1	40	none	-	-	Average (of DGAC and PCC)	1.75
0+000	2607	Buses	-	2	1	0	40	none	-	-	Average (of DGAC and PCC)	1.75
0+000	2607	Motorcycles	-	2	1	0	40	none	-	-	Average (of DGAC and PCC)	1.75
0+000	2607	Auxiliary vehicle	-	-	-	-	-	none	-	-	Average (of DGAC and PCC)	1.75
0+221	1602	Total	-	103	53	23	-	none	-	-	Average (of DGAC and PCC)	-0.010362694
0+221	1602	Automobiles	-	96	49	21	40	none	-	-	Average (of DGAC and PCC)	-0.010362694
0+221	1602	Medium trucks	-	3	2	1	40	none	-	-	Average (of DGAC and PCC)	-0.010362694
0+221	1602	Heavy trucks	-	2	1	0	40	none	-	-	Average (of DGAC and PCC)	-0.010362694
0+221	1602	Buses	-	1	1	0	40	none	-	-	Average (of DGAC and PCC)	-0.010362694
0+221	1602	Motorcycles	-	1	1	0	40	none	-	-	Average (of DGAC and PCC)	-0.010362694
0+221	1602	Auxiliary vehicle	-	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-0.010362694
0+628	-	-	-	-	-	-						

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected Emission level day	Evening	night
Sprinter	Rail track:	Direction:		Section: 1	Km: 0+000				
Train type	Number of trains day	Evening	night	Speed km/h	Length per train m	Max	day dB(A)	Emission level Evening dB(A)	night dB(A)
LRT	176	32	43	80	80	yes	62.9	61.6	58.1
0+000	481709.9	3668428	173.36	-	-	-	-	62.9	61.6
0+951	481421.7	3669304	162.19	-	-	-	-	62.9	61.6

	Coordinates				Noise Level			
No.	X	Y	Floor	Height	Day	Evening	Night	Lden
	(meters)			(meters)		dB(A)		
1	481355.17	3668817.11	1.Fl	163.65	51.9	49.3	45.7	54.0
1	481355.17	3668817.11	2.Fl	166.75	54.1	51.4	47.8	56.1
1	481355.17	3668817.11	3.Fl	169.85	54.8	52.1	48.5	56.8
1	481355.17	3668817.11	4.Fl	172.95	55.4	52.8	49.2	57.5
2	481360.87	3668828.12	1.Fl	163.65	48.4	46.0	42.5	50.7
2	481360.87	3668828.12	2.Fl	166.75	52.3	49.8	46.2	54.4
2	481360.87	3668828.12	3.Fl	169.85	53.4	50.8	47.2	55.5
2	481360.87	3668828.12	4.Fl	172.95	54.6	52.1	48.5	56.7
3	481349.23	3668825.03	1.Fl	163.65	51.7	49.0	45.4	53.7
3	481349.23	3668825.03	2.Fl	166.75	54.0	51.3	47.7	56.0
3	481349.23	3668825.03	3.Fl	169.85	55.1	52.4	48.8	57.1
3	481349.23	3668825.03	4.Fl	172.95	55.6	53.0	49.4	57.7
4	481352.64	3668836.27	1.Fl	163.71	49.8	47.3	43.8	52.0
4	481352.64	3668836.27	2.Fl	166.81	53.3	50.7	47.1	55.4
4	481352.64	3668836.27	3.Fl	169.91	54.3	51.7	48.1	56.4
4	481352.64	3668836.27	4.Fl	173.01	55.2	52.7	49.1	57.3
5	481374.70	3668837.75	1.Fl	163.65	44.9	42.8	39.2	47.3
5	481374.70	3668837.75	2.Fl	166.75	50.9	48.5	44.9	53.1
5	481374.70	3668837.75	3.Fl	169.85	52.5	50.1	46.5	54.7
5	481374.70	3668837.75	4.Fl	172.95	53.6	51.1	47.5	55.8
6	481372.16	3668831.08	1.Fl	163.65	45.4	43.2	39.7	47.8
6	481372.16	3668831.08	2.Fl	166.75	51.0	48.5	45.0	53.2
6	481372.16	3668831.08	3.Fl	169.85	52.5	50.0	46.5	54.7
6	481372.16	3668831.08	4.Fl	172.95	53.6	51.1	47.5	55.8
7	481355.33	3668805.47	1.Fl	157.56	43.0	40.8	37.2	45.4
7	481355.33	3668805.47	2.Fl	160.66	48.9	46.2	42.6	50.9
7	481355.33	3668805.47	3.Fl	163.76	54.8	52.0	48.4	56.7
7	481355.33	3668805.47	4.Fl	166.86	55.9	53.1	49.5	57.8
8	481351.20	3668795.95	1.Fl	157.56	45.3	42.8	39.2	47.4
8	481351.20	3668795.95	2.Fl	160.66	53.4	50.6	47.0	55.3
8	481351.20	3668795.95	3.Fl	163.76	55.2	52.5	48.8	57.2
8	481351.20	3668795.95	4.Fl	166.86	56.2	53.4	49.8	58.2
9	481348.34	3668789.49	1.Fl	157.56	47.8	45.1	41.5	49.8
9	481348.34	3668789.49	2.Fl	160.66	54.3	51.5	47.9	56.2
9	481348.34	3668789.49	3.Fl	163.76	55.7	53.0	49.3	57.7
9	481348.34	3668789.49	4.Fl	166.86	56.6	53.9	50.3	58.6
10	481342.84	3668777.53	1.Fl	157.56	52.8	50.0	46.4	54.7
10	481342.84	3668777.53	2.Fl	160.66	54.7	51.9	48.3	56.7
10	481342.84	3668777.53	3.Fl	163.76	55.8	53.0	49.4	57.8

10	481342.84	3668777.53	4.Fl	166.86	57.7	54.9	51.3	59.7
11	481349.40	3668762.50	1.Fl	153.57	56.4	53.6	49.9	58.3
11	481349.40	3668762.50	2.Fl	156.67	59.6	56.8	53.1	61.5
11	481349.40	3668762.50	3.Fl	159.77	60.7	57.9	54.3	62.7
11	481349.40	3668762.50	4.Fl	162.87	61.5	58.7	55.1	63.4
12	481364.54	3668771.50	1.Fl	157.75	55.3	52.5	48.9	57.3
12	481364.54	3668771.50	2.Fl	160.85	58.4	55.7	52.1	60.4
12	481364.54	3668771.50	3.Fl	163.95	59.2	56.5	52.9	61.2
12	481364.54	3668771.50	4.Fl	167.05	59.6	57.0	53.4	61.7
13	481371.84	3668789.38	1.Fl	157.71	48.6	45.8	42.2	50.6
13	481371.84	3668789.38	2.Fl	160.81	54.9	52.2	48.5	56.9
13	481371.84	3668789.38	3.Fl	163.91	58.1	55.4	51.8	60.1
13	481371.84	3668789.38	4.Fl	167.01	58.8	56.1	52.5	60.8
14	481385.07	3668805.89	1.Fl	163.65	52.7	50.0	46.4	54.7
14	481385.07	3668805.89	2.Fl	166.75	57.8	55.2	51.6	59.9
14	481385.07	3668805.89	3.Fl	169.85	58.4	55.9	52.3	60.6
14	481385.07	3668805.89	4.Fl	172.95	58.7	56.2	52.6	60.9
15	481388.24	3668813.73	1.Fl	163.65	51.1	48.6	45.0	53.2
15	481388.24	3668813.73	2.Fl	166.75	56.5	53.9	50.3	58.6
15	481388.24	3668813.73	3.Fl	169.85	57.8	55.3	51.7	59.9
15	481388.24	3668813.73	4.Fl	172.95	58.3	55.8	52.2	60.5
16	481391.21	3668820.60	1.Fl	163.65	49.9	47.5	43.9	52.1
16	481391.21	3668820.60	2.Fl	166.75	53.7	51.2	47.6	55.8
16	481391.21	3668820.60	3.Fl	169.85	57.3	54.8	51.2	59.5
16	481391.21	3668820.60	4.Fl	172.95	57.9	55.5	51.9	60.1
17	481395.44	3668830.02	1.Fl	163.65	48.9	46.6	43.0	51.2
17	481395.44	3668830.02	2.Fl	166.75	52.3	50.0	46.4	54.6
17	481395.44	3668830.02	3.Fl	169.85	56.6	54.2	50.6	58.8
17	481395.44	3668830.02	4.Fl	172.95	57.5	55.1	51.5	59.7
18	481397.98	3668836.59	1.Fl	163.65	48.4	46.1	42.5	50.7
18	481397.98	3668836.59	2.Fl	166.75	51.9	49.7	46.2	54.3
18	481397.98	3668836.59	3.Fl	169.85	55.0	52.6	49.0	57.2
18	481397.98	3668836.59	4.Fl	172.95	57.1	54.7	51.2	59.4
19	481394.38	3668843.78	1.Fl	163.65	46.0	44.2	40.7	48.7
19	481394.38	3668843.78	2.Fl	166.75	50.7	49.1	45.6	53.6
19	481394.38	3668843.78	3.Fl	169.85	51.9	50.3	46.8	54.8
19	481394.38	3668843.78	4.Fl	172.95	53.2	51.6	48.0	56.0
20	481385.49	3668849.18	1.Fl	163.70	46.9	45.2	41.7	49.7
20	481385.49	3668849.18	2.Fl	166.80	50.8	49.2	45.7	53.7
20	481385.49	3668849.18	3.Fl	169.90	52.2	50.5	47.0	55.0
20	481385.49	3668849.18	4.Fl	173.00	53.1	51.5	48.0	55.9

Source name									Noise Level Day	Evening	Night	Lden
									dB(A)			
1	1.Fl	51.9	49.3	45.7	54.0	0.0	0.0	0.0	0.0			
Las Flores Drive									23.1	20.3	16.6	25.0
Santa Fe Avenue									51.4	48.5	44.9	53.3
Sprinter									42.5	41.1	37.7	45.6
1	2.Fl	54.1	51.4	47.8	56.1	0.0	0.0	0.0	0.0			
Las Flores Drive									27.2	24.4	20.8	29.1
Santa Fe Avenue									53.7	50.8	47.2	55.6
Sprinter									43.6	42.2	38.7	46.6
1	3.Fl	54.8	52.1	48.5	56.8	0.0	0.0	0.0	0.0			
Las Flores Drive									32.3	29.5	25.9	34.3
Santa Fe Avenue									54.4	51.5	47.9	56.3
Sprinter									44.2	42.9	39.4	47.3
1	4.Fl	55.4	52.8	49.2	57.5	0.0	0.0	0.0	0.0			
Las Flores Drive									36.7	33.9	30.3	38.6
Santa Fe Avenue									54.7	51.8	48.2	56.6
Sprinter									46.9	45.6	42.1	50.0
2	1.Fl	48.4	46.0	42.5	50.7	0.0	0.0	0.0	0.0			
Las Flores Drive									21.8	18.9	15.3	23.7
Santa Fe Avenue									46.8	44.0	40.3	48.7
Sprinter									43.2	41.8	38.3	46.2
2	2.Fl	52.3	49.8	46.2	54.4	0.0	0.0	0.0	0.0			
Las Flores Drive									23.5	20.6	17.0	25.3
Santa Fe Avenue									51.6	48.7	45.1	53.5
Sprinter									44.3	42.9	39.4	47.3
2	3.Fl	53.4	50.8	47.2	55.5	0.0	0.0	0.0	0.0			
Las Flores Drive									27.7	24.8	21.2	29.6
Santa Fe Avenue									52.8	49.9	46.3	54.7
Sprinter									44.9	43.5	40.1	48.0
2	4.Fl	54.6	52.1	48.5	56.7	0.0	0.0	0.0	0.0			
Las Flores Drive									33.0	30.2	26.5	34.9
Santa Fe Avenue									53.5	50.6	47.0	55.4
Sprinter									47.9	46.5	43.0	50.9
3	1.Fl	51.7	49.0	45.4	53.7	0.0	0.0	0.0	0.0			
Las Flores Drive									31.1	28.3	24.7	33.0
Santa Fe Avenue									51.0	48.1	44.5	52.9
Sprinter									42.9	41.5	38.0	45.9
3	2.Fl	54.0	51.3	47.7	56.0	0.0	0.0	0.0	0.0			
Las Flores Drive									32.0	29.1	25.5	33.9
Santa Fe Avenue									53.5	50.7	47.1	55.4
Sprinter									43.9	42.5	39.0	46.9
3	3.Fl	55.1	52.4	48.8	57.1	0.0	0.0	0.0	0.0			
Las Flores Drive									34.1	31.3	27.7	36.0
Santa Fe Avenue									54.6	51.8	48.1	56.5
Sprinter									44.7	43.3	39.8	47.7
3	4.Fl	55.6	53.0	49.4	57.7	0.0	0.0	0.0	0.0			
Las Flores Drive									37.2	34.3	30.7	39.1
Santa Fe Avenue									54.8	52.0	48.3	56.7
Sprinter									47.6	46.2	42.7	50.6
4	1.Fl	49.8	47.3	43.8	52.0	0.0	0.0	0.0	0.0			
Las Flores Drive									30.5	27.6	24.0	32.4
Santa Fe Avenue									48.5	45.7	42.1	50.4

Sprinter										43.6	42.2	38.7	46.6
4	2.Fl	53.3	50.7	47.1	55.4	0.0	0.0	0.0	0.0				
Las Flores Drive										31.4	28.6	25.0	33.3
Santa Fe Avenue										52.6	49.8	46.1	54.5
Sprinter										44.8	43.4	40.0	47.9
4	3.Fl	54.3	51.7	48.1	56.4	0.0	0.0	0.0	0.0				
Las Flores Drive										33.6	30.8	27.1	35.5
Santa Fe Avenue										53.6	50.8	47.2	55.5
Sprinter										45.6	44.3	40.8	48.7
4	4.Fl	55.2	52.7	49.1	57.3	0.0	0.0	0.0	0.0				
Las Flores Drive										37.8	34.9	31.3	39.7
Santa Fe Avenue										54.1	51.3	47.6	56.0
Sprinter										48.2	46.8	43.4	51.3
5	1.Fl	44.9	42.8	39.2	47.3	0.0	0.0	0.0	0.0				
Las Flores Drive										20.5	17.6	13.9	22.3
Santa Fe Avenue										42.6	39.8	36.1	44.5
Sprinter										41.1	39.7	36.2	44.1
5	2.Fl	50.9	48.5	44.9	53.1	0.0	0.0	0.0	0.0				
Las Flores Drive										20.6	17.7	14.1	22.5
Santa Fe Avenue										49.6	46.8	43.1	51.5
Sprinter										44.9	43.6	40.1	48.0
5	3.Fl	52.5	50.1	46.5	54.7	0.0	0.0	0.0	0.0				
Las Flores Drive										24.1	21.3	17.6	26.0
Santa Fe Avenue										51.5	48.7	45.0	53.4
Sprinter										45.8	44.4	40.9	48.8
5	4.Fl	53.6	51.1	47.5	55.8	0.0	0.0	0.0	0.0				
Las Flores Drive										29.5	26.7	23.0	31.4
Santa Fe Avenue										52.5	49.6	46.0	54.4
Sprinter										47.1	45.7	42.2	50.1
6	1.Fl	45.4	43.2	39.7	47.8	0.0	0.0	0.0	0.0				
Las Flores Drive										20.5	17.6	14.0	22.4
Santa Fe Avenue										43.0	40.1	36.5	44.9
Sprinter										41.7	40.3	36.8	44.7
6	2.Fl	51.0	48.5	45.0	53.2	0.0	0.0	0.0	0.0				
Las Flores Drive										20.3	17.4	13.8	22.2
Santa Fe Avenue										49.7	46.8	43.2	51.6
Sprinter										45.0	43.7	40.2	48.1
6	3.Fl	52.5	50.0	46.5	54.7	0.0	0.0	0.0	0.0				
Las Flores Drive										24.1	21.2	17.6	26.0
Santa Fe Avenue										51.5	48.7	45.0	53.4
Sprinter										45.8	44.4	40.9	48.8
6	4.Fl	53.6	51.1	47.5	55.8	0.0	0.0	0.0	0.0				
Las Flores Drive										28.9	26.0	22.4	30.7
Santa Fe Avenue										52.5	49.6	46.0	54.4
Sprinter										47.1	45.7	42.2	50.1
7	1.Fl	43.0	40.8	37.2	45.4	0.0	0.0	0.0	0.0				
Las Flores Drive										17.5	14.6	11.0	19.4
Santa Fe Avenue										41.0	38.2	34.5	42.9
Sprinter										38.7	37.3	33.8	41.7
7	2.Fl	48.9	46.2	42.6	50.9	0.0	0.0	0.0	0.0				
Las Flores Drive										18.6	15.8	12.1	20.5
Santa Fe Avenue										48.4	45.6	41.9	50.3
Sprinter										38.8	37.4	33.9	41.9
7	3.Fl	54.8	52.0	48.4	56.7	0.0	0.0	0.0	0.0				

Las Flores Drive										21.3	18.4	14.8	23.2
Santa Fe Avenue										54.6	51.7	48.1	56.5
Sprinter										41.5	40.1	36.6	44.5
7	4.Fl	55.9	53.1	49.5	57.8	0.0	0.0	0.0	0.0				
Las Flores Drive										28.3	25.5	21.8	30.2
Santa Fe Avenue										55.6	52.7	49.1	57.5
Sprinter										43.6	42.2	38.7	46.6
8	1.Fl	45.3	42.8	39.2	47.4	0.0	0.0	0.0	0.0				
Las Flores Drive										18.1	15.3	11.6	20.0
Santa Fe Avenue										44.4	41.5	37.9	46.3
Sprinter										38.0	36.6	33.2	41.1
8	2.Fl	53.4	50.6	47.0	55.3	0.0	0.0	0.0	0.0				
Las Flores Drive										18.7	15.9	12.2	20.6
Santa Fe Avenue										53.2	50.4	46.7	55.1
Sprinter										39.1	37.7	34.2	42.1
8	3.Fl	55.2	52.5	48.8	57.2	0.0	0.0	0.0	0.0				
Las Flores Drive										22.0	19.1	15.5	23.8
Santa Fe Avenue										55.0	52.2	48.6	57.0
Sprinter										41.5	40.1	36.6	44.5
8	4.Fl	56.2	53.4	49.8	58.2	0.0	0.0	0.0	0.0				
Las Flores Drive										29.0	26.1	22.5	30.9
Santa Fe Avenue										56.0	53.1	49.5	57.9
Sprinter										43.4	42.1	38.6	46.5
9	1.Fl	47.8	45.1	41.5	49.8	0.0	0.0	0.0	0.0				
Las Flores Drive										18.7	15.8	12.2	20.6
Santa Fe Avenue										47.4	44.6	40.9	49.3
Sprinter										37.4	36.0	32.5	40.4
9	2.Fl	54.3	51.5	47.9	56.2	0.0	0.0	0.0	0.0				
Las Flores Drive										19.4	16.5	12.9	21.3
Santa Fe Avenue										54.2	51.3	47.7	56.1
Sprinter										39.2	37.8	34.3	42.2
9	3.Fl	55.7	53.0	49.3	57.7	0.0	0.0	0.0	0.0				
Las Flores Drive										22.4	19.5	15.9	24.3
Santa Fe Avenue										55.6	52.7	49.1	57.5
Sprinter										41.7	40.3	36.9	44.8
9	4.Fl	56.6	53.9	50.3	58.6	0.0	0.0	0.0	0.0				
Las Flores Drive										29.7	26.8	23.2	31.6
Santa Fe Avenue										56.4	53.6	49.9	58.3
Sprinter										43.8	42.4	38.9	46.8
10	1.Fl	52.8	50.0	46.4	54.7	0.0	0.0	0.0	0.0				
Las Flores Drive										19.4	16.6	12.9	21.3
Santa Fe Avenue										52.6	49.7	46.1	54.5
Sprinter										39.0	37.6	34.1	42.0
10	2.Fl	54.7	51.9	48.3	56.7	0.0	0.0	0.0	0.0				
Las Flores Drive										21.4	18.5	14.9	23.3
Santa Fe Avenue										54.6	51.7	48.1	56.5
Sprinter										40.0	38.6	35.1	43.0
10	3.Fl	55.8	53.0	49.4	57.8	0.0	0.0	0.0	0.0				
Las Flores Drive										24.7	21.9	18.2	26.6
Santa Fe Avenue										55.6	52.8	49.2	57.5
Sprinter										42.0	40.7	37.2	45.1
10	4.Fl	57.7	54.9	51.3	59.7	0.0	0.0	0.0	0.0				
Las Flores Drive										37.8	35.0	31.4	39.7
Santa Fe Avenue										57.5	54.6	51.0	59.4

Sprinter										44.1	42.8	39.3	47.2
11	1.Fl	56.4	53.6	49.9	58.3	0.0	0.0	0.0	0.0				
Las Flores Drive										44.6	41.7	38.1	46.4
Santa Fe Avenue										56.1	53.2	49.6	58.0
Sprinter										36.3	34.9	31.4	39.3
11	2.Fl	59.6	56.8	53.1	61.5	0.0	0.0	0.0	0.0				
Las Flores Drive										48.1	45.2	41.6	50.0
Santa Fe Avenue										59.2	56.3	52.7	61.1
Sprinter										43.1	41.7	38.3	46.2
11	3.Fl	60.7	57.9	54.3	62.7	0.0	0.0	0.0	0.0				
Las Flores Drive										49.4	46.5	42.9	51.2
Santa Fe Avenue										60.3	57.5	53.8	62.2
Sprinter										43.9	42.5	39.0	46.9
11	4.Fl	61.5	58.7	55.1	63.4	0.0	0.0	0.0	0.0				
Las Flores Drive										49.5	46.7	43.0	51.4
Santa Fe Avenue										61.1	58.3	54.6	63.0
Sprinter										45.1	43.7	40.2	48.1
12	1.Fl	55.3	52.5	48.9	57.3	0.0	0.0	0.0	0.0				
Las Flores Drive										50.5	47.6	44.0	52.4
Santa Fe Avenue										53.2	50.4	46.7	55.1
Sprinter										42.2	40.8	37.3	45.2
12	2.Fl	58.4	55.7	52.1	60.4	0.0	0.0	0.0	0.0				
Las Flores Drive										54.1	51.2	47.6	55.9
Santa Fe Avenue										55.8	52.9	49.3	57.7
Sprinter										47.8	46.4	42.9	50.8
12	3.Fl	59.2	56.5	52.9	61.2	0.0	0.0	0.0	0.0				
Las Flores Drive										54.3	51.4	47.7	56.1
Santa Fe Avenue										56.9	54.0	50.4	58.8
Sprinter										49.0	47.6	44.1	52.0
12	4.Fl	59.6	57.0	53.4	61.7	0.0	0.0	0.0	0.0				
Las Flores Drive										54.0	51.1	47.5	55.9
Santa Fe Avenue										57.5	54.7	51.0	59.4
Sprinter										50.0	48.6	45.1	53.0
13	1.Fl	48.6	45.8	42.2	50.6	0.0	0.0	0.0	0.0				
Las Flores Drive										45.0	42.1	38.5	46.9
Santa Fe Avenue										45.3	42.5	38.8	47.2
Sprinter										37.8	36.4	32.9	40.9
13	2.Fl	54.9	52.2	48.5	56.9	0.0	0.0	0.0	0.0				
Las Flores Drive										50.6	47.8	44.1	52.5
Santa Fe Avenue										52.6	49.7	46.1	54.5
Sprinter										41.7	40.3	36.9	44.8
13	3.Fl	58.1	55.4	51.8	60.1	0.0	0.0	0.0	0.0				
Las Flores Drive										53.8	50.9	47.3	55.7
Santa Fe Avenue										55.2	52.3	48.7	57.1
Sprinter										48.4	47.0	43.5	51.4
13	4.Fl	58.8	56.1	52.5	60.8	0.0	0.0	0.0	0.0				
Las Flores Drive										54.0	51.1	47.5	55.9
Santa Fe Avenue										56.1	53.3	49.7	58.0
Sprinter										49.5	48.1	44.6	52.5
14	1.Fl	52.7	50.0	46.4	54.7	0.0	0.0	0.0	0.0				
Las Flores Drive										49.1	46.2	42.6	51.0
Santa Fe Avenue										49.1	46.3	42.6	51.0
Sprinter										43.6	42.2	38.7	46.6
14	2.Fl	57.8	55.2	51.6	59.9	0.0	0.0	0.0	0.0				

Las Flores Drive										54.2	51.3	47.7	56.0
Santa Fe Avenue										53.9	51.1	47.4	55.8
Sprinter										49.7	48.3	44.8	52.7
14	3.Fl	58.4	55.9	52.3	60.6	0.0	0.0	0.0	0.0				
Las Flores Drive										54.2	51.4	47.7	56.1
Santa Fe Avenue										54.9	52.0	48.4	56.8
Sprinter										51.0	49.6	46.1	54.0
14	4.Fl	58.7	56.2	52.6	60.9	0.0	0.0	0.0	0.0				
Las Flores Drive										54.0	51.2	47.5	55.9
Santa Fe Avenue										55.2	52.4	48.8	57.1
Sprinter										52.0	50.6	47.1	55.0
15	1.Fl	51.1	48.6	45.0	53.2	0.0	0.0	0.0	0.0				
Las Flores Drive										47.4	44.5	40.9	49.3
Santa Fe Avenue										46.9	44.0	40.4	48.8
Sprinter										44.1	42.7	39.2	47.1
15	2.Fl	56.5	53.9	50.3	58.6	0.0	0.0	0.0	0.0				
Las Flores Drive										52.8	49.9	46.3	54.7
Santa Fe Avenue										52.5	49.7	46.0	54.4
Sprinter										48.6	47.3	43.8	51.7
15	3.Fl	57.8	55.3	51.7	59.9	0.0	0.0	0.0	0.0				
Las Flores Drive										53.7	50.8	47.2	55.6
Santa Fe Avenue										53.9	51.0	47.4	55.8
Sprinter										50.9	49.5	46.0	53.9
15	4.Fl	58.3	55.8	52.2	60.5	0.0	0.0	0.0	0.0				
Las Flores Drive										53.6	50.7	47.1	55.5
Santa Fe Avenue										54.5	51.7	48.0	56.4
Sprinter										52.0	50.7	47.2	55.1
16	1.Fl	49.9	47.5	43.9	52.1	0.0	0.0	0.0	0.0				
Las Flores Drive										46.2	43.3	39.7	48.1
Santa Fe Avenue										44.4	41.5	37.9	46.3
Sprinter										44.4	43.1	39.6	47.5
16	2.Fl	53.7	51.2	47.6	55.8	0.0	0.0	0.0	0.0				
Las Flores Drive										49.6	46.7	43.1	51.5
Santa Fe Avenue										49.7	46.9	43.2	51.6
Sprinter										46.8	45.4	41.9	49.8
16	3.Fl	57.3	54.8	51.2	59.5	0.0	0.0	0.0	0.0				
Las Flores Drive										53.0	50.1	46.5	54.9
Santa Fe Avenue										53.4	50.6	47.0	55.3
Sprinter										50.7	49.3	45.8	53.8
16	4.Fl	57.9	55.5	51.9	60.1	0.0	0.0	0.0	0.0				
Las Flores Drive										53.1	50.2	46.6	55.0
Santa Fe Avenue										54.1	51.2	47.6	56.0
Sprinter										52.0	50.6	47.2	55.1
17	1.Fl	48.9	46.6	43.0	51.2	0.0	0.0	0.0	0.0				
Las Flores Drive										45.5	42.6	39.0	47.4
Santa Fe Avenue										42.0	39.1	35.5	43.9
Sprinter										44.2	42.8	39.3	47.2
17	2.Fl	52.3	50.0	46.4	54.6	0.0	0.0	0.0	0.0				
Las Flores Drive										47.9	45.0	41.4	49.8
Santa Fe Avenue										47.0	44.2	40.5	48.9
Sprinter										47.6	46.2	42.7	50.6
17	3.Fl	56.6	54.2	50.6	58.8	0.0	0.0	0.0	0.0				
Las Flores Drive										51.9	49.0	45.3	53.7
Santa Fe Avenue										52.9	50.0	46.4	54.8

Sprinter										50.5	49.1	45.7	53.6
17	4.Fl	57.5	55.1	51.5	59.7	0.0	0.0	0.0	0.0				
Las Flores Drive										52.1	49.2	45.6	53.9
Santa Fe Avenue										53.7	50.9	47.3	55.6
Sprinter										52.0	50.7	47.2	55.1
18	1.Fl	48.4	46.1	42.5	50.7	0.0	0.0	0.0	0.0				
Las Flores Drive										45.3	42.4	38.8	47.2
Santa Fe Avenue										41.5	38.6	35.0	43.4
Sprinter										43.4	42.0	38.5	46.4
18	2.Fl	51.9	49.7	46.2	54.3	0.0	0.0	0.0	0.0				
Las Flores Drive										47.1	44.2	40.6	49.0
Santa Fe Avenue										45.6	42.8	39.2	47.5
Sprinter										48.3	46.9	43.4	51.3
18	3.Fl	55.0	52.6	49.0	57.2	0.0	0.0	0.0	0.0				
Las Flores Drive										50.5	47.6	44.0	52.4
Santa Fe Avenue										50.0	47.1	43.5	51.9
Sprinter										50.0	48.6	45.2	53.1
18	4.Fl	57.1	54.7	51.2	59.4	0.0	0.0	0.0	0.0				
Las Flores Drive										51.4	48.5	44.9	53.3
Santa Fe Avenue										53.1	50.3	46.7	55.0
Sprinter										52.2	50.8	47.3	55.2
19	1.Fl	46.0	44.2	40.7	48.7	0.0	0.0	0.0	0.0				
Las Flores Drive										40.8	37.9	34.3	42.6
Santa Fe Avenue										27.3	24.5	20.8	29.2
Sprinter										44.4	43.0	39.5	47.4
19	2.Fl	50.7	49.1	45.6	53.6	0.0	0.0	0.0	0.0				
Las Flores Drive										42.0	39.1	35.5	43.9
Santa Fe Avenue										31.1	28.2	24.6	33.0
Sprinter										50.0	48.6	45.1	53.0
19	3.Fl	51.9	50.3	46.8	54.8	0.0	0.0	0.0	0.0				
Las Flores Drive										44.0	41.1	37.5	45.8
Santa Fe Avenue										36.4	33.6	29.9	38.3
Sprinter										51.0	49.6	46.2	54.1
19	4.Fl	53.2	51.6	48.0	56.0	0.0	0.0	0.0	0.0				
Las Flores Drive										44.7	41.8	38.2	46.6
Santa Fe Avenue										38.4	35.5	31.9	40.3
Sprinter										52.3	50.9	47.4	55.4
20	1.Fl	46.9	45.2	41.7	49.7	0.0	0.0	0.0	0.0				
Las Flores Drive										40.3	37.5	33.8	42.2
Santa Fe Avenue										31.4	28.6	25.0	33.3
Sprinter										45.6	44.3	40.8	48.7
20	2.Fl	50.8	49.2	45.7	53.7	0.0	0.0	0.0	0.0				
Las Flores Drive										41.3	38.4	34.8	43.2
Santa Fe Avenue										38.5	35.7	32.0	40.4
Sprinter										50.0	48.7	45.2	53.1
20	3.Fl	52.2	50.5	47.0	55.0	0.0	0.0	0.0	0.0				
Las Flores Drive										42.6	39.7	36.1	44.5
Santa Fe Avenue										42.6	39.8	36.1	44.5
Sprinter										51.1	49.7	46.2	54.1
20	4.Fl	53.1	51.5	48.0	55.9	0.0	0.0	0.0	0.0				
Las Flores Drive										43.0	40.1	36.5	44.9
Santa Fe Avenue										44.0	41.2	37.6	45.9
Sprinter										52.1	50.7	47.2	55.1

ATTACHMENT 5

FHWA RD-77-108 – Off-site Traffic Noise

FHWA RD-77-108

Traffic Noise Prediction Model

Data Input Sheet

Project Name : Santa Fe Flores
Project Number : 9865
Modeled Condition : 2022

Surface Refelction: CNEL
Assessment Metric: Hard
Peak ratio to ADT: 10.0
Traffic Desc. (Peak or ADT) : ADT

Segment	Roadway	Segment	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	K-Factor
WITHOUT PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	14,850	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
2	S. Santa Fe Avenue	Bosstick Boulevard to Vern Road	16,660	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
3	S. Santa Fe Avenue	Vern Road to Las Flores Drive	16,660	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	14,600	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	13,500	40	50	95.00	3.00	2.00	77.00	10.00	13.00	
6	Hollencrest Road	De Leone Road to Hollenbeck Road	560	25	50	95.00	3.00	2.00	77.00	10.00	13.00	
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	11,730	40	50	95.00	3.00	2.00	77.00	10.00	13.00	
WITH PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	14,940	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
2	S. Santa Fe Avenue	Bosstick Boulevard to Vern Road	16,750	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
3	S. Santa Fe Avenue	Vern Road to Las Flores Drive	16,960	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	14,750	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	13,560	40	50	95.00	3.00	2.00	77.00	10.00	13.00	
6	Hollencrest Road	De Leone Road to Hollenbeck Road	590	25	50	95.00	3.00	2.00	77.00	10.00	13.00	
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	11,820	40	50	95.00	3.00	2.00	77.00	10.00	13.00	

FHWA RD-77-108

Traffic Noise Prediction Model

Predicted Noise Levels

Project Name : Santa Fe Flores
Project Number : 9865
Modeled Condition : 2022
Assessment Metric: Hard

			Noise Levels, dBA Hard				Distance to Traffic Noise Level Contours, Feet					
Segment	Roadway	Segment	Auto	MT	HT	Total	75 dB	70 dB	65 dB	60 dB	55 dB	50 dB
WITHOUT PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	69.2	62.5	65.2	71.3	21	67	213	674	2,133	6,745
2	S. Santa Fe Avenue	Bosstick Boulevard to Vern Road	69.7	63.0	65.7	71.8	24	76	239	757	2,393	7,568
3	S. Santa Fe Avenue	Vern Road to Las Flores Drive	69.7	63.0	65.7	71.8	24	76	239	757	2,393	7,568
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	69.2	62.4	65.1	71.2	21	66	208	659	2,084	6,591
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	67.3	61.3	64.3	69.8	15	48	151	477	1,510	4,775
6	Hollencrest Road	De Leone Road to Hollenbeck Road	47.6	44.3	50.1	52.7	0	1	3	9	29	93
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	66.7	60.6	63.7	69.1	13	41	129	406	1,285	4,064
WITH PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	69.3	62.5	65.2	71.3	21	67	213	674	2,133	6,745
2	S. Santa Fe Avenue	Bosstick Boulevard to Vern Road	69.7	63.0	65.7	71.8	24	76	239	757	2,393	7,568
3	S. Santa Fe Avenue	Vern Road to Las Flores Drive	69.8	63.0	65.8	71.9	24	77	245	774	2,449	7,744
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	69.2	62.4	65.2	71.3	21	67	213	674	2,133	6,745
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	67.4	61.3	64.3	69.8	15	48	151	477	1,510	4,775
6	Hollencrest Road	De Leone Road to Hollenbeck Road	47.9	44.5	50.3	53.0	0	1	3	10	32	100
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	66.8	60.7	63.7	69.2	13	42	132	416	1,315	4,159

FHWA RD-77-108

Traffic Noise Prediction Model

Data Input Sheet

Project Name : Santa Fe Flores
Project Number : 9865
Modeled Condition : 2025

Surface Refelction: CNEL
Assessment Metric: Hard
Peak ratio to ADT: 10.0
Traffic Desc. (Peak or ADT) : ADT

Segment	Roadway	Segment	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	K-Factor
WITHOUT PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	15,610	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
2	S. Santa Fe Avenue	Bosstick Boulevard to Vern Road	17,510	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
3	S. Santa Fe Avenue	Vern Road to Las Flores Drive	17,510	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	15,340	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	14,190	40	50	95.00	3.00	2.00	77.00	10.00	13.00	
6	Hollencrest Road	De Leone Road to Hollenbeck Road	590	25	50	95.00	3.00	2.00	77.00	10.00	13.00	
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	12,330	40	50	95.00	3.00	2.00	77.00	10.00	13.00	
WITH PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	15,700	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
2	S. Santa Fe Avenue	Bosstick Boulevard to Vern Road	17,600	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
3	S. Santa Fe Avenue	Vern Road to Las Flores Drive	17,810	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	15,490	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	14,250	40	50	95.00	3.00	2.00	77.00	10.00	13.00	
6	Hollencrest Road	De Leone Road to Hollenbeck Road	620	25	50	95.00	3.00	2.00	77.00	10.00	13.00	
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	12,420	40	50	95.00	3.00	2.00	77.00	10.00	13.00	

FHWA RD-77-108

Traffic Noise Prediction Model

Predicted Noise Levels

Project Name : Santa Fe Flores
Project Number : 9865
Modeled Condition : 2025
Assessment Metric: Hard

			Noise Levels, dBA Hard				Distance to Traffic Noise Level Contours, Feet					
Segment	Roadway	Segment	Auto	MT	HT	Total	75 dB	70 dB	65 dB	60 dB	55 dB	50 dB
WITHOUT PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	69.4	62.7	65.4	71.5	22	71	223	706	2,233	7,063
2	S. Santa Fe Avenue	Bosstick Boulevard to Vern Road	69.9	63.2	65.9	72.0	25	79	251	792	2,506	7,924
3	S. Santa Fe Avenue	Vern Road to Las Flores Drive	69.9	63.2	65.9	72.0	25	79	251	792	2,506	7,924
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	69.4	62.6	65.3	71.4	22	69	218	690	2,183	6,902
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	67.6	61.5	64.5	70.0	16	50	158	500	1,581	5,000
6	Hollencrest Road	De Leone Road to Hollenbeck Road	47.9	44.5	50.3	53.0	0	1	3	10	32	100
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	66.9	60.9	63.9	69.4	14	44	138	435	1,377	4,355
WITH PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	69.5	62.7	65.4	71.5	22	71	223	706	2,233	7,063
2	S. Santa Fe Avenue	Bosstick Boulevard to Vern Road	70.0	63.2	65.9	72.0	25	79	251	792	2,506	7,924
3	S. Santa Fe Avenue	Vern Road to Las Flores Drive	70.0	63.3	66.0	72.1	26	81	256	811	2,564	8,109
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	69.4	62.7	65.4	71.5	22	71	223	706	2,233	7,063
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	67.6	61.5	64.6	70.0	16	50	158	500	1,581	5,000
6	Hollencrest Road	De Leone Road to Hollenbeck Road	48.1	44.7	50.6	53.2	0	1	3	10	33	104
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	67.0	60.9	64.0	69.4	14	44	138	435	1,377	4,355

FHWA RD-77-108

Traffic Noise Prediction Model

Data Input Sheet

Project Name : Santa Fe Flores
Project Number : 9865
Modeled Condition : 2050

Surface Refelction: CNEL
Assessment Metric: Hard
Peak ratio to ADT: 10.0
Traffic Desc. (Peak or ADT) : ADT

Segment	Roadway	Segment	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	K-Factor
WITHOUT PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	22,200	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
2	S. Santa Fe Avenue	Bosstick Boulevard to Vern Road	22,200	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
3	S. Santa Fe Avenue	Vern Road to Las Flores Drive	22,200	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	21,300	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	24,400	40	50	95.00	3.00	2.00	77.00	10.00	13.00	
6	Hollencrest Road	De Leone Road to Hollenbeck Road	830	25	50	95.00	3.00	2.00	77.00	10.00	13.00	
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	16,800	40	50	95.00	3.00	2.00	77.00	10.00	13.00	
WITH PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	22,290	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
2	S. Santa Fe Avenue	Bosstick Boulevard to Vern Road	22,290	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
3	S. Santa Fe Avenue	Vern Road to Las Flores Drive	22,500	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	21,450	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	24,460	40	50	95.00	3.00	2.00	77.00	10.00	13.00	
6	Hollencrest Road	De Leone Road to Hollenbeck Road	860	25	50	95.00	3.00	2.00	77.00	10.00	13.00	
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	16,890	40	50	95.00	3.00	2.00	77.00	10.00	13.00	

FHWA RD-77-108

Traffic Noise Prediction Model

Predicted Noise Levels

Project Name : Santa Fe Flores
Project Number : 9865
Modeled Condition : 2050
Assessment Metric: Hard

			Noise Levels, dBA Hard				Distance to Traffic Noise Level Contours, Feet					
Segment	Roadway	Segment	Auto	MT	HT	Total	75 dB	70 dB	65 dB	60 dB	55 dB	50 dB
WITHOUT PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	71.0	64.2	67.0	73.0	32	100	315	998	3,155	9,976
2	S. Santa Fe Avenue	Bosstick Boulevard to Vern Road	71.0	64.2	67.0	73.0	32	100	315	998	3,155	9,976
3	S. Santa Fe Avenue	Vern Road to Las Flores Drive	71.0	64.2	67.0	73.0	32	100	315	998	3,155	9,976
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	70.8	64.0	66.8	72.9	31	97	308	975	3,083	9,749
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	69.9	63.8	66.9	72.3	27	85	269	849	2,685	8,491
6	Hollencrest Road	De Leone Road to Hollenbeck Road	49.3	46.0	51.8	54.4	0	1	4	14	44	138
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	68.3	62.2	65.3	70.7	19	59	186	587	1,858	5,874
WITH PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	71.0	64.2	67.0	73.1	32	102	323	1,021	3,228	10,209
2	S. Santa Fe Avenue	Bosstick Boulevard to Vern Road	71.0	64.2	67.0	73.1	32	102	323	1,021	3,228	10,209
3	S. Santa Fe Avenue	Vern Road to Las Flores Drive	71.0	64.3	67.0	73.1	32	102	323	1,021	3,228	10,209
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	70.8	64.1	66.8	72.9	31	97	308	975	3,083	9,749
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	69.9	63.8	66.9	72.3	27	85	269	849	2,685	8,491
6	Hollencrest Road	De Leone Road to Hollenbeck Road	49.5	46.1	52.0	54.6	0	1	5	14	46	144
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	68.3	62.2	65.3	70.7	19	59	186	587	1,858	5,874

ATTACHMENT 6

SoundPLAN Data – On-site Generated Noise

Source name	Reference	Noise Level dB(A) Lpw
HVAC1	Lw/unit	75
HVAC2	Lw/unit	75
HVAC3	Lw/unit	75
HVAC4	Lw/unit	75
HVAC5	Lw/unit	75
HVAC6	Lw/unit	75
HVAC7	Lw/unit	75
HVAC8	Lw/unit	75
HVAC9	Lw/unit	75
HVAC10	Lw/unit	75
HVAC11	Lw/unit	75
HVAC12	Lw/unit	75
HVAC13	Lw/unit	75
HVAC14	Lw/unit	75
HVAC15	Lw/unit	75
HVAC16	Lw/unit	75
HVAC17	Lw/unit	75
HVAC18	Lw/unit	75
HVAC19	Lw/unit	75
HVAC20	Lw/unit	75
HVAC21	Lw/unit	75
HVAC22	Lw/unit	75
HVAC23	Lw/unit	75
HVAC24	Lw/unit	75
HVAC25	Lw/unit	75
HVAC26	Lw/unit	75
HVAC27	Lw/unit	75
HVAC28	Lw/unit	75
HVAC29	Lw/unit	75
HVAC30	Lw/unit	75
HVAC31	Lw/unit	75
HVAC32	Lw/unit	75
HVAC33	Lw/unit	75
HVAC34	Lw/unit	75
HVAC35	Lw/unit	75
HVAC36	Lw/unit	75
HVAC37	Lw/unit	75
HVAC38	Lw/unit	75
HVAC39	Lw/unit	75
HVAC40	Lw/unit	75
HVAC41	Lw/unit	75
HVAC42	Lw/unit	75
HVAC43	Lw/unit	75
HVAC44	Lw/unit	75
HVAC45	Lw/unit	75
HVAC46	Lw/unit	75
HVAC47	Lw/unit	75
HVAC48	Lw/unit	75
HVAC49	Lw/unit	75
HVAC50	Lw/unit	75
HVAC51	Lw/unit	75
HVAC52	Lw/unit	75
HVAC53	Lw/unit	75
HVAC54	Lw/unit	75
HVAC55	Lw/unit	75
HVAC56	Lw/unit	75

9865 Santa Fe Flores

SoundPLAN Data - HVAC

No.	Coordinates X (meters)	Y (meters)	Height (meters)	Noise Level dB(A) Leq
1	481468.23	3668972.47	182.38	33.7
2	481477.03	3668933.16	185.26	35.7
3	481491.51	3668901.09	186.46	35.6
4	481513.24	3668863.85	186.82	35.2
5	481534.96	3668832.30	186.16	34.2
6	481452.72	3668803.33	161.69	33.3
7	481417.03	3668787.30	160.02	32.9
8	481389.61	3668758.33	159.09	37.9
9	481373.58	3668720.06	157.61	37.0
10	481348.75	3668660.57	154.54	35.1
11	481317.72	3668679.71	153.92	37.4
12	481280.47	3668693.16	153.14	38.8
13	481232.89	3668717.47	152.07	38.0
14	481185.82	3668741.78	151.46	36.6
15	481304.72	3668755.81	153.73	40.8
16	481288.85	3668803.43	156.64	43.2
17	481306.71	3668845.77	157.91	43.0
18	481370.21	3668885.46	167.46	44.1

Source name			Noise Level dB(A) Leq
1	1.Fl	33.7	
HVAC1			15.9
HVAC2			16.8
HVAC3			17.7
HVAC4			17.8
HVAC5			18.0
HVAC6			18.0
HVAC7			19.7
HVAC8			19.7
HVAC9			19.6
HVAC10			19.6
HVAC11			19.6
HVAC12			19.5
HVAC13			19.5
HVAC14			19.5
HVAC15			19.4
HVAC16			19.4
HVAC17			19.4
HVAC18			19.4
HVAC19			19.4
HVAC20			19.4
HVAC21			19.4
HVAC22			19.5
HVAC23			17.6
HVAC24			17.5
HVAC25			17.3
HVAC26			17.0
HVAC27			16.1
HVAC28			14.7
HVAC29			5.2
HVAC30			6.2
HVAC31			8.1
HVAC32			9.2
HVAC33			9.5
HVAC34			9.7
HVAC35			10.0
HVAC36			10.2
HVAC37			10.4
HVAC38			10.6
HVAC39			11.4
HVAC40			11.6
HVAC41			11.7
HVAC42			11.9
HVAC43			11.6
HVAC44			11.4
HVAC45			11.5
HVAC46			11.3
HVAC47			10.6
HVAC48			10.4
HVAC49			10.2
HVAC50			10.0
HVAC51			9.7
HVAC52			9.5
HVAC53			9.2
HVAC54			8.9
HVAC55			3.4
HVAC56			2.9
2	1.Fl	35.7	
HVAC1			17.4
HVAC2			18.4
HVAC3			19.1
HVAC4			19.2
HVAC5			19.3
HVAC6			19.2
HVAC7			19.0
HVAC8			20.8
HVAC9			22.0
HVAC10			22.0

HVAC11	22.0
HVAC12	21.9
HVAC13	21.9
HVAC14	21.8
HVAC15	21.2
HVAC16	21.2
HVAC17	21.2
HVAC18	21.3
HVAC19	19.6
HVAC20	19.6
HVAC21	18.8
HVAC22	18.8
HVAC23	19.0
HVAC24	19.1
HVAC25	19.1
HVAC26	18.9
HVAC27	18.0
HVAC28	16.7
HVAC29	5.1
HVAC30	5.8
HVAC31	14.3
HVAC32	14.6
HVAC33	14.9
HVAC34	15.1
HVAC35	15.7
HVAC36	15.7
HVAC37	15.7
HVAC38	15.8
HVAC39	15.8
HVAC40	15.9
HVAC41	15.8
HVAC42	15.8
HVAC43	15.8
HVAC44	15.8
HVAC45	15.8
HVAC46	15.8
HVAC47	15.8
HVAC48	15.7
HVAC49	15.5
HVAC50	15.4
HVAC51	15.1
HVAC52	14.9
HVAC53	14.6
HVAC54	14.3
HVAC55	9.8
HVAC56	8.5
3 1.Fl	35.6
HVAC1	18.2
HVAC2	19.2
HVAC3	19.8
HVAC4	19.8
HVAC5	19.7
HVAC6	19.6
HVAC7	20.0
HVAC8	20.0
HVAC9	19.9
HVAC10	19.8
HVAC11	19.8
HVAC12	21.7
HVAC13	21.6
HVAC14	21.6
HVAC15	21.0
HVAC16	18.7
HVAC17	18.9
HVAC18	19.0
HVAC19	19.0
HVAC20	19.1
HVAC21	19.1
HVAC22	18.8
HVAC23	19.0
HVAC24	19.1

HVAC25		19.2
HVAC26		19.2
HVAC27		19.1
HVAC28		17.8
HVAC29		10.1
HVAC30		11.8
HVAC31		18.3
HVAC32		16.1
HVAC33		16.3
HVAC34		16.5
HVAC35		16.6
HVAC36		16.7
HVAC37		16.7
HVAC38		16.7
HVAC39		16.6
HVAC40		16.6
HVAC41		16.5
HVAC42		18.2
HVAC43		17.1
HVAC44		17.2
HVAC45		17.2
HVAC46		15.9
HVAC47		15.6
HVAC48		15.5
HVAC49		15.3
HVAC50		14.8
HVAC51		14.5
HVAC52		14.1
HVAC53		13.5
HVAC54		15.9
HVAC55		11.9
HVAC56		10.3
4	1.Fl	35.2
HVAC1		18.4
HVAC2		19.1
HVAC3		19.0
HVAC4		18.9
HVAC5		18.9
HVAC6		18.8
HVAC7		18.7
HVAC8		18.7
HVAC9		18.6
HVAC10		18.6
HVAC11		18.6
HVAC12		18.5
HVAC13		18.5
HVAC14		20.8
HVAC15		17.5
HVAC16		17.4
HVAC17		17.6
HVAC18		17.7
HVAC19		17.7
HVAC20		17.7
HVAC21		17.6
HVAC22		17.6
HVAC23		17.8
HVAC24		17.9
HVAC25		17.9
HVAC26		17.9
HVAC27		18.0
HVAC28		18.1
HVAC29		11.8
HVAC30		18.2
HVAC31		19.5
HVAC32		19.5
HVAC33		17.1
HVAC34		17.4
HVAC35		17.3
HVAC36		17.3
HVAC37		17.2
HVAC38		17.2

HVAC39			17.1
HVAC40			17.1
HVAC41			17.1
HVAC42			17.1
HVAC43			16.2
HVAC44			16.3
HVAC45			16.3
HVAC46			16.4
HVAC47			16.2
HVAC48			16.3
HVAC49			16.5
HVAC50			16.3
HVAC51			16.4
HVAC52			16.4
HVAC53			16.3
HVAC54			19.1
HVAC55			16.4
HVAC56			15.5
5	1.Fl	34.2	
HVAC1			17.6
HVAC2			17.5
HVAC3			17.5
HVAC4			17.4
HVAC5			17.4
HVAC6			17.3
HVAC7			17.3
HVAC8			17.3
HVAC9			17.2
HVAC10			17.2
HVAC11			17.2
HVAC12			17.1
HVAC13			17.1
HVAC14			17.0
HVAC15			16.0
HVAC16			15.9
HVAC17			16.0
HVAC18			16.1
HVAC19			16.1
HVAC20			16.1
HVAC21			16.0
HVAC22			16.0
HVAC23			16.2
HVAC24			16.3
HVAC25			16.3
HVAC26			16.2
HVAC27			16.3
HVAC28			16.4
HVAC29			17.9
HVAC30			18.9
HVAC31			19.0
HVAC32			19.0
HVAC33			16.3
HVAC34			16.2
HVAC35			16.2
HVAC36			16.3
HVAC37			16.3
HVAC38			16.3
HVAC39			16.2
HVAC40			16.1
HVAC41			16.2
HVAC42			16.2
HVAC43			15.2
HVAC44			15.2
HVAC45			15.2
HVAC46			15.3
HVAC47			15.1
HVAC48			15.1
HVAC49			15.2
HVAC50			15.0
HVAC51			15.3
HVAC52			15.3

HVAC53			18.4
HVAC54			18.4
HVAC55			18.3
HVAC56			15.2
6	1.Fl	33.3	
HVAC1			11.3
HVAC2			11.5
HVAC3			11.8
HVAC4			12.1
HVAC5			12.4
HVAC6			12.5
HVAC7			12.7
HVAC8			13.1
HVAC9			13.3
HVAC10			13.4
HVAC11			13.6
HVAC12			13.7
HVAC13			13.9
HVAC14			14.0
HVAC15			13.8
HVAC16			13.7
HVAC17			13.5
HVAC18			13.4
HVAC19			13.2
HVAC20			13.1
HVAC21			12.9
HVAC22			12.6
HVAC23			12.4
HVAC24			12.3
HVAC25			12.0
HVAC26			11.8
HVAC27			11.4
HVAC28			11.2
HVAC29			16.6
HVAC30			17.1
HVAC31			17.4
HVAC32			17.5
HVAC33			14.9
HVAC34			18.4
HVAC35			18.3
HVAC36			18.3
HVAC37			18.3
HVAC38			18.3
HVAC39			18.2
HVAC40			18.2
HVAC41			18.2
HVAC42			18.2
HVAC43			17.6
HVAC44			17.6
HVAC45			17.6
HVAC46			17.7
HVAC47			17.6
HVAC48			17.7
HVAC49			17.8
HVAC50			17.7
HVAC51			17.8
HVAC52			17.9
HVAC53			17.0
HVAC54			16.9
HVAC55			16.7
HVAC56			16.3
7	1.Fl	32.9	
HVAC1			14.7
HVAC2			12.5
HVAC3			12.8
HVAC4			13.1
HVAC5			13.4
HVAC6			13.6
HVAC7			13.9
HVAC8			14.0
HVAC9			14.3

HVAC10			14.4
HVAC11			14.6
HVAC12			14.7
HVAC13			14.9
HVAC14			15.0
HVAC15			15.2
HVAC16			15.1
HVAC17			15.0
HVAC18			14.9
HVAC19			14.7
HVAC20			14.5
HVAC21			14.3
HVAC22			14.1
HVAC23			13.8
HVAC24			13.5
HVAC25			13.2
HVAC26			13.0
HVAC27			12.7
HVAC28			12.5
HVAC29			17.9
HVAC30			18.0
HVAC31			18.1
HVAC32			15.8
HVAC33			15.9
HVAC34			16.0
HVAC35			16.0
HVAC36			16.1
HVAC37			16.1
HVAC38			16.2
HVAC39			16.2
HVAC40			16.3
HVAC41			16.3
HVAC42			16.3
HVAC43			16.1
HVAC44			16.1
HVAC45			16.1
HVAC46			16.1
HVAC47			16.0
HVAC48			16.0
HVAC49			15.9
HVAC50			15.8
HVAC51			15.9
HVAC52			15.8
HVAC53			15.7
HVAC54			17.9
HVAC55			17.8
HVAC56			17.8
8	1.Fl	37.9	
HVAC1			15.4
HVAC2			15.4
HVAC3			15.4
HVAC4			15.4
HVAC5			15.4
HVAC6			13.4
HVAC7			13.5
HVAC8			13.5
HVAC9			13.7
HVAC10			13.7
HVAC11			14.2
HVAC12			14.5
HVAC13			15.0
HVAC14			15.4
HVAC15			15.5
HVAC16			15.1
HVAC17			14.6
HVAC18			14.4
HVAC19			14.3
HVAC20			14.2
HVAC21			14.1
HVAC22			14.0
HVAC23			13.9

HVAC24			13.8
HVAC25			13.7
HVAC26			13.7
HVAC27			15.9
HVAC28			15.9
HVAC29			25.6
HVAC30			24.1
HVAC31			22.1
HVAC32			22.2
HVAC33			22.2
HVAC34			22.3
HVAC35			22.3
HVAC36			22.3
HVAC37			22.4
HVAC38			22.4
HVAC39			22.5
HVAC40			22.5
HVAC41			22.5
HVAC42			22.6
HVAC43			22.8
HVAC44			22.7
HVAC45			22.7
HVAC46			22.6
HVAC47			22.6
HVAC48			22.6
HVAC49			22.5
HVAC50			22.5
HVAC51			22.4
HVAC52			22.4
HVAC53			22.3
HVAC54			22.3
HVAC55			24.1
HVAC56			24.0
9	1.Fl	37.0	
HVAC1			13.3
HVAC2			13.4
HVAC3			13.4
HVAC4			13.5
HVAC5			16.2
HVAC6			16.3
HVAC7			16.3
HVAC8			16.3
HVAC9			15.6
HVAC10			15.7
HVAC11			16.0
HVAC12			16.2
HVAC13			16.4
HVAC14			16.3
HVAC15			16.4
HVAC16			16.4
HVAC17			16.2
HVAC18			16.1
HVAC19			16.0
HVAC20			16.0
HVAC21			15.9
HVAC22			12.3
HVAC23			12.1
HVAC24			11.9
HVAC25			13.8
HVAC26			13.7
HVAC27			13.6
HVAC28			13.5
HVAC29			23.5
HVAC30			23.6
HVAC31			22.6
HVAC32			22.7
HVAC33			21.3
HVAC34			21.2
HVAC35			21.3
HVAC36			21.3
HVAC37			20.0

HVAC38			20.1
HVAC39			20.8
HVAC40			21.2
HVAC41			22.2
HVAC42			24.9
HVAC43			22.1
HVAC44			21.5
HVAC45			20.9
HVAC46			20.7
HVAC47			20.5
HVAC48			20.1
HVAC49			20.0
HVAC50			19.9
HVAC51			19.8
HVAC52			21.3
HVAC53			21.2
HVAC54			21.1
HVAC55			22.6
HVAC56			22.4
10	1.Fl	35.1	
HVAC1			15.1
HVAC2			15.1
HVAC3			15.1
HVAC4			15.1
HVAC5			14.0
HVAC6			14.1
HVAC7			14.2
HVAC8			14.3
HVAC9			14.4
HVAC10			13.7
HVAC11			14.6
HVAC12			14.8
HVAC13			14.8
HVAC14			14.6
HVAC15			13.7
HVAC16			13.9
HVAC17			14.1
HVAC18			14.0
HVAC19			13.6
HVAC20			13.3
HVAC21			13.3
HVAC22			14.4
HVAC23			14.3
HVAC24			14.3
HVAC25			14.3
HVAC26			14.4
HVAC27			14.3
HVAC28			14.3
HVAC29			18.2
HVAC30			18.3
HVAC31			18.6
HVAC32			18.7
HVAC33			18.8
HVAC34			18.9
HVAC35			19.5
HVAC36			19.6
HVAC37			18.3
HVAC38			19.1
HVAC39			20.1
HVAC40			21.2
HVAC41			23.2
HVAC42			21.6
HVAC43			21.4
HVAC44			20.2
HVAC45			18.7
HVAC46			18.5
HVAC47			18.2
HVAC48			18.2
HVAC49			18.1
HVAC50			18.0
HVAC51			17.9

HVAC52			19.4
HVAC53			19.3
HVAC54			18.6
HVAC55			18.6
HVAC56			18.3
11	1.Fl	37.4	
HVAC1			14.5
HVAC2			14.6
HVAC3			14.6
HVAC4			14.6
HVAC5			14.7
HVAC6			14.7
HVAC7			14.8
HVAC8			14.9
HVAC9			14.9
HVAC10			15.0
HVAC11			13.7
HVAC12			17.3
HVAC13			17.0
HVAC14			16.6
HVAC15			14.5
HVAC16			14.8
HVAC17			15.2
HVAC18			13.6
HVAC19			15.0
HVAC20			14.9
HVAC21			14.9
HVAC22			14.8
HVAC23			14.7
HVAC24			14.7
HVAC25			14.6
HVAC26			14.6
HVAC27			14.6
HVAC28			14.5
HVAC29			20.3
HVAC30			20.4
HVAC31			20.4
HVAC32			20.6
HVAC33			20.9
HVAC34			21.9
HVAC35			22.4
HVAC36			23.0
HVAC37			23.5
HVAC38			24.0
HVAC39			24.3
HVAC40			22.3
HVAC41			23.8
HVAC42			25.9
HVAC43			24.6
HVAC44			24.1
HVAC45			23.0
HVAC46			22.6
HVAC47			21.6
HVAC48			21.4
HVAC49			21.0
HVAC50			20.5
HVAC51			20.3
HVAC52			19.6
HVAC53			19.1
HVAC54			19.1
HVAC55			18.9
HVAC56			18.8
12	1.Fl	38.8	
HVAC1			18.8
HVAC2			18.8
HVAC3			17.4
HVAC4			17.6
HVAC5			17.8
HVAC6			18.0
HVAC7			18.2
HVAC8			17.2

HVAC9			17.5
HVAC10			17.6
HVAC11			18.0
HVAC12			17.8
HVAC13			18.0
HVAC14			18.2
HVAC15			15.3
HVAC16			16.2
HVAC17			13.4
HVAC18			13.3
HVAC19			18.8
HVAC20			18.7
HVAC21			18.5
HVAC22			18.4
HVAC23			19.2
HVAC24			19.1
HVAC25			19.0
HVAC26			18.9
HVAC27			18.8
HVAC28			18.7
HVAC29			21.5
HVAC30			21.7
HVAC31			22.2
HVAC32			22.3
HVAC33			22.6
HVAC34			23.7
HVAC35			22.1
HVAC36			22.2
HVAC37			22.5
HVAC38			22.3
HVAC39			24.0
HVAC40			24.6
HVAC41			25.0
HVAC42			25.1
HVAC43			24.1
HVAC44			23.4
HVAC45			23.5
HVAC46			23.6
HVAC47			23.1
HVAC48			22.8
HVAC49			22.6
HVAC50			22.9
HVAC51			24.1
HVAC52			22.9
HVAC53			23.0
HVAC54			22.9
HVAC55			22.8
HVAC56			22.7
13	1.Fl	38.0	
HVAC1			18.1
HVAC2			18.2
HVAC3			19.1
HVAC4			19.0
HVAC5			19.0
HVAC6			18.9
HVAC7			19.0
HVAC8			17.7
HVAC9			17.8
HVAC10			18.0
HVAC11			18.2
HVAC12			18.3
HVAC13			17.4
HVAC14			17.9
HVAC15			12.5
HVAC16			18.1
HVAC17			18.3
HVAC18			18.1
HVAC19			17.8
HVAC20			19.0
HVAC21			18.8
HVAC22			18.7

HVAC23			18.7
HVAC24			18.7
HVAC25			18.3
HVAC26			18.2
HVAC27			20.0
HVAC28			20.0
HVAC29			21.0
HVAC30			20.7
HVAC31			20.7
HVAC32			21.2
HVAC33			21.2
HVAC34			21.4
HVAC35			21.7
HVAC36			21.8
HVAC37			21.9
HVAC38			22.0
HVAC39			22.4
HVAC40			23.0
HVAC41			22.5
HVAC42			22.0
HVAC43			22.7
HVAC44			23.1
HVAC45			23.2
HVAC46			22.4
HVAC47			22.0
HVAC48			21.7
HVAC49			21.5
HVAC50			21.4
HVAC51			21.3
HVAC52			22.1
HVAC53			21.2
HVAC54			21.5
HVAC55			21.8
HVAC56			21.6
14	1.Fl	36.6	
HVAC1			18.1
HVAC2			18.1
HVAC3			18.2
HVAC4			18.2
HVAC5			18.3
HVAC6			18.2
HVAC7			18.3
HVAC8			18.4
HVAC9			18.4
HVAC10			18.7
HVAC11			17.8
HVAC12			17.7
HVAC13			17.5
HVAC14			16.6
HVAC15			17.5
HVAC16			17.2
HVAC17			17.2
HVAC18			18.4
HVAC19			18.6
HVAC20			18.6
HVAC21			17.9
HVAC22			17.9
HVAC23			17.9
HVAC24			17.9
HVAC25			17.8
HVAC26			17.8
HVAC27			17.7
HVAC28			19.3
HVAC29			17.6
HVAC30			18.1
HVAC31			18.9
HVAC32			19.3
HVAC33			19.2
HVAC34			19.5
HVAC35			20.3
HVAC36			20.4

HVAC37			20.5
HVAC38			20.6
HVAC39			20.8
HVAC40			21.1
HVAC41			20.7
HVAC42			20.3
HVAC43			20.8
HVAC44			21.1
HVAC45			21.1
HVAC46			20.8
HVAC47			20.7
HVAC48			20.6
HVAC49			20.5
HVAC50			19.8
HVAC51			19.3
HVAC52			20.2
HVAC53			19.3
HVAC54			19.0
HVAC55			18.5
HVAC56			19.1
15	1.Fl	40.8	
HVAC1			16.7
HVAC2			17.0
HVAC3			17.4
HVAC4			17.6
HVAC5			18.1
HVAC6			16.7
HVAC7			17.1
HVAC8			17.5
HVAC9			18.8
HVAC10			19.2
HVAC11			19.7
HVAC12			18.9
HVAC13			19.7
HVAC14			20.3
HVAC15			12.6
HVAC16			20.8
HVAC17			20.1
HVAC18			19.7
HVAC19			18.3
HVAC20			17.9
HVAC21			17.4
HVAC22			18.8
HVAC23			18.3
HVAC24			18.0
HVAC25			17.6
HVAC26			18.4
HVAC27			18.1
HVAC28			18.2
HVAC29			20.9
HVAC30			20.6
HVAC31			21.5
HVAC32			22.1
HVAC33			23.6
HVAC34			25.4
HVAC35			26.1
HVAC36			26.0
HVAC37			26.3
HVAC38			25.9
HVAC39			26.3
HVAC40			26.9
HVAC41			28.2
HVAC42			28.9
HVAC43			29.3
HVAC44			28.9
HVAC45			27.1
HVAC46			26.3
HVAC47			25.9
HVAC48			25.9
HVAC49			25.4
HVAC50			24.8

HVAC51			24.6
HVAC52			21.7
HVAC53			21.3
HVAC54			21.7
HVAC55			21.4
HVAC56			21.1
16	1.Fl	43.2	
HVAC1			23.7
HVAC2			23.8
HVAC3			23.8
HVAC4			23.9
HVAC5			24.0
HVAC6			24.1
HVAC7			24.1
HVAC8			24.2
HVAC9			24.3
HVAC10			24.4
HVAC11			23.8
HVAC12			23.9
HVAC13			23.1
HVAC14			24.3
HVAC15			22.2
HVAC16			23.0
HVAC17			24.5
HVAC18			24.5
HVAC19			25.0
HVAC20			24.9
HVAC21			24.8
HVAC22			24.7
HVAC23			24.7
HVAC24			24.6
HVAC25			24.5
HVAC26			24.4
HVAC27			24.4
HVAC28			25.9
HVAC29			22.3
HVAC30			23.0
HVAC31			24.3
HVAC32			25.2
HVAC33			26.3
HVAC34			27.6
HVAC35			26.9
HVAC36			27.8
HVAC37			28.2
HVAC38			28.3
HVAC39			28.3
HVAC40			28.3
HVAC41			28.4
HVAC42			28.5
HVAC43			27.6
HVAC44			27.6
HVAC45			27.6
HVAC46			27.6
HVAC47			27.5
HVAC48			27.5
HVAC49			26.9
HVAC50			27.8
HVAC51			26.5
HVAC52			25.8
HVAC53			24.9
HVAC54			24.2
HVAC55			23.2
HVAC56			22.6
17	1.Fl	43.0	
HVAC1			25.8
HVAC2			25.8
HVAC3			25.8
HVAC4			25.9
HVAC5			25.9
HVAC6			25.9
HVAC7			26.0

HVAC8			26.0
HVAC9			26.0
HVAC10			26.0
HVAC11			26.0
HVAC12			26.0
HVAC13			26.0
HVAC14			26.1
HVAC15			26.1
HVAC16			26.1
HVAC17			26.1
HVAC18			26.1
HVAC19			26.1
HVAC20			26.2
HVAC21			26.2
HVAC22			26.2
HVAC23			26.2
HVAC24			26.2
HVAC25			26.2
HVAC26			26.2
HVAC27			26.2
HVAC28			26.2
HVAC29			20.0
HVAC30			21.7
HVAC31			22.7
HVAC32			23.6
HVAC33			24.9
HVAC34			25.8
HVAC35			25.3
HVAC36			25.4
HVAC37			25.5
HVAC38			25.6
HVAC39			25.8
HVAC40			25.8
HVAC41			25.8
HVAC42			25.8
HVAC43			25.8
HVAC44			25.8
HVAC45			25.9
HVAC46			25.8
HVAC47			25.7
HVAC48			25.7
HVAC49			26.8
HVAC50			25.7
HVAC51			24.7
HVAC52			24.1
HVAC53			23.2
HVAC54			22.6
HVAC55			21.7
HVAC56			21.4
18	1.Fl	44.1	
HVAC1			30.6
HVAC2			30.3
HVAC3			30.5
HVAC4			30.2
HVAC5			30.2
HVAC6			30.0
HVAC7			30.4
HVAC8			30.3
HVAC9			30.0
HVAC10			29.9
HVAC11			29.7
HVAC12			29.6
HVAC13			29.4
HVAC14			29.3
HVAC15			29.8
HVAC16			28.7
HVAC17			28.9
HVAC18			29.0
HVAC19			29.1
HVAC20			29.3
HVAC21			29.4

HVAC22	29.5
HVAC23	29.7
HVAC24	28.9
HVAC25	29.0
HVAC26	29.0
HVAC27	29.2
HVAC28	23.9
HVAC29	9.3
HVAC30	9.6
HVAC31	11.2
HVAC32	11.5
HVAC33	11.9
HVAC34	12.2
HVAC35	12.6
HVAC36	14.4
HVAC37	14.7
HVAC38	15.0
HVAC39	15.4
HVAC40	15.8
HVAC41	16.5
HVAC42	16.7
HVAC43	15.2
HVAC44	14.9
HVAC45	14.6
HVAC46	14.4
HVAC47	14.1
HVAC48	12.5
HVAC49	12.3
HVAC50	12.1
HVAC51	11.8
HVAC52	11.6
HVAC53	11.3
HVAC54	11.2
HVAC55	9.6
HVAC56	9.3

APPENDIX J

Local Transportation Analysis

TECHNICAL APPENDICES - LTA

SANTA FE FLORES PROJECT

San Marcos, California
July 27, 2022

LLG Ref. 3-22-3523

Linscott, Law & Greenspan, Engineers
4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers.com

APPENDICES

APPENDIX

A. Intersection and Segment Manual Count Sheets
B. City of San Marcos Roadway Classification Table
C. Analysis Worksheets – Existing
D. K&D Factors Definitions
E. Travel Route Maps
F. Analysis Worksheets – Near-Term
G. Analysis Worksheets – Near-Term + Project
H. Analysis Worksheets – Long-Term
I. Analysis Worksheets – Long- Term + Project
J. Sight Distance Exhibit

APPENDIX A

INTERSECTION AND SEGMENT MANUAL COUNT SHEETS

Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#01	File Name:	ITM-22-009-01
Intersection:	South Santa Fe Avenue & Smilax Road	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	South Santa Fe Avenue Southbound			Smilax Road Westbound			South Santa Fe Avenue Northbound			Smilax Road Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	89	31	0	0	1	33	42	1	21	0	33	251
7:15	0	98	47	0	0	0	50	45	2	17	0	46	305
7:30	1	90	38	0	0	0	59	77	0	23	0	48	336
7:45	0	124	70	0	0	0	69	74	2	18	0	34	391
8:00	0	83	55	0	0	0	60	76	0	23	0	23	320
8:15	0	101	52	0	0	0	51	56	0	27	0	42	329
8:30	1	96	46	0	0	0	35	77	0	19	0	28	302
8:45	0	82	35	0	0	0	18	93	0	15	0	16	259
Total	2	763	374	0	0	1	375	540	5	163	0	270	2493
Approach%	0.2	67.0	32.8	-	-	100.0	40.8	58.7	0.5	37.6	-	62.4	
Total%	0.1	30.6	15.0	-	-	0.0	15.0	21.7	0.2	6.5	-	10.8	

AM Intersection Peak Hour: **07:30 to 08:30**

Volume	1	398	215	-	-	-	239	283	2	91	-	147	1,376
Approach%	0.2	64.8	35.0	-	-	-	45.6	54.0	0.4	38.2	-	61.8	
Total%	0.1	28.9	15.6	-	-	-	17.4	20.6	0.1	6.6	-	10.7	
PHF			0.79			#DIV/0!			0.90			0.84	0.88

PM	South Santa Fe Avenue Southbound			Smilax Road Westbound			South Santa Fe Avenue Northbound			Smilax Road Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	0	147	39	0	0	1	40	122	0	15	0	51	415
16:15	0	153	28	0	0	0	22	130	0	21	0	57	411
16:30	0	170	42	0	0	0	26	140	0	31	0	60	469
16:45	10	157	39	0	0	0	41	130	0	19	0	57	453
17:00	0	159	38	0	0	3	35	150	0	23	0	56	464
17:15	0	155	37	0	0	0	41	105	1	30	0	52	421
17:30	0	143	32	0	0	0	26	129	0	24	0	68	422
17:45	0	105	37	0	0	0	41	141	0	25	0	54	403
Total	10	1189	292	0	0	4	272	1047	1	188	0	455	3458
Approach%	0.7	79.7	19.6	-	-	100.0	20.6	79.3	0.1	29.2	-	70.8	
Total%	0.3	34.4	8.4	-	-	0.1	7.9	30.3	0.0	5.4	-	13.2	

PM Intersection Peak Hour: **16:30 to 17:30**

Volume	10	641	156	-	-	3	143	525	1	103	-	225	1,807
Approach%	1.2	79.4	19.3	-	-	100.0	21.4	78.5	0.1	31.4	-	68.6	
Total%	0.6	35.5	8.6	-	-	0.2	7.9	29.1	0.1	5.7	-	12.5	
PHF			0.95			0.25			0.90			0.90	0.96

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#01	File Name:	ITM-22-009-01
Intersection:	South Santa Fe Avenue & Smilax Road	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	South Santa Fe Avenue Southbound				Smilax Road Westbound				South Santa Fe Avenue Northbound				Smilax Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	1				0				0				0				1	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

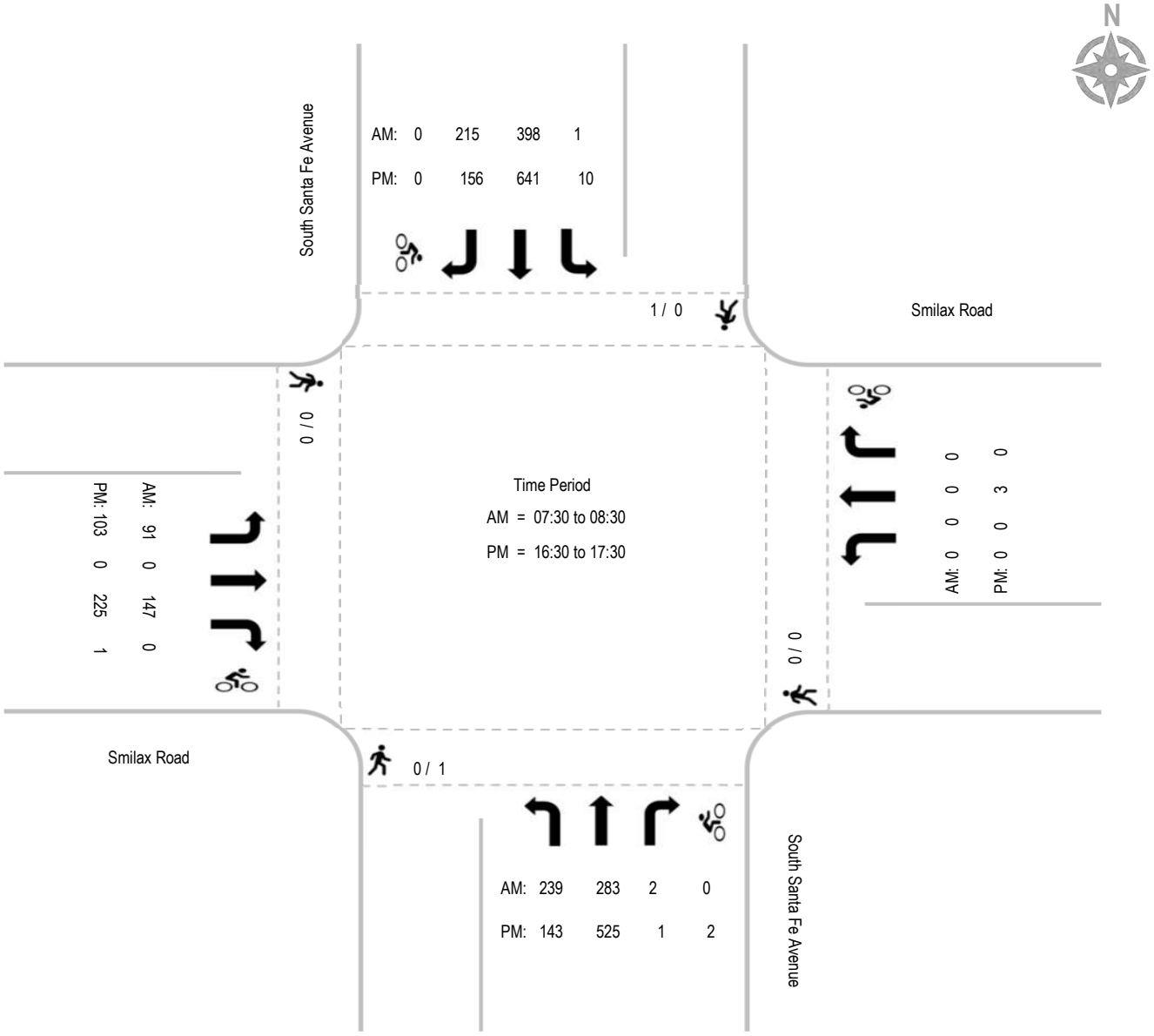
PM	South Santa Fe Avenue Southbound				Smilax Road Westbound				South Santa Fe Avenue Northbound				Smilax Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
17:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				1				0				1	
Bike Total		0	0	0		0	0	0		0	2	0		1	0	0		3

Report Generated by Bearcat Enterprises LLC, DBA "Count Data" | 619-987-5136 |

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers

Location:	#01	File Name:	ITM-22-009-01
Intersection:	South Santa Fe Avenue & Smilax Road	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores



Report Generated by Bearcat Enterprises LLC, DBA "Count Data" | 619-987-5136 |

Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#02	File Name:	ITM-22-009-02
Intersection:	South Santa Fe Avenue & Bosstick Boulevard	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	Santa Santa Fe Avenue Southbound			Bosstick Boulevard Westbound			Santa Santa Fe Avenue Northbound			Bosstick Boulevard Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	23	96	1	6	0	2	2	72	28	1	2	9	242
7:15	22	127	1	13	0	6	6	91	16	2	0	3	287
7:30	16	113	3	23	0	13	2	120	19	2	0	9	320
7:45	23	127	1	21	0	11	4	151	20	0	0	6	364
8:00	17	99	1	12	0	5	9	131	31	6	0	4	315
8:15	15	120	2	11	0	3	6	93	21	2	0	6	279
8:30	4	125	1	16	0	2	4	107	19	0	0	4	282
8:45	8	90	2	5	0	6	3	100	15	4	0	6	239
Total	128	897	12	107	0	48	36	865	169	17	2	47	2328
Approach%	12.3	86.5	1.2	69.0	-	31.0	3.4	80.8	15.8	25.8	3.0	71.2	
Total%	5.5	38.5	0.5	4.6	-	2.1	1.5	37.2	7.3	0.7	0.1	2.0	

AM Intersection Peak Hour: **07:15 to 08:15**

Volume	78	466	6	69	-	35	21	493	86	10	-	22	1,286
Approach%	14.2	84.7	1.1	66.3	-	33.7	3.5	82.2	14.3	31.3	-	68.8	
Total%	6.1	36.2	0.5	5.4	-	2.7	1.6	38.3	6.7	0.8	-	1.7	
PHF			0.91			0.72			0.86			0.73	0.88

PM	Santa Santa Fe Avenue Southbound			Bosstick Boulevard Westbound			Santa Santa Fe Avenue Northbound			Bosstick Boulevard Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	6	190	4	26	0	12	19	150	12	1	0	4	424
16:15	4	219	2	27	0	18	8	139	7	1	0	4	429
16:30	4	226	2	24	0	30	10	139	9	2	0	2	448
16:45	2	224	2	11	1	17	11	167	9	3	0	4	451
17:00	4	208	5	31	0	17	10	177	13	1	0	1	467
17:15	6	196	4	16	1	11	13	138	8	1	0	3	397
17:30	6	207	4	18	0	14	7	141	10	5	0	1	413
17:45	1	155	1	11	0	11	6	158	9	2	0	2	356
Total	33	1625	24	164	2	130	84	1209	77	16	0	21	3385
Approach%	2.0	96.6	1.4	55.4	0.7	43.9	6.1	88.2	5.6	43.2	-	56.8	
Total%	1.0	48.0	0.7	4.8	0.1	3.8	2.5	35.7	2.3	0.5	-	0.6	

PM Intersection Peak Hour: **16:15 to 17:15**

Volume	14	877	11	93	1	82	39	622	38	7	-	11	1,795
Approach%	1.6	97.2	1.2	52.8	0.6	46.6	5.6	89.0	5.4	38.9	-	61.1	
Total%	0.8	48.9	0.6	5.2	0.1	4.6	2.2	34.7	2.1	0.4	-	0.6	
PHF			0.97			0.81			0.87			0.64	0.96

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#02	File Name:	ITM-22-009-02
Intersection:	South Santa Fe Avenue & Bosstick Boulevard	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

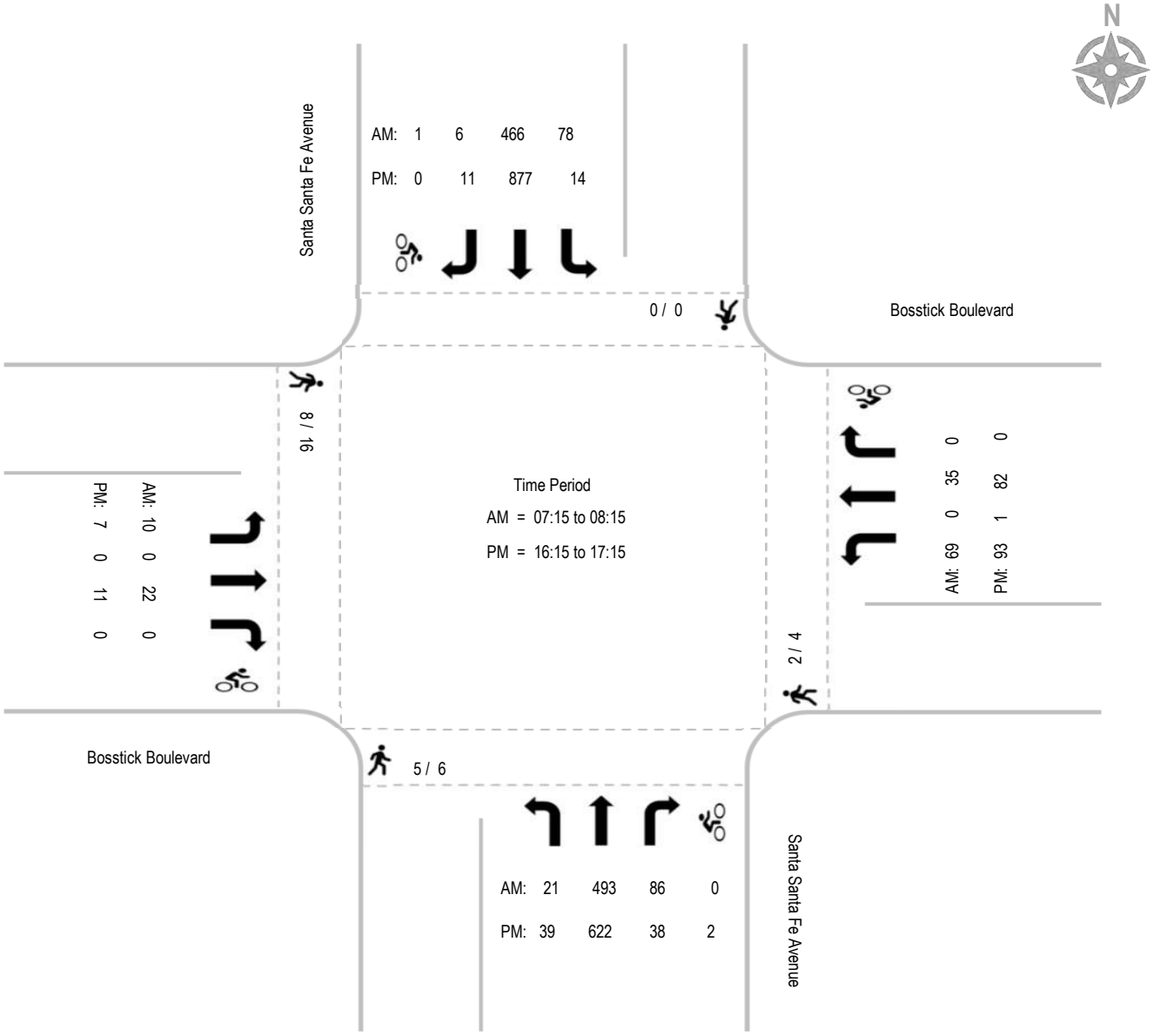
AM	Santa Santa Fe Avenue Southbound				Bosstick Boulevard Westbound				Santa Santa Fe Avenue Northbound				Bosstick Boulevard Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0
7:15	0	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	3	1
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	1	0	0	0	3	0	0	0	3	0	0	0	7	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				2				5				8				15	
Bike Total		0	1	0		0	0	0		0	0	0		0	0	0		1

PM	Santa Santa Fe Avenue Southbound				Bosstick Boulevard Westbound				Santa Santa Fe Avenue Northbound				Bosstick Boulevard Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	1	0	1	0	3	0	0	0	4	1
16:15	0	0	0	0	1	0	0	0	2	0	0	0	8	0	0	0	11	0
16:30	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	3	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	3	0
17:15	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	2	1
17:30	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0
17:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Ped Total	0				4				6				16				26	
Bike Total		0	0	0		0	0	0		0	2	0		0	0	0		2

Report Generated by Bearcat Enterprises LLC, DBA "Count Data" | 619-987-5136 |

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#02	File Name:	ITM-22-009-02
	Intersection:	South Santa Fe Avenue & Bosstick Boulevard	Project:	LLG Ref. 3-22-3523
	Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#03	File Name:	ITM-22-009-08
Intersection:	South Santa Fe Avenue & Smilax Road	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	South Santa Fe Avenue Southbound			- Westbound			South Santa Fe Avenue Northbound			Vern Road Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	126	3	0	0	0	2	120	0	2	0	0	253
7:15	0	138	2	0	0	0	2	99	0	0	0	4	245
7:30	0	194	1	0	0	0	3	140	0	4	0	2	344
7:45	0	168	1	0	0	0	2	142	0	1	0	2	316
8:00	0	145	3	0	0	0	3	181	0	1	0	3	336
8:15	0	155	1	0	0	0	2	138	0	3	0	0	299
8:30	0	150	1	0	0	0	3	128	0	2	0	1	285
8:45	0	113	2	0	0	0	3	81	0	1	0	0	200
Total	0	1189	14	0	0	0	20	1029	0	14	0	12	2278
Approach%	-	98.8	1.2	-	-	-	1.9	98.1	-	53.8	-	46.2	
Total%	-	52.2	0.6	-	-	-	0.9	45.2	-	0.6	-	0.5	

AM Intersection Peak Hour: **07:30 to 08:30**

Volume	-	662	6	-	-	-	10	601	-	9	-	7	1,295
Approach%	-	99.1	0.9	-	-	-	1.6	98.4	-	56.3	-	43.8	
Total%	-	51.1	0.5	-	-	-	0.8	46.4	-	0.7	-	0.5	
PHF			0.86			#DIV/0!			0.83			0.67	0.94

PM	South Santa Fe Avenue Southbound			- Westbound			South Santa Fe Avenue Northbound			Vern Road Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	0	296	0	0	0	0	8	173	0	1	0	2	480
16:15	0	297	1	0	0	0	3	172	0	0	0	1	474
16:30	0	254	0	0	0	0	3	167	0	0	0	1	425
16:45	0	248	2	0	0	0	6	156	0	1	0	1	414
17:00	0	264	0	0	0	0	17	174	0	3	0	1	459
17:15	0	269	2	0	0	0	6	202	0	0	0	1	480
17:30	0	253	2	0	0	0	8	188	0	2	0	1	454
17:45	0	226	0	0	0	0	3	159	0	0	0	1	389
Total	0	2107	7	0	0	0	54	1391	0	7	0	9	3575
Approach%	-	99.7	0.3	-	-	-	3.7	96.3	-	43.8	-	56.3	
Total%	-	58.9	0.2	-	-	-	1.5	38.9	-	0.2	-	0.3	

PM Intersection Peak Hour: **16:45 to 17:45**

Volume	-	1,034	6	-	-	-	37	720	-	6	-	4	1,807
Approach%	-	99.4	0.6	-	-	-	4.9	95.1	-	60.0	-	40.0	
Total%	-	57.2	0.3	-	-	-	2.0	39.8	-	0.3	-	0.2	
PHF			0.96			#DIV/0!			0.91			0.63	0.94

Report Generated by Bearcat Enterprises LLC, DBA "Count Data" | 619-987-5136 |

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

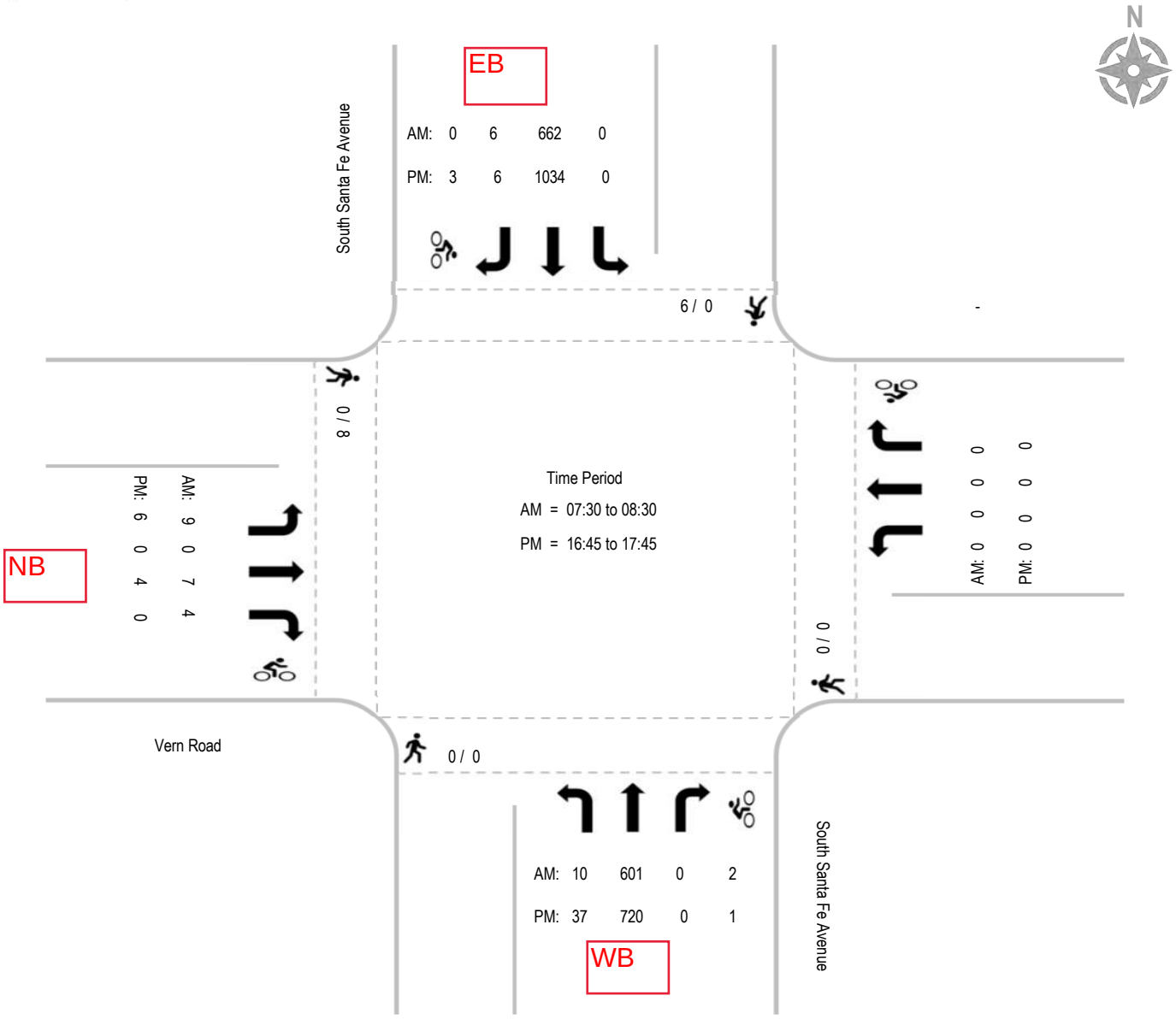
Location:	#03	File Name:	ITM-22-009-08
Intersection:	South Santa Fe Avenue & Smilax Road	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	South Santa Fe Avenue Southbound				- Westbound				South Santa Fe Avenue Northbound				Vern Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
7:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:00	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
8:15	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
8:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:45	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Ped Total	6				0				0				0				6	
Bike Total		0	0	0		0	0	0		0	2	0		4	0	0		6

PM	South Santa Fe Avenue Southbound				- Westbound				South Santa Fe Avenue Northbound				Vern Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
16:30	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
16:45	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0
17:15	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
17:30	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	2	1
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				8				8	
Bike Total		0	3	0		0	0	0		0	1	0		0	0	0		4

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#03	File Name: ITM-22-009-08
	Intersection:	South Santa Fe Avenue & Smilax Road	Project: LLG Ref. 3-22-3523
	Date of Count:	Thursday, February 17, 2022	Santa Fe Las Flores



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#04	File Name:	ITM-22-009-03
Intersection:	South Santa Fe Avenue & Las Flores Drive	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	Santa Santa Fe Avenue Southbound			Las Flores Drive Westbound			Santa Santa Fe Avenue Northbound			Las Flores Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	7	95	5	26	0	6	0	102	9	6	0	4	260
7:15	5	127	9	29	1	7	13	104	10	7	1	5	318
7:30	12	129	5	43	2	6	10	118	5	9	0	9	348
7:45	8	149	8	33	6	16	14	125	6	15	0	8	388
8:00	10	106	5	22	2	9	7	147	13	9	1	7	338
8:15	11	112	10	22	5	20	4	105	13	8	1	6	317
8:30	15	119	15	15	0	13	3	124	13	9	0	6	332
8:45	9	93	6	11	0	6	4	103	14	6	0	4	256
Total	77	930	63	201	16	83	55	928	83	69	3	49	2557
Approach%	7.2	86.9	5.9	67.0	5.3	27.7	5.2	87.1	7.8	57.0	2.5	40.5	
Total%	3.0	36.4	2.5	7.9	0.6	3.2	2.2	36.3	3.2	2.7	0.1	1.9	

AM Intersection Peak Hour: **07:15 to 08:15**

Volume	35	511	27	127	11	38	44	494	34	40	2	29	1,392
Approach%	6.1	89.2	4.7	72.2	6.3	21.6	7.7	86.4	5.9	56.3	2.8	40.8	
Total%	2.5	36.7	1.9	9.1	0.8	2.7	3.2	35.5	2.4	2.9	0.1	2.1	
PHF			0.87			0.80			0.86			0.77	0.90

PM	Santa Santa Fe Avenue Southbound			Las Flores Drive Westbound			Santa Santa Fe Avenue Northbound			Las Flores Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	15	206	20	17	1	9	9	154	24	7	1	4	467
16:15	18	218	14	13	1	4	9	148	12	10	0	3	450
16:30	10	246	19	9	0	6	9	141	13	7	0	10	470
16:45	13	202	19	18	1	9	10	156	22	11	1	2	464
17:00	13	212	19	13	0	15	7	146	32	12	0	5	474
17:15	12	210	15	9	0	8	5	137	20	15	0	3	434
17:30	17	16	22	24	2	7	7	136	19	9	0	4	263
17:45	16	164	22	13	1	2	4	149	25	11	0	4	411
Total	114	1474	150	116	6	60	60	1167	167	82	2	35	3433
Approach%	6.6	84.8	8.6	63.7	3.3	33.0	4.3	83.7	12.0	68.9	1.7	29.4	
Total%	3.3	42.9	4.4	3.4	0.2	1.7	1.7	34.0	4.9	2.4	0.1	1.0	

PM Intersection Peak Hour: **16:15 to 17:15**

Volume	54	878	71	53	2	34	35	591	79	40	1	20	1,858
Approach%	5.4	87.5	7.1	59.6	2.2	38.2	5.0	83.8	11.2	65.6	1.6	32.8	
Total%	2.9	47.3	3.8	2.9	0.1	1.8	1.9	31.8	4.3	2.2	0.1	1.1	
PHF			0.91			0.79			0.94			0.90	0.98

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#04	File Name:	ITM-22-009-03
Intersection:	South Santa Fe Avenue & Las Flores Drive	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

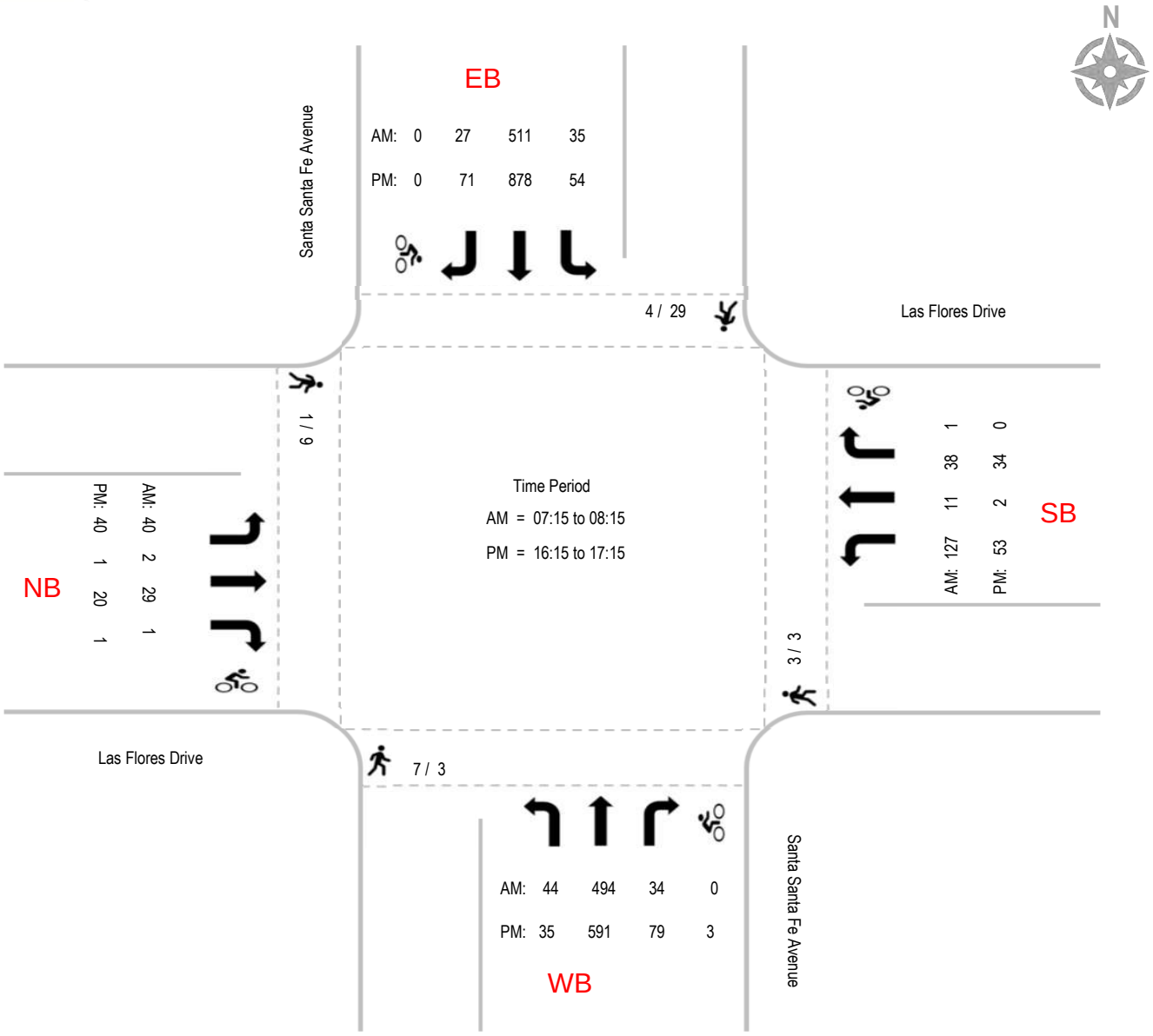
AM	Santa Santa Fe Avenue Southbound				Las Flores Drive Westbound				Santa Santa Fe Avenue Northbound				Las Flores Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
7:15	1	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	3	1
7:30	2	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	4	1
7:45	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0
8:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0
8:45	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0
Ped Total	4				3				7				1				15	
Bike Total		0	0	0		1	0	0		0	0	0		1	0	0		2

PM	Santa Santa Fe Avenue Southbound				Las Flores Drive Westbound				Santa Santa Fe Avenue Northbound				Las Flores Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	2	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	5	1
16:15	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	1
16:30	1	0	0	0	0	0	0	0	1	0	0	0	4	0	0	0	6	0
16:45	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0
17:00	3	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	5	0
17:15	2	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	3	1
17:30	5	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	7	1
17:45	11	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	12	0
Ped Total	29				3				3				9				44	
Bike Total		0	0	0		0	0	0		0	3	0		1	0	0		4

Report Generated by Bearcat Enterprises LLC, DBA "Count Data" | 619-987-5136 |

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#04	File Name: ITM-22-009-03
	Intersection:	South Santa Fe Avenue & Las Flores Drive	Project: LLG Ref. 3-22-3523
	Date of Count:	Thursday, February 17, 2022	Santa Fe Las Flores



Report Generated by Bearcat Enterprises LLC, DBA "Count Data" | 619-987-5136 |

Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#05	File Name:	ITM-22-009-04
Intersection:	Hollencrest Road & Las Flores Drive	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	- Southbound			Las Flores Drive Westbound			Hollencrest Road Northbound			Las Flores Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	0	0	3	4	0	3	0	2	0	8	1	21
7:15	0	0	0	1	15	0	1	0	2	0	11	1	31
7:30	0	0	0	3	15	0	1	0	6	0	14	1	40
7:45	0	0	0	2	16	0	1	0	12	0	13	0	44
8:00	0	0	0	0	14	0	0	0	4	0	9	2	29
8:15	0	0	0	7	16	0	5	0	3	0	15	1	47
8:30	0	0	0	1	12	0	1	0	3	0	4	1	22
8:45	0	0	0	0	10	0	0	0	4	0	5	1	20
Total	0	0	0	17	102	0	12	0	36	0	79	8	254
Approach%	-	-	-	14.3	85.7	-	25.0	-	75.0	-	90.8	9.2	
Total%	-	-	-	6.7	40.2	-	4.7	-	14.2	-	31.1	3.1	

AM Intersection Peak Hour: **07:30 to 08:30**

Volume	-	-	-	12	61	-	7	-	25	-	51	4	160
Approach%	-	-	-	16.4	83.6	-	21.9	-	78.1	-	92.7	7.3	
Total%	-	-	-	7.5	38.1	-	4.4	-	15.6	-	31.9	2.5	
PHF			#DIV/0!			0.79			0.62			0.86	0.85

PM	- Southbound			Las Flores Drive Westbound			Hollencrest Road Northbound			Las Flores Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	0	0	0	6	23	0	2	0	5	0	7	4	47
16:15	0	0	0	5	13	0	2	0	6	2	8	1	37
16:30	0	0	0	5	20	0	0	0	3	1	9	0	38
16:45	0	0	0	10	22	0	1	0	4	0	12	2	51
17:00	0	0	0	9	17	0	0	0	3	0	16	2	47
17:15	0	0	0	6	15	0	0	0	3	0	16	0	40
17:30	0	0	0	6	23	0	2	0	1	0	10	1	43
17:45	0	0	0	10	15	0	0	0	1	0	12	0	38
Total	0	0	0	57	148	0	7	0	26	3	90	10	341
Approach%	-	-	-	27.8	72.2	-	21.2	-	78.8	2.9	87.4	9.7	
Total%	-	-	-	16.7	43.4	-	2.1	-	7.6	0.9	26.4	2.9	

PM Intersection Peak Hour: **16:45 to 17:45**

Volume	-	-	-	31	77	-	3	-	11	-	54	5	181
Approach%	-	-	-	28.7	71.3	-	21.4	-	78.6	-	91.5	8.5	
Total%	-	-	-	17.1	42.5	-	1.7	-	6.1	-	29.8	2.8	
PHF			#DIV/0!			0.84			0.70			0.82	0.89

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

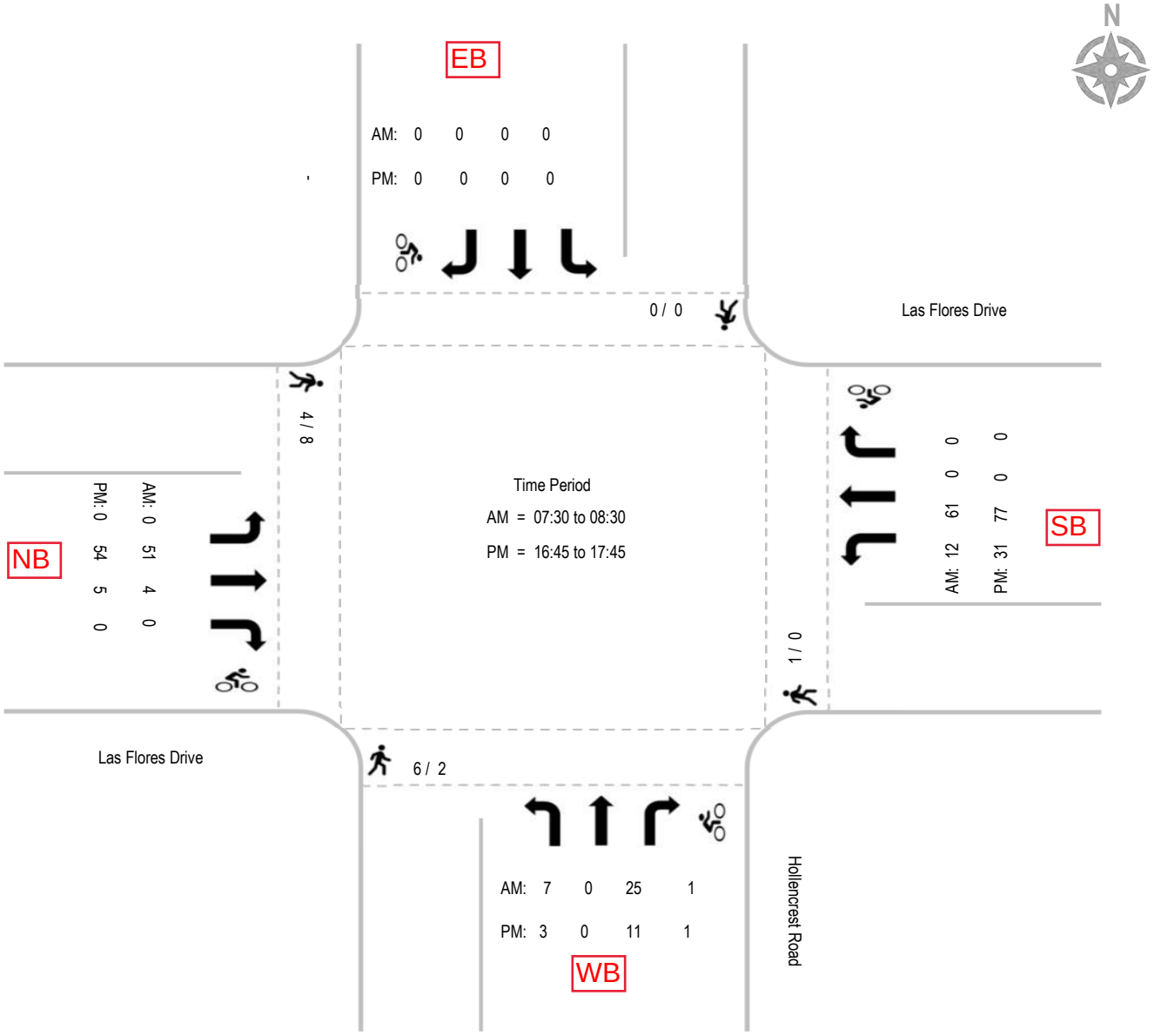
Location:	#05	File Name:	ITM-22-009-04
Intersection:	Hollencrest Road & Las Flores Drive	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	- Southbound				Las Flores Drive Westbound				Hollencrest Road Northbound				Las Flores Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2	0
7:15	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	2	1
7:30	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	0	4	0
7:45	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				1				6				4				11	
Bike Total		0	0	0		0	0	0		0	0	1		0	0	0		1

PM	- Southbound				Las Flores Drive Westbound				Hollencrest Road Northbound				Las Flores Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	1
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0
Ped Total	0				0				2				8				10	
Bike Total		0	0	0		0	0	0		1	0	0		0	0	0		1

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#05	File Name: ITM-22-009-04
	Intersection:	Hollencrest Road & Las Flores Drive	Project: LLG Ref. 3-22-3523
	Date of Count:	Thursday, February 17, 2022	Santa Fe Las Flores



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#06	File Name:	ITM-22-009-05
Intersection:	West Mission Road & N. Rancho Santa Fe Rd	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	West Mission Road Southbound			- Westbound			West Mission Road Northbound			N. Rancho Santa Fe Rd Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	74	52	0	0	0	32	45	0	68	0	11	282
7:15	0	94	70	0	0	0	30	81	0	42	0	19	336
7:30	0	107	74	0	0	0	27	73	0	60	0	23	364
7:45	0	121	69	0	0	0	33	92	0	53	0	23	391
8:00	0	78	60	0	0	0	26	90	0	81	0	21	356
8:15	1	64	55	0	0	0	35	57	0	74	0	23	309
8:30	0	79	60	0	0	0	32	66	0	69	0	27	333
8:45	0	62	47	0	0	0	27	56	0	74	0	21	287
Total	1	679	487	0	0	0	242	560	0	521	0	168	2658
Approach%	0.1	58.2	41.7	-	-	-	30.2	69.8	-	75.6	-	24.4	
Total%	0.0	25.5	18.3	-	-	-	9.1	21.1	-	19.6	-	6.3	

AM Intersection Peak Hour: **07:15 to 08:15**

Volume	-	400	273	-	-	-	116	336	-	236	-	86	1,447
Approach%	-	59.4	40.6	-	-	-	25.7	74.3	-	73.3	-	26.7	
Total%	-	27.6	18.9	-	-	-	8.0	23.2	-	16.3	-	5.9	
PHF			0.89			#DIV/0!			0.90			0.79	0.93

PM	West Mission Road Southbound			- Westbound			West Mission Road Northbound			N. Rancho Santa Fe Rd Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	1	168	59	0	0	0	45	93	0	95	0	76	537
16:15	0	184	38	0	0	0	34	81	0	66	0	75	478
16:30	1	181	58	0	0	0	33	67	0	98	0	108	546
16:45	1	187	46	0	0	0	44	123	0	83	0	72	556
17:00	0	194	56	0	0	0	35	95	0	87	0	74	541
17:15	1	155	46	0	0	0	42	91	0	76	0	79	490
17:30	0	156	51	0	0	0	37	93	0	77	0	74	488
17:45	2	144	42	0	0	0	37	94	0	69	0	57	445
Total	6	1369	396	0	0	0	307	737	0	651	0	615	4081
Approach%	0.3	77.3	22.4	-	-	-	29.4	70.6	-	51.4	-	48.6	
Total%	0.1	33.5	9.7	-	-	-	7.5	18.1	-	16.0	-	15.1	

PM Intersection Peak Hour: **16:30 to 17:30**

Volume	3	717	206	-	-	-	154	376	-	344	-	333	2,133
Approach%	0.3	77.4	22.2	-	-	-	29.1	70.9	-	50.8	-	49.2	
Total%	0.1	33.6	9.7	-	-	-	7.2	17.6	-	16.1	-	15.6	
PHF			0.93			#DIV/0!			0.79			0.82	0.96

Report Generated by Bearcat Enterprises LLC, DBA "Count Data" | 619-987-5136 |

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

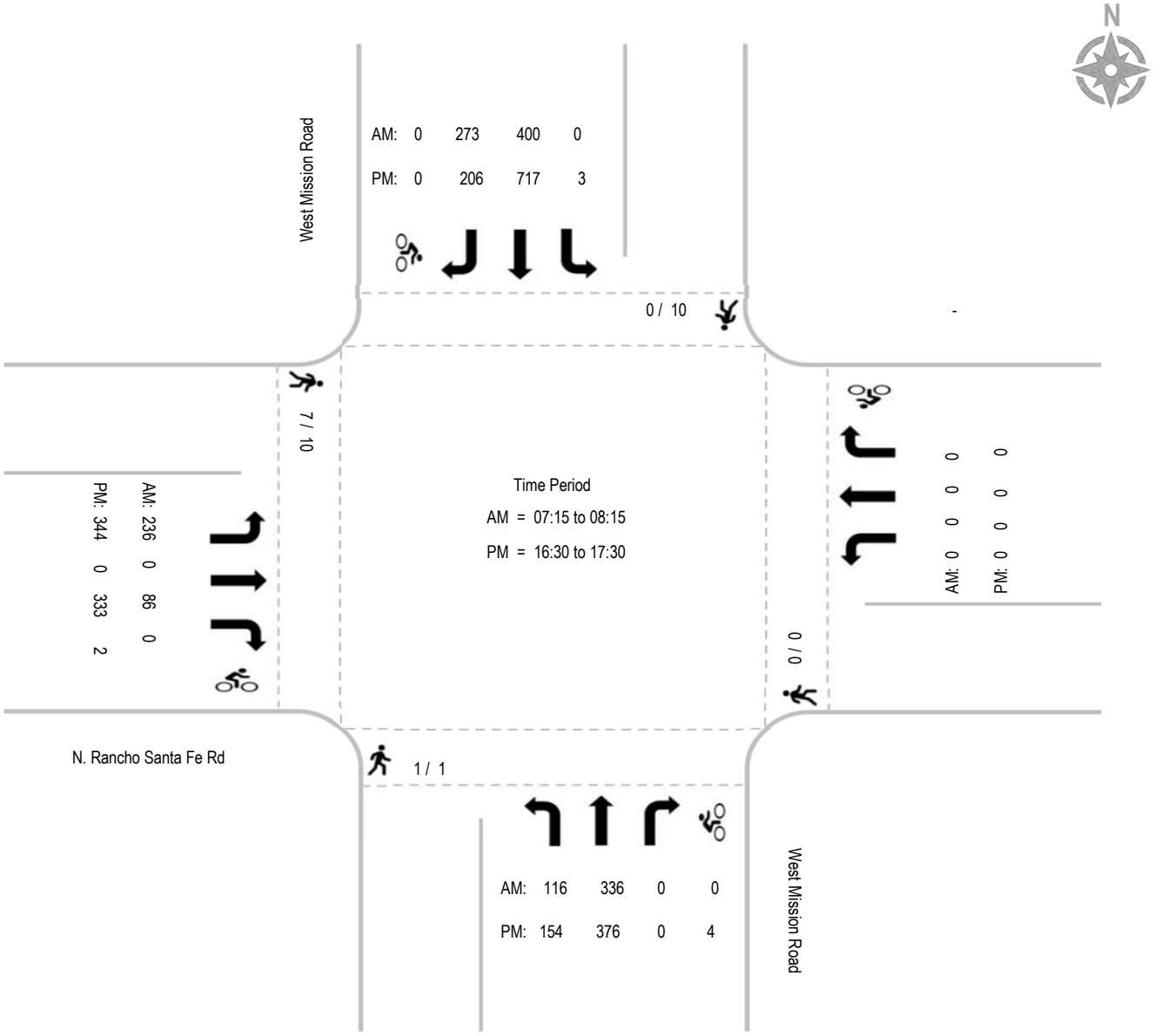
Location:	#06	File Name:	ITM-22-009-05
Intersection:	West Mission Road & N. Rancho Santa Fe Rd	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	West Mission Road Southbound				- Westbound				West Mission Road Northbound				N. Rancho Santa Fe Rd Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
Ped Total	0				0				1				7				8	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	West Mission Road Southbound				- Westbound				West Mission Road Northbound				N. Rancho Santa Fe Rd Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	10	0	0	0	0	0	0	0	0	1	0	0	3	1	0	0	13	2
16:15	0	0	0	0	0	0	0	0	0	2	0	0	3	1	0	0	3	3
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	1
17:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0
Ped Total	10				0				1				10				21	
Bike Total		0	0	0		0	0	0		3	1	0		2	0	0		6

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#06	File Name:	ITM-22-009-05
	Intersection:	West Mission Road & N. Rancho Santa Fe Rd	Project:	LLG Ref. 3-22-3523
	Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores



Report Generated by Bearcat Enterprises LLC, DBA "Count Data" | 619-987-5136 |

Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#07	File Name:	ITM-22-009-06
Intersection:	Capalina Road & Hollencrest Road	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	Capalina Road Southbound			Hollencrest Road Westbound			Capalina Road Northbound			- Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	37	0	15	0	0	0	8	3	0	0	0	63
7:15	0	35	0	23	0	1	0	15	13	0	0	0	87
7:30	0	61	0	31	0	2	0	10	7	0	0	0	111
7:45	0	55	0	28	0	1	0	28	12	0	0	0	124
8:00	0	36	0	22	0	1	0	14	16	0	0	0	89
8:15	1	20	0	20	0	0	0	24	14	0	0	0	79
8:30	0	32	0	9	0	0	0	18	6	0	0	0	65
8:45	0	13	0	8	0	0	0	17	4	0	0	0	42
Total	1	289	0	156	0	5	0	134	75	0	0	0	660
Approach%	0.3	99.7	-	96.9	-	3.1	-	64.1	35.9	-	-	-	
Total%	0.2	43.8	-	23.6	-	0.8	-	20.3	11.4	-	-	-	

AM Intersection Peak Hour: **07:15 to 08:15**

Volume	-	187	-	104	-	5	-	67	48	-	-	-	411
Approach%	-	100.0	-	95.4	-	4.6	-	58.3	41.7	-	-	-	
Total%	-	45.5	-	25.3	-	1.2	-	16.3	11.7	-	-	-	
PHF			0.77			0.83			0.72			#DIV/0!	0.83

PM	Capalina Road Southbound			Hollencrest Road Westbound			Capalina Road Northbound			- Eastbound			
	Left	Thru	Right	Left	Thru	Right	U-Turn	Thru	Right	Left	Thru	Right	Total
16:00	1	21	0	9	0	2	0	37	29	0	0	0	99
16:15	0	23	0	7	0	0	0	47	14	0	0	0	91
16:30	0	25	0	4	0	0	0	26	18	0	0	0	73
16:45	1	31	0	13	0	1	0	43	19	0	0	0	108
17:00	0	18	0	11	0	2	0	24	18	0	0	0	73
17:15	0	31	0	12	0	1	0	35	21	0	0	0	100
17:30	2	33	0	10	0	1	0	28	15	0	0	0	89
17:45	2	26	0	11	0	2	0	47	16	0	0	0	104
Total	6	208	0	77	0	9	0	287	150	0	0	0	737
Approach%	2.8	97.2	-	89.5	-	10.5	-	65.7	34.3	-	-	-	
Total%	0.8	28.2	-	10.4	-	1.2	-	38.9	20.4	-	-	-	

PM Intersection Peak Hour: **16:00 to 17:00**

Volume	2	100	-	33	-	3	-	153	80	-	-	-	371
Approach%	2.0	98.0	-	91.7	-	8.3	-	65.7	34.3	-	-	-	
Total%	0.5	27.0	-	8.9	-	0.8	-	41.2	21.6	-	-	-	
PHF			0.80			0.64			0.88			#DIV/0!	0.86

Report Generated by Bearcat Enterprises LLC, DBA "Count Data" | 619-987-5136 |

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

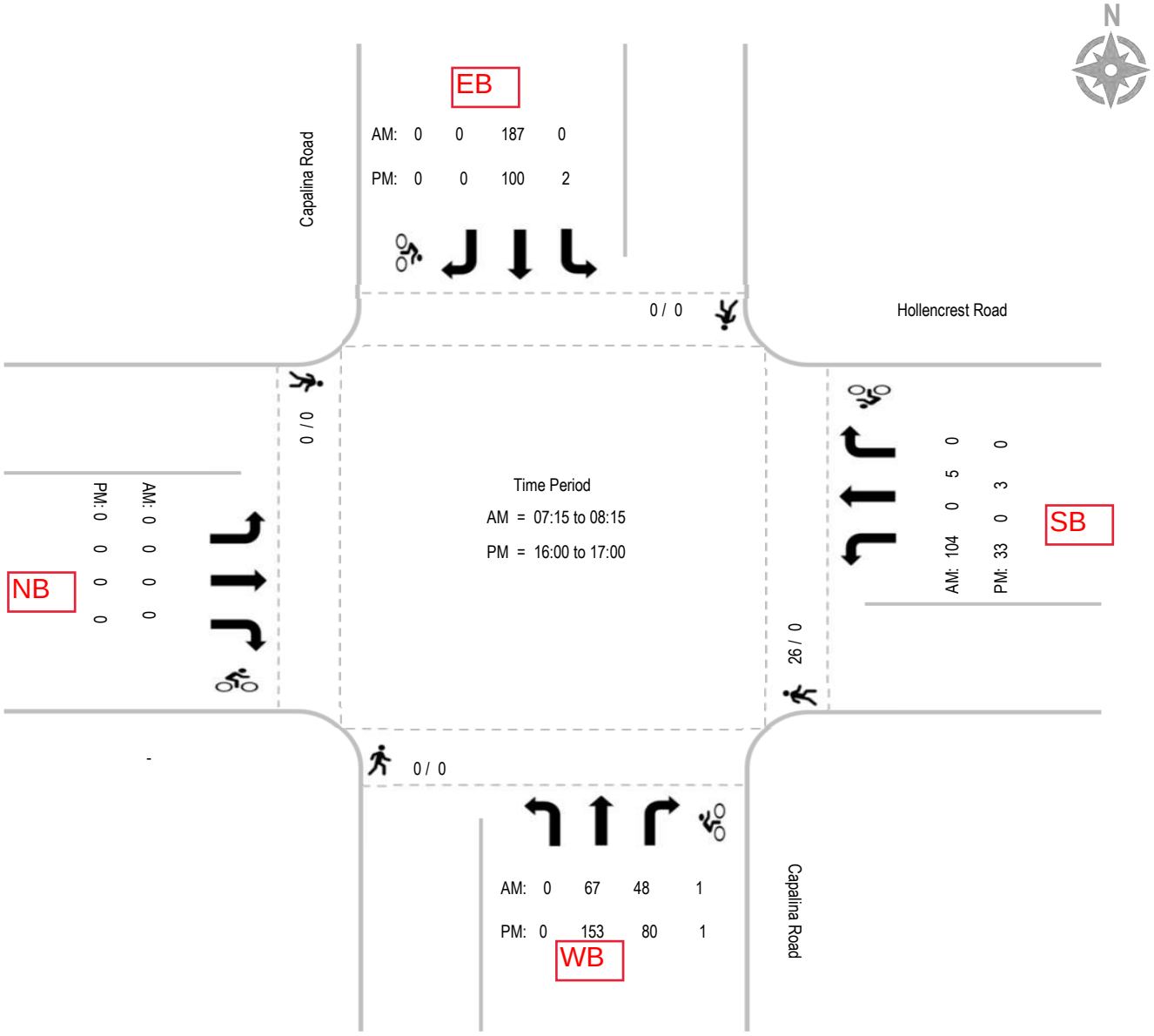
Location:	#07	File Name:	ITM-22-009-06
Intersection:	Capalina Road & Hollencrest Road	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	Capalina Road Southbound				Hollencrest Road Westbound				Capalina Road Northbound				- Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4	0
7:15	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	10	0
7:30	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	2	1
7:45	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	9	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Ped Total	0				26				0				0				26	
Bike Total		0	0	0		0	0	0		0	1	0		0	0	0		1

PM	Capalina Road Southbound				Hollencrest Road Westbound				Capalina Road Northbound				- Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				0				0	
Bike Total		0	0	0		0	0	0		0	0	1		0	0	0		1

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#07	File Name: ITM-22-009-06
	Intersection:	Capalina Road & Hollencrest Road	Project: LLG Ref. 3-22-3523
	Date of Count:	Thursday, February 17, 2022	Santa Fe Las Flores



Report Generated by Bearcat Enterprises LLC, DBA "Count Data" | 619-987-5136 |

Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#08 Revised	File Name:	ITM-22-009-07
Intersection:	N. Rancho Santa Fe Road & Capalina Road	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	N. Rancho Santa Fe Rd Southbound			Capalina Road Westbound			N. Rancho Santa Fe Rd Northbound			Capalina Road Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	70	1	18	2	5	20	78	23	0	9	43	269
7:15	1	102	0	30	5	4	32	46	32	1	7	51	311
7:30	3	91	0	18	1	5	29	76	31	2	8	78	342
7:45	6	97	0	22	5	4	49	76	32	0	5	77	373
8:00	3	82	2	19	4	2	35	94	24	3	1	40	309
8:15	0	91	4	26	2	6	41	81	28	0	2	36	317
8:30	5	85	4	13	2	3	33	90	24	2	7	33	301
8:45	1	68	4	18	5	5	30	84	33	2	3	17	270
Total	19	686	15	164	26	34	269	625	227	10	42	375	2492
Approach%	2.6	95.3	2.1	73.2	11.6	15.2	24.0	55.8	20.2	2.3	9.8	87.8	
Total%	0.8	27.5	0.6	6.6	1.0	1.4	10.8	25.1	9.1	0.4	1.7	15.0	

AM Intersection Peak Hour: **07:30 to 08:30**

Volume	12	361	6	85	12	17	154	327	115	5	16	231	1,341
Approach%	3.2	95.3	1.6	74.6	10.5	14.9	25.8	54.9	19.3	2.0	6.3	91.7	
Total%	0.9	26.9	0.4	6.3	0.9	1.3	11.5	24.4	8.6	0.4	1.2	17.2	
PHF			0.92			0.84			0.95			0.72	0.90

PM	N. Rancho Santa Fe Rd Southbound			Capalina Road Westbound			N. Rancho Santa Fe Rd Northbound			Capalina Road Eastbound			
	Left	Thru	Right	Left	Thru	Right	U-Turn	Thru	Right	Left	Thru	Right	Total
16:00	6	91	6	16	3	13	63	163	25	3	8	22	419
16:15	5	68	0	16	5	9	48	145	27	3	3	23	352
16:30	3	86	7	26	9	9	39	173	30	2	7	24	415
16:45	4	75	4	13	11	5	60	139	30	0	11	33	385
17:00	3	100	5	26	5	5	42	160	18	2	0	19	385
17:15	3	83	5	19	8	2	54	152	23	3	4	33	389
17:30	2	78	1	17	9	9	42	123	22	4	10	33	350
17:45	5	75	7	20	11	4	56	122	36	0	10	29	375
Total	31	656	35	153	61	56	404	1177	211	17	53	216	3070
Approach%	4.3	90.9	4.8	56.7	22.6	20.7	22.5	65.7	11.8	5.9	18.5	75.5	
Total%	1.0	21.4	1.1	5.0	2.0	1.8	13.2	38.3	6.9	0.6	1.7	7.0	

PM Intersection Peak Hour: **16:30 to 17:30**

Volume	13	344	21	84	33	21	195	624	101	7	22	109	1,574
Approach%	3.4	91.0	5.6	60.9	23.9	15.2	21.2	67.8	11.0	5.1	15.9	79.0	
Total%	0.8	21.9	1.3	5.3	2.1	1.3	12.4	39.6	6.4	0.4	1.4	6.9	
PHF			0.88			0.78			0.95			0.78	0.95

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

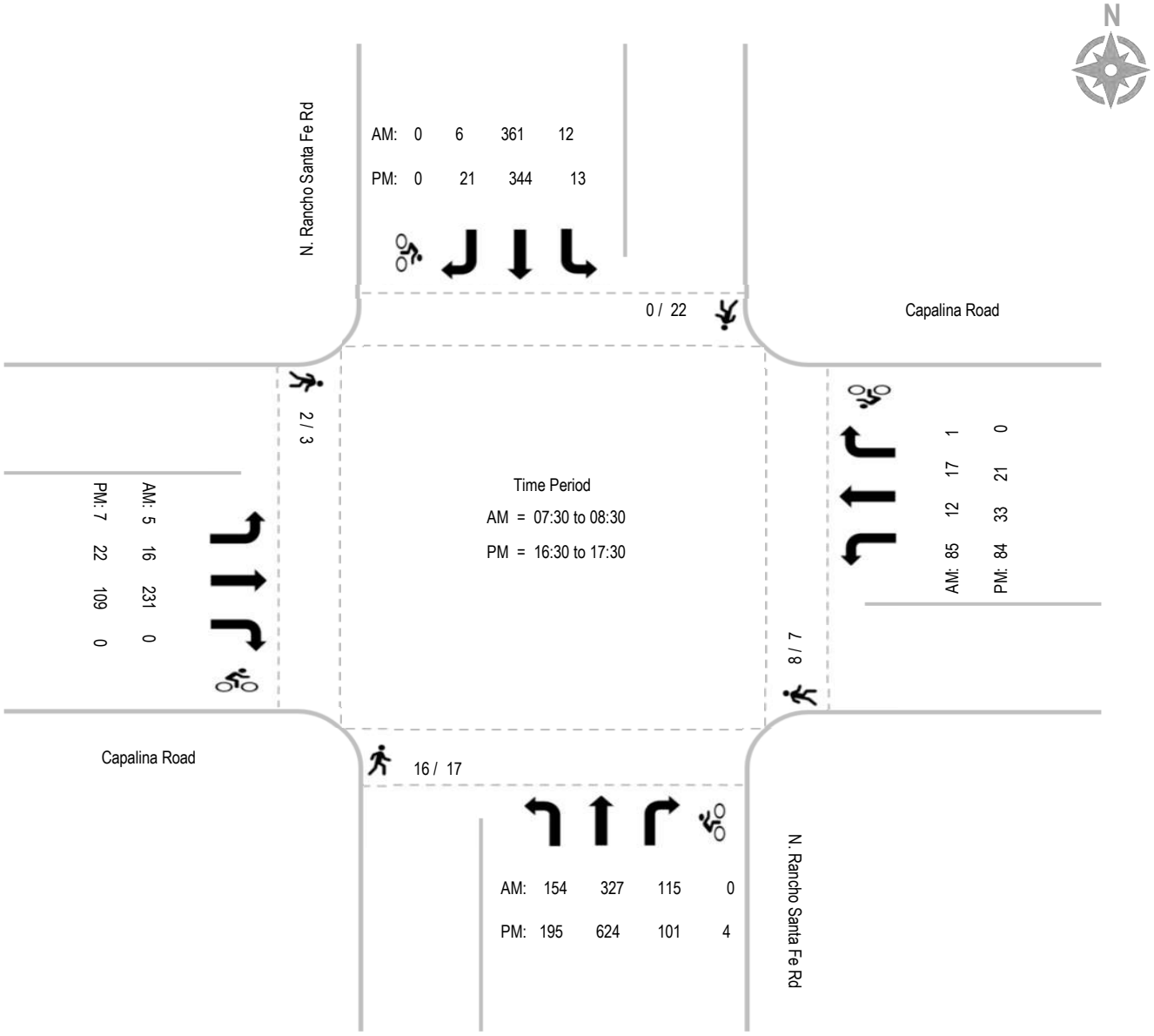
Location:	#08 Revised	File Name:	ITM-22-009-07
Intersection:	N. Rancho Santa Fe Road & Capalina Road	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	N. Rancho Santa Fe Rd Southbound				Capalina Road Westbound				N. Rancho Santa Fe Rd Northbound				Capalina Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
8:00	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2	0
8:15	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
8:30	0	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	11	0
8:45	0	0	0	0	1	0	0	0	9	0	0	0	0	0	0	0	10	0
Ped Total	0				8				16				2				26	
Bike Total		0	0	0		1	0	0		0	0	0		0	0	0		1

PM	N. Rancho Santa Fe Rd Southbound				Capalina Road Westbound				N. Rancho Santa Fe Rd Northbound				Capalina Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	3	0	0	0	0	0	0	0	9	1	0	0	0	0	0	0	12	1
16:15	0	0	0	0	2	0	0	0	4	0	0	0	0	0	0	0	6	0
16:30	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16:45	5	0	0	0	3	0	0	0	3	1	0	0	0	0	0	0	11	1
17:00	6	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	8	0
17:15	4	0	0	0	1	0	0	0	1	0	0	2	1	0	0	0	7	2
17:30	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	22				7				17				3				49	
Bike Total		0	0	0		0	0	0		2	0	2		0	0	0		4

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#08 Revised	File Name: ITM-22-009-07
	Intersection:	N. Rancho Santa Fe Road & Capalina Road	Project: LLG Ref. 3-22-3523
	Date of Count:	Thursday, February 17, 2022	Santa Fe Las Flores



Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 22-009 Loc #A S. Santa Fe Ave, between Smilax Rd and Bosstick Blvd**

Date: **Tuesday, March 1, 2022** Total Daily Volume: **14854** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
54	36	18	37	105	351	593	989	906	682	683	767	827	771	1081	1294	1755	1519	866	587	377	283	169	104
20	11	4	6	11	45	110	200	262	161	177	192	185	153	221	286	426	444	266	174	96	81	57	31
20	8	4	11	12	75	126	259	238	181	168	189	198	210	248	310	438	400	240	173	90	84	38	22
9	9	5	9	33	114	148	265	218	148	169	191	212	197	312	347	450	378	195	127	96	55	40	26
5	8	5	11	49	117	209	265	188	192	169	195	232	211	300	351	441	297	165	113	95	63	34	25

Date: **Tuesday, March 1, 2022** Total Daily Volume: **7083** Description: **Northbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
32	18	9	22	58	152	229	451	425	329	325	376	404	397	543	560	813	751	397	307	191	149	87	58
11	6	2	1	3	23	56	86	131	87	75	104	90	83	107	128	169	199	124	88	58	43	25	15
11	3	3	6	7	25	52	114	117	84	65	91	93	105	128	133	183	197	100	89	35	41	21	14
7	5	1	8	18	60	45	115	93	69	90	81	106	100	152	135	245	192	91	77	50	24	23	19
3	4	3	7	30	44	76	136	84	89	95	100	115	109	156	164	216	163	82	53	48	41	18	10

Date: **Tuesday, March 1, 2022** Total Daily Volume: **7771** Description: **Southbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
22	18	9	15	47	199	364	538	481	353	358	391	423	374	538	734	942	768	469	280	186	134	82	46
9	5	2	5	8	22	54	114	131	74	102	88	95	70	114	158	257	245	142	86	38	38	32	16
9	5	1	5	5	50	74	145	121	97	103	98	105	105	120	177	255	203	140	84	55	43	17	8
2	4	4	1	15	54	103	150	125	79	79	110	106	97	160	212	205	186	104	50	46	31	17	7
2	4	2	4	19	73	133	129	104	103	74	95	117	102	144	187	225	134	83	60	47	22	16	15

Report Generated by "Count Data" all rights reserved

Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 22-009 Loc #B S. Santa Fe Ave, between Bosstick Blvd and Las Flores Dr**

Date: **Tuesday, March 1, 2022** Total Daily Volume: **16657** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
55	37	28	44	120	410	769	1112	1009	796	818	857	923	932	1220	1413	1830	1658	948	641	441	304	188	104
18	12	5	10	11	54	158	226	285	182	209	203	217	186	257	314	425	496	308	196	121	85	55	30
19	7	7	12	17	84	160	279	277	202	202	213	242	250	283	327	467	441	261	187	94	86	42	19
11	8	6	10	40	131	180	288	250	197	205	217	215	238	370	375	481	407	200	122	115	64	53	32
7	10	10	12	52	141	271	319	197	215	202	224	249	258	310	397	457	314	179	136	111	69	38	23

Date: **Tuesday, March 1, 2022** Total Daily Volume: **7926** Description: **Northbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
31	17	13	25	78	236	394	539	483	396	400	421	447	478	555	593	779	760	430	330	213	156	95	57
11	6	3	4	3	32	92	117	155	98	94	106	100	102	126	138	158	215	135	97	66	41	28	14
7	3	4	5	12	44	84	130	136	100	90	98	120	119	130	140	190	201	123	100	37	39	23	12
8	3	1	8	28	76	78	129	110	96	107	102	108	122	159	134	208	183	86	66	54	32	28	21
5	5	5	8	35	84	140	163	82	102	109	115	119	135	140	181	223	161	86	67	56	44	16	10

Date: **Tuesday, March 1, 2022** Total Daily Volume: **8731** Description: **Southbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
24	20	15	19	42	174	375	573	526	400	418	436	476	454	665	820	1051	898	518	311	228	148	93	47
7	6	2	6	8	22	66	109	130	84	115	97	117	84	131	176	267	281	173	99	55	44	27	16
12	4	3	7	5	40	76	149	141	102	112	115	122	131	153	187	277	240	138	87	57	47	19	7
3	5	5	2	12	55	102	159	140	101	98	115	107	116	211	241	273	224	114	56	61	32	25	11
2	5	5	4	17	57	131	156	115	113	93	109	130	123	170	216	234	153	93	69	55	25	22	13

Report Generated by "Count Data" all rights reserved

Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 22-009 Loc #C S. Santa Fe Ave, between Las Flores Dr and N. Rancho Santa Fe Rd**

Date: **Tuesday, March 1, 2022** Total Daily Volume: **14595** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
18	23	18	20	119	396	774	1202	1093	802	861	880	936	951	1262	1439	1664	848	508	273	226	143	96	43
5	6	3	5	7	47	157	236	307	197	222	205	213	204	257	330	447	257	169	85	60	42	27	14
9	6	3	7	18	82	157	305	282	203	209	219	253	255	292	312	480	230	138	78	55	51	20	6
3	6	6	3	37	129	184	330	273	200	211	231	218	244	385	393	444	216	118	49	60	29	24	10
1	5	6	5	57	138	276	331	231	202	219	225	252	248	328	404	293	145	83	61	51	21	25	13

Date: **Tuesday, March 1, 2022** Total Daily Volume: **5755** Description: **Northbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
0	0	0	0	63	208	360	518	517	390	413	431	464	501	587	643	659	0	1	0	0	0	0	0
0	0	0	0	0	28	76	98	149	105	99	103	107	111	125	151	186	0	0	0	0	0	0	0
0	0	0	0	8	42	71	132	142	96	96	101	123	139	130	144	219	0	0	0	0	0	0	0
0	0	0	0	21	67	78	127	113	92	103	111	110	126	183	159	192	0	0	0	0	0	0	0
0	0	0	0	34	71	135	161	113	97	115	116	124	125	149	189	62	0	1	0	0	0	0	0

Date: **Tuesday, March 1, 2022** Total Daily Volume: **8840** Description: **Southbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
18	23	18	20	56	188	414	684	576	412	448	449	472	450	675	796	1005	848	507	273	226	143	96	43
5	6	3	5	7	19	81	138	158	92	123	102	106	93	132	179	261	257	169	85	60	42	27	14
9	6	3	7	10	40	86	173	140	107	113	118	130	116	162	168	261	230	138	78	55	51	20	6
3	6	6	3	16	62	106	203	160	108	108	120	108	118	202	234	252	216	118	49	60	29	24	10
1	5	6	5	23	67	141	170	118	105	104	109	128	123	179	215	231	145	82	61	51	21	25	13

Report Generated by "Count Data" all rights reserved

Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 22-009 Loc #D S. Santa Fe Ave-Mission Rd, between N. Rancho Santa Fe Rd and N. Pacific St**

Date: **Tuesday, March 1, 2022** Total Daily Volume: **13500** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
38	32	21	36	68	267	468	983	836	534	516	576	643	651	1000	1298	1772	1650	821	491	337	243	162	57
13	10	7	9	12	27	80	162	233	136	119	140	135	141	177	272	438	472	290	138	88	74	49	13
15	7	2	9	10	49	95	244	220	161	133	148	179	159	246	346	483	427	233	142	86	77	43	12
6	6	4	6	24	99	112	310	200	124	124	131	140	164	298	329	413	435	165	112	74	38	40	19
4	9	8	12	22	92	181	267	183	113	140	157	189	187	279	351	438	316	133	99	89	54	30	13

Date: **Tuesday, March 1, 2022** Total Daily Volume: **5893** Description: **Northbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
13	18	8	20	36	146	216	452	418	268	226	270	306	317	460	442	627	691	333	258	159	113	74	22
5	6	1	4	7	18	38	70	128	75	52	77	66	77	83	82	150	189	107	72	44	33	22	2
3	3	0	6	3	25	42	120	109	85	59	72	82	82	105	131	151	188	101	75	40	34	21	6
2	3	1	4	13	52	52	133	89	58	55	56	72	75	154	105	155	178	63	65	28	17	18	9
3	6	6	6	13	51	84	129	92	50	60	65	86	83	118	124	171	136	62	46	47	29	13	5

Date: **Tuesday, March 1, 2022** Total Daily Volume: **7607** Description: **Southbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
25	14	13	16	32	121	252	531	418	266	290	306	337	334	540	856	1145	959	488	233	178	130	88	35
8	4	6	5	5	9	42	92	105	61	67	63	69	64	94	190	288	283	183	66	44	41	27	11
12	4	2	3	7	24	53	124	111	76	74	76	97	77	141	215	332	239	132	67	46	43	22	6
4	3	3	2	11	47	60	177	111	66	69	75	68	89	144	224	258	257	102	47	46	21	22	10
1	3	2	6	9	41	97	138	91	63	80	92	103	104	161	227	267	180	71	53	42	25	17	8

Report Generated by "Count Data" all rights reserved

Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 22-009 Loc #E Hollencrest Rd, between De Leone Rd and Hollenbeck Rd**

Date: **Tuesday, March 1, 2022** Total Daily Volume: **562** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
9	2	1	4	3	11	28	32	41	19	15	16	21	31	36	34	61	53	52	34	20	29	5	5
2	1	0	1	1	0	10	9	16	4	5	3	6	12	5	13	14	13	15	9	3	6	5	2
5	1	0	3	0	1	1	5	7	4	3	5	2	4	6	3	17	6	13	10	8	9	0	2
0	0	0	0	1	4	6	9	13	7	3	3	9	7	10	10	14	19	17	5	5	8	0	1
2	0	1	0	1	6	11	9	5	4	4	5	4	8	15	8	16	15	7	10	4	6	0	0

Date: **Tuesday, March 1, 2022** Total Daily Volume: **245** Description: **Northbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
5	1	1	1	2	4	14	12	13	10	8	8	4	11	15	16	27	22	28	10	11	16	1	5
1	1	0	0	1	0	5	5	7	2	3	2	3	5	3	10	5	5	9	4	1	2	1	2
3	0	0	1	0	1	1	0	1	2	1	3	0	1	2	2	7	2	6	4	4	4	0	2
0	0	0	0	1	2	2	5	5	5	3	2	1	3	4	2	5	10	8	0	3	6	0	1
1	0	1	0	0	1	6	2	0	1	1	1	0	2	6	2	10	5	5	2	3	4	0	0

Date: **Tuesday, March 1, 2022** Total Daily Volume: **317** Description: **Southbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
4	1	0	3	1	7	14	20	28	9	7	8	17	20	21	18	34	31	24	24	9	13	4	0
1	0	0	1	0	0	5	4	9	2	2	1	3	7	2	3	9	8	6	5	2	4	4	0
2	1	0	2	0	0	0	5	6	2	2	2	2	3	4	1	10	4	7	6	4	5	0	0
0	0	0	0	0	2	4	4	8	2	0	1	8	4	6	8	9	9	9	5	2	2	0	0
1	0	0	0	1	5	5	7	5	3	3	4	4	6	9	6	6	10	2	8	1	2	0	0

Report Generated by "Count Data" all rights reserved

Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 22-009 Loc #F N. Rancho Santa Fe Rd, between S. Santa Fe Ave and Capalina Rd**

Date: **Tuesday, March 1, 2022** Total Daily Volume: **11728** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
38	30	21	25	100	290	538	706	772	625	682	692	679	690	783	1007	1069	1019	726	419	355	234	144	84
10	6	5	6	9	35	108	159	216	171	183	171	162	149	175	235	261	286	206	129	91	61	40	27
17	7	6	11	16	64	112	177	199	144	167	193	184	183	191	220	277	250	192	109	81	65	33	14
7	8	4	5	35	92	137	179	186	160	166	165	151	188	219	268	269	269	169	97	89	58	37	25
4	9	6	3	40	99	181	191	171	150	166	163	182	170	198	284	262	214	159	84	94	50	34	18

Date: **Tuesday, March 1, 2022** Total Daily Volume: **6469** Description: **Eastbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
30	13	9	11	55	142	259	301	340	306	352	356	359	386	399	628	720	639	433	236	203	146	88	58
10	3	4	3	3	18	52	61	88	91	87	82	87	81	91	148	171	173	122	70	56	40	29	18
12	4	4	4	9	32	56	73	95	61	78	93	98	103	101	145	196	144	118	68	44	34	21	10
6	2	1	3	22	46	59	69	80	74	93	89	79	106	99	162	168	172	99	51	47	36	21	20
2	4	0	1	21	46	92	98	77	80	94	92	95	96	108	173	185	150	94	47	56	36	17	10

Date: **Tuesday, March 1, 2022** Total Daily Volume: **5259** Description: **Westbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
8	17	12	14	45	148	279	405	432	319	330	336	320	304	384	379	349	380	293	183	152	88	56	26
0	3	1	3	6	17	56	98	128	80	96	89	75	68	84	87	90	113	84	59	35	21	11	9
5	3	2	7	7	32	56	104	104	83	89	100	86	80	90	75	81	106	74	41	37	31	12	4
1	6	3	2	13	46	78	110	106	86	73	76	72	82	120	106	101	97	70	46	42	22	16	5
2	5	6	2	19	53	89	93	94	70	72	71	87	74	90	111	77	64	65	37	38	14	17	8

Report Generated by "Count Data" all rights reserved

APPENDIX B

CITY OF SAN MARCOS ROADWAY CLASSIFICATION TABLE

Table 3: Roadway Classifications, Capacity, and LOS

Street Classification	Lanes	LOS A	LOS B	LOS C	LOS D	LOS E (Capacity)
Expressway	6	30,000	42,000	60,000	70,000	80,000
Prime Arterial	6	25,000	35,000	50,000	55,000	60,000
Major Arterial	6	20,000	28,000	40,000	45,000	50,000
Major Arterial	4	15,000	21,000	30,000	35,000	40,000
Major Arterial (One-Way)	3	12,500	16,500	22,500	25,000	27,500
Major Arterial (One-Way)	2	10,000	13,000	17,500	20,000	22,500
Secondary Arterial/Collector	4	10,000	14,000	20,000	25,000	30,000
Collector (no center lane)	4	5,000	7,000	10,000	13,000	15,000
Collector (continuous left-turn lane)	2	5,000	7,000	10,000	13,000	15,000
Collector (no fronting property)	2	4,000	5,500	7,500	9,000	10,000
Collector (commercial-industrial fronting)	2	2,500	3,500	5,000	6,500	8,000
Collector (multi-family)	2	2,500	3,500	5,000	6,500	8,000
Collector (one-way)	3	11,000	14,000	19,000	22,500	26,000
Collector (one-way)	2	7,500	9,500	12,500	15,000	17,500
Collector (one-way)	1	2,500	3,500	5,000	6,500	7,500
Sub-Collector (single-family)	2	--	--	2,200	--	--

Source: *Guidelines for Transportation Impact Studies in the San Diego Region* (May 2019)
Notes: 1. The volumes and the average daily level of service listed above are only intended as a general planning outline.
2. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

3.7. LEVEL OF SERVICE STANDARDS

The City of San Marcos strives to maintain intersection and roadway segment operations based on LOS standards outlined in the General Plan Mobility Element. The local transportation analysis should note intersections and roadway segments that perform unacceptably (based on standards in the current General Plan Mobility Element) under no project and/or plus project conditions, and improvements that can be applied to increase performance to acceptable levels.

For study intersections, the study should identify if the addition of the traffic generated from the proposed project results in any one of the following, and improvements should be identified to increase performance to acceptable or pre-project conditions under each scenario:

- Triggers an intersection operating at acceptable LOS to operate at unacceptable LOS and increases the average delay per vehicle by more than 2.0 seconds.
- Increases the average delay per vehicle for a study intersection that is already operating at unacceptable LOS by more than 2.0 seconds.

APPENDIX C

ANALYSIS WORKSHEETS – EXISTING

Intersection	
Int Delay, s/veh	17.8

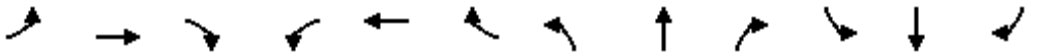
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	91	147	239	283	398	215
Future Vol, veh/h	91	147	239	283	398	215
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	103	167	272	322	452	244

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1440	574	696	0	-	0
Stage 1	574	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	146	518	900	-	-	-
Stage 1	563	-	-	-	-	-
Stage 2	412	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 92	518	900	-	-	-
Mov Cap-2 Maneuver	~ 92	-	-	-	-	-
Stage 1	356	-	-	-	-	-
Stage 2	412	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	91.8	4.9	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	900	-	92	518	-	-
HCM Lane V/C Ratio	0.302	-	1.124	0.322	-	-
HCM Control Delay (s)	10.7	0	215.5	15.2	-	-
HCM Lane LOS	B	A	F	C	-	-
HCM 95th %tile Q(veh)	1.3	-	7	1.4	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	22	69	0	35	21	493	86	78	466	6
Future Volume (veh/h)	10	0	22	69	0	35	21	493	86	78	466	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	25	78	0	40	24	560	98	89	530	7
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	31	0	70	212	0	188	69	684	579	189	1555	21
Arrive On Green	0.06	0.00	0.06	0.12	0.00	0.12	0.04	0.37	0.37	0.11	0.43	0.43
Sat Flow, veh/h	501	0	1139	1781	0	1585	1781	1870	1585	1781	3591	47
Grp Volume(v), veh/h	36	0	0	78	0	40	24	560	98	89	262	275
Grp Sat Flow(s),veh/h/ln	1640	0	0	1781	0	1585	1781	1870	1585	1781	1777	1862
Q Serve(g_s), s	1.2	0.0	0.0	2.3	0.0	1.3	0.7	15.4	2.4	2.7	5.6	5.6
Cycle Q Clear(g_c), s	1.2	0.0	0.0	2.3	0.0	1.3	0.7	15.4	2.4	2.7	5.6	5.6
Prop In Lane	0.31		0.69	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	100	0	0	212	0	188	69	684	579	189	769	806
V/C Ratio(X)	0.36	0.00	0.00	0.37	0.00	0.21	0.35	0.82	0.17	0.47	0.34	0.34
Avail Cap(c_a), veh/h	837	0	0	251	0	223	260	1148	973	260	1091	1143
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.6	0.0	0.0	23.1	0.0	22.6	26.6	16.3	12.2	23.9	10.7	10.7
Incr Delay (d2), s/veh	2.2	0.0	0.0	1.1	0.0	0.6	3.0	2.5	0.1	1.8	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	1.0	0.0	0.5	0.3	5.6	0.7	1.1	1.7	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	0.0	0.0	24.1	0.0	23.2	29.6	18.8	12.3	25.7	11.0	11.0
LnGrp LOS	C	A	A	C	A	C	C	B	B	C	B	B
Approach Vol, veh/h		36			118			682			626	
Approach Delay, s/veh		27.8			23.8			18.3			13.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	26.2		9.0	6.4	30.0		11.5				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	4.7	17.4		3.2	2.7	7.6		4.3				
Green Ext Time (p_c), s	0.1	3.4		0.1	0.0	2.9		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		16.7	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

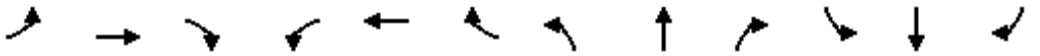
Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	662	6	10	601	9	7
Future Vol, veh/h	662	6	10	601	9	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	704	6	11	639	10	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	710	0	1049	355
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	342	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	885	-	223	641
Stage 1	-	-	-	-	450	-
Stage 2	-	-	-	-	691	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	885	-	220	641
Mov Cap-2 Maneuver	-	-	-	-	220	-
Stage 1	-	-	-	-	450	-
Stage 2	-	-	-	-	683	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	17.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	309	-	-	885	-
HCM Lane V/C Ratio	0.055	-	-	0.012	-
HCM Control Delay (s)	17.3	-	-	9.1	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	511	27	44	494	34	40	2	29	127	11	38
Future Volume (veh/h)	35	511	27	44	494	34	40	2	29	127	11	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	568	30	49	549	38	44	2	32	141	12	42
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	105	839	44	106	879	392	131	11	179	279	68	237
Arrive On Green	0.06	0.24	0.24	0.06	0.25	0.25	0.07	0.12	0.12	0.16	0.19	0.19
Sat Flow, veh/h	1781	3433	181	1781	3554	1585	1781	94	1505	1781	365	1276
Grp Volume(v), veh/h	39	294	304	49	549	38	44	0	34	141	0	54
Grp Sat Flow(s),veh/h/ln	1781	1777	1838	1781	1777	1585	1781	0	1599	1781	0	1641
Q Serve(g_s), s	1.0	7.3	7.4	1.3	6.7	0.9	1.2	0.0	0.9	3.6	0.0	1.4
Cycle Q Clear(g_c), s	1.0	7.3	7.4	1.3	6.7	0.9	1.2	0.0	0.9	3.6	0.0	1.4
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.94	1.00		0.78
Lane Grp Cap(c), veh/h	105	434	449	106	879	392	131	0	191	279	0	305
V/C Ratio(X)	0.37	0.68	0.68	0.46	0.62	0.10	0.34	0.00	0.18	0.51	0.00	0.18
Avail Cap(c_a), veh/h	258	797	825	222	1529	682	291	0	1142	411	0	1255
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.2	16.8	16.8	22.3	16.4	14.2	21.6	0.0	19.4	18.9	0.0	16.8
Incr Delay (d2), s/veh	2.2	1.8	1.8	3.1	0.7	0.1	1.5	0.0	0.4	1.4	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.6	2.7	0.6	2.3	0.3	0.5	0.0	0.3	1.5	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.4	18.6	18.6	25.4	17.2	14.3	23.1	0.0	19.9	20.3	0.0	17.1
LnGrp LOS	C	B	B	C	B	B	C	A	B	C	A	B
Approach Vol, veh/h		637			636			78			195	
Approach Delay, s/veh		18.9			17.6			21.7			19.4	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	17.4	9.1	15.1	7.3	17.5	12.4	11.8
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	3.3	9.4	3.2	3.4	3.0	8.7	5.6	2.9
Green Ext Time (p_c), s	0.0	2.6	0.0	0.3	0.0	2.7	0.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	18.6
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	25	51	4	12	61
Future Vol, veh/h	7	25	51	4	12	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	29	60	5	14	72

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	163	63	0	0	65	0
Stage 1	63	-	-	-	-	-
Stage 2	100	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	828	1002	-	-	1537	-
Stage 1	960	-	-	-	-	-
Stage 2	924	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	821	1002	-	-	1537	-
Mov Cap-2 Maneuver	821	-	-	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	916	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	1.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	956	1537	-
HCM Lane V/C Ratio	-	-	0.039	0.009	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	236	86	116	336	0	400	273
Future Volume (veh/h)	236	86	116	336	0	400	273
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	254	92	125	361		430	294
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	610	886	251	1924		1025	457
Arrive On Green	0.18	0.18	0.14	0.54		0.29	0.29
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	254	92	125	361		430	294
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	2.9	1.0	2.9	2.3		4.4	7.2
Cycle Q Clear(g_c), s	2.9	1.0	2.9	2.3		4.4	7.2
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	610	886	251	1924		1025	457
V/C Ratio(X)	0.42	0.10	0.50	0.19		0.42	0.64
Avail Cap(c_a), veh/h	1392	1517	399	3133		2736	1220
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	16.4	10.8	17.7	5.2		12.9	13.9
Incr Delay (d2), s/veh	0.5	0.1	1.5	0.0		0.3	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.0	1.1	0.5		1.3	2.1
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	16.8	10.8	19.2	5.3		13.1	15.4
LnGrp LOS	B	B	B	A		B	B
Approach Vol, veh/h	346			486		724	
Approach Delay, s/veh	15.2			8.9		14.1	
Approach LOS	B			A		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		30.3		14.4	11.3	19.0	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		4.3		4.9	4.9	9.2	
Green Ext Time (p_c), s		2.3		1.0	0.1	3.7	

Intersection Summary	
HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

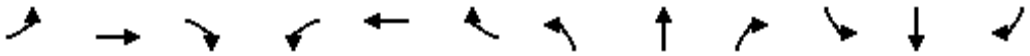
Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	187	67	48	104	5
Future Vol, veh/h	0	187	67	48	104	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	225	81	58	125	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	139	0	-	0	335	110
Stage 1	-	-	-	-	110	-
Stage 2	-	-	-	-	225	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1445	-	-	-	660	943
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	812	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1445	-	-	-	660	943
Mov Cap-2 Maneuver	-	-	-	-	660	-
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	812	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1445	-	-	-	669
HCM Lane V/C Ratio	-	-	-	-	0.196
HCM Control Delay (s)	0	-	-	-	11.7
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.7



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	16	231	85	12	17	154	327	115	12	361	6
Future Volume (veh/h)	5	16	231	85	12	17	154	327	115	12	361	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	6	18	257	94	13	19	171	363	128	13	401	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	42	370	313	329	671	568	212	688	239	20	566	10
Arrive On Green	0.02	0.20	0.20	0.18	0.36	0.36	0.12	0.27	0.27	0.01	0.16	0.16
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2587	899	1781	3574	62
Grp Volume(v), veh/h	6	18	257	94	13	19	171	248	243	13	199	209
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1709	1781	1777	1859
Q Serve(g_s), s	0.2	0.5	10.4	3.1	0.3	0.5	6.3	8.0	8.2	0.5	7.1	7.2
Cycle Q Clear(g_c), s	0.2	0.5	10.4	3.1	0.3	0.5	6.3	8.0	8.2	0.5	7.1	7.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.53	1.00		0.03
Lane Grp Cap(c), veh/h	42	370	313	329	671	568	212	473	455	20	281	294
V/C Ratio(X)	0.14	0.05	0.82	0.29	0.02	0.03	0.81	0.52	0.54	0.65	0.71	0.71
Avail Cap(c_a), veh/h	410	834	707	410	834	707	212	610	587	93	491	514
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	21.9	25.8	23.6	13.9	14.0	28.9	21.0	21.1	33.1	26.8	26.8
Incr Delay (d2), s/veh	1.5	0.1	5.3	0.5	0.0	0.0	20.1	0.9	1.0	30.3	3.3	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	4.2	1.3	0.1	0.2	3.7	3.1	3.1	0.4	3.0	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	21.9	31.1	24.1	13.9	14.0	49.0	21.9	22.1	63.5	30.1	30.0
LnGrp LOS	C	C	C	C	B	B	D	C	C	E	C	C
Approach Vol, veh/h		281			126			662			421	
Approach Delay, s/veh		30.6			21.5			29.0			31.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	24.3	16.4	19.8	14.0	17.1	5.6	30.6
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.5	10.2	5.1	12.4	8.3	9.2	2.2	2.5
Green Ext Time (p_c), s	0.0	2.3	0.1	0.9	0.0	1.5	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	29.3
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	34.8

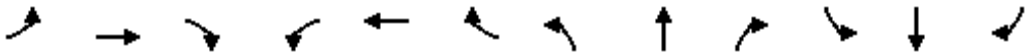
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	103	225	143	525	641	156
Future Vol, veh/h	103	225	143	525	641	156
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	117	256	163	597	728	177

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1740	817	905	0	-	0
Stage 1	817	-	-	-	-	-
Stage 2	923	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 96	376	752	-	-	-
Stage 1	434	-	-	-	-	-
Stage 2	387	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 65	376	752	-	-	-
Mov Cap-2 Maneuver	~ 65	-	-	-	-	-
Stage 1	293	-	-	-	-	-
Stage 2	387	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	185.3	2.4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	752	-	65	376	-	-
HCM Lane V/C Ratio	0.216	-	1.801	0.68	-	-
HCM Control Delay (s)	11.1	0$	518.6	32.7	-	-
HCM Lane LOS	B	A	F	D	-	-
HCM 95th %tile Q(veh)	0.8	-	10.6	4.8	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	11	93	0	82	39	622	38	14	877	11
Future Volume (veh/h)	7	0	11	93	0	82	39	622	38	14	877	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	0	12	106	0	93	44	707	43	16	997	12
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	25	0	38	242	0	215	110	829	702	56	1484	18
Arrive On Green	0.04	0.00	0.04	0.14	0.00	0.14	0.06	0.44	0.44	0.03	0.41	0.41
Sat Flow, veh/h	663	0	995	1781	0	1585	1781	1870	1585	1781	3596	43
Grp Volume(v), veh/h	20	0	0	106	0	93	44	707	43	16	493	516
Grp Sat Flow(s),veh/h/ln	1658	0	0	1781	0	1585	1781	1870	1585	1781	1777	1863
Q Serve(g_s), s	0.7	0.0	0.0	3.1	0.0	3.0	1.3	19.1	0.9	0.5	12.7	12.7
Cycle Q Clear(g_c), s	0.7	0.0	0.0	3.1	0.0	3.0	1.3	19.1	0.9	0.5	12.7	12.7
Prop In Lane	0.40		0.60	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	63	0	0	242	0	215	110	829	702	56	733	769
V/C Ratio(X)	0.32	0.00	0.00	0.44	0.00	0.43	0.40	0.85	0.06	0.29	0.67	0.67
Avail Cap(c_a), veh/h	854	0	0	253	0	225	263	1159	982	263	1101	1154
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	0.0	0.0	22.4	0.0	22.3	25.4	14.0	9.0	26.7	13.4	13.4
Incr Delay (d2), s/veh	2.8	0.0	0.0	1.2	0.0	1.4	2.3	4.6	0.0	2.8	1.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	1.3	0.0	1.1	0.6	6.9	0.2	0.2	4.0	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	0.0	0.0	23.6	0.0	23.7	27.7	18.6	9.0	29.4	14.5	14.5
LnGrp LOS	C	A	A	C	A	C	C	B	A	C	B	B
Approach Vol, veh/h		20			199			794			1025	
Approach Delay, s/veh		29.2			23.7			18.6			14.7	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	30.3		7.6	7.7	28.6		12.3				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	2.5	21.1		2.7	3.3	14.7		5.1				
Green Ext Time (p_c), s	0.0	3.9		0.1	0.0	5.9		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		17.3	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

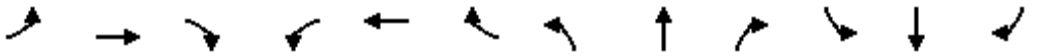
Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1034	6	37	720	6	4
Future Vol, veh/h	1034	6	37	720	6	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1100	6	39	766	6	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1106	0	1564	553
Stage 1	-	-	-	-	1103	-
Stage 2	-	-	-	-	461	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	627	-	102	477
Stage 1	-	-	-	-	279	-
Stage 2	-	-	-	-	601	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	627	-	96	477
Mov Cap-2 Maneuver	-	-	-	-	96	-
Stage 1	-	-	-	-	279	-
Stage 2	-	-	-	-	564	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	32.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	141	-	-	627	-
HCM Lane V/C Ratio	0.075	-	-	0.063	-
HCM Control Delay (s)	32.6	-	-	11.1	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.2	-	-	0.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	878	71	35	591	79	40	1	20	53	2	34
Future Volume (veh/h)	54	878	71	35	591	79	40	1	20	53	2	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	976	79	39	657	88	44	1	22	59	2	38
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	137	1191	96	88	1179	526	128	8	173	174	10	189
Arrive On Green	0.08	0.36	0.36	0.05	0.33	0.33	0.07	0.11	0.11	0.10	0.12	0.12
Sat Flow, veh/h	1781	3329	269	1781	3554	1585	1781	69	1526	1781	80	1517
Grp Volume(v), veh/h	60	521	534	39	657	88	44	0	23	59	0	40
Grp Sat Flow(s),veh/h/ln	1781	1777	1822	1781	1777	1585	1781	0	1596	1781	0	1597
Q Serve(g_s), s	1.7	14.4	14.4	1.1	8.2	2.1	1.3	0.0	0.7	1.7	0.0	1.2
Cycle Q Clear(g_c), s	1.7	14.4	14.4	1.1	8.2	2.1	1.3	0.0	0.7	1.7	0.0	1.2
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.96	1.00		0.95
Lane Grp Cap(c), veh/h	137	636	652	88	1179	526	128	0	180	174	0	199
V/C Ratio(X)	0.44	0.82	0.82	0.44	0.56	0.17	0.34	0.00	0.13	0.34	0.00	0.20
Avail Cap(c_a), veh/h	235	725	744	202	1391	620	264	0	1036	373	0	1111
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.8	15.7	15.7	24.9	14.8	12.7	23.8	0.0	21.5	22.7	0.0	21.2
Incr Delay (d2), s/veh	2.2	6.6	6.5	3.5	0.4	0.1	1.6	0.0	0.3	1.1	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.6	5.7	0.5	2.7	0.7	0.6	0.0	0.3	0.7	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.0	22.4	22.2	28.4	15.2	12.9	25.4	0.0	21.8	23.8	0.0	21.7
LnGrp LOS	C	C	C	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1115			784			67			99	
Approach Delay, s/veh		22.5			15.6			24.2			23.0	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	24.7	9.4	12.7	8.5	23.3	10.0	12.1
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	3.1	16.4	3.3	3.2	3.7	10.2	3.7	2.7
Green Ext Time (p_c), s	0.0	2.9	0.0	0.2	0.0	3.3	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	19.9
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	11	54	5	31	77
Future Vol, veh/h	3	11	54	5	31	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	13	64	6	36	91

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	230	67	0	0	70	0
Stage 1	67	-	-	-	-	-
Stage 2	163	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	758	997	-	-	1531	-
Stage 1	956	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	739	997	-	-	1531	-
Mov Cap-2 Maneuver	739	-	-	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	844	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	2.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	928	1531	-
HCM Lane V/C Ratio	-	-	0.018	0.024	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	344	333	154	376	0	717	206
Future Volume (veh/h)	344	333	154	376	0	717	206
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	370	358	166	404		771	222
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	626	898	251	2040		1194	533
Arrive On Green	0.18	0.18	0.14	0.57		0.34	0.34
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	370	358	166	404		771	222
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	5.1	5.1	4.5	2.8		9.5	5.6
Cycle Q Clear(g_c), s	5.1	5.1	4.5	2.8		9.5	5.6
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	626	898	251	2040		1194	533
V/C Ratio(X)	0.59	0.40	0.66	0.20		0.65	0.42
Avail Cap(c_a), veh/h	1209	1369	346	2720		2375	1059
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	19.3	13.6	20.9	5.3		14.5	13.2
Incr Delay (d2), s/veh	0.9	0.3	3.0	0.0		0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	4.3	1.8	0.6		3.0	1.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	20.2	13.9	23.9	5.3		15.1	13.7
LnGrp LOS	C	B	C	A		B	B
Approach Vol, veh/h	728			570		993	
Approach Delay, s/veh	17.1			10.7		14.8	
Approach LOS	B			B		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		35.6		15.8	12.3	23.4	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		4.8		7.1	6.5	11.5	
Green Ext Time (p_c), s		2.7		2.2	0.1	5.8	

Intersection Summary	
HCM 6th Ctrl Delay	14.5
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

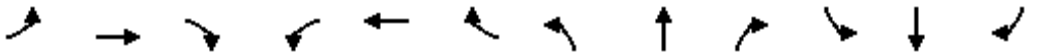
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	100	153	80	33	3
Future Vol, veh/h	2	100	153	80	33	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	120	184	96	40	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	280	0	-	0	356	232
Stage 1	-	-	-	-	232	-
Stage 2	-	-	-	-	124	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1283	-	-	-	642	807
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	902	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1283	-	-	-	641	807
Mov Cap-2 Maneuver	-	-	-	-	641	-
Stage 1	-	-	-	-	805	-
Stage 2	-	-	-	-	902	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1283	-	-	-	652
HCM Lane V/C Ratio	0.002	-	-	-	0.067
HCM Control Delay (s)	7.8	0	-	-	10.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	22	109	84	33	21	195	624	101	13	344	21
Future Volume (veh/h)	7	22	109	84	33	21	195	624	101	13	344	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	24	121	93	37	23	217	693	112	14	382	23
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	209	177	353	521	441	240	898	145	22	582	35
Arrive On Green	0.03	0.11	0.11	0.20	0.28	0.28	0.13	0.29	0.29	0.01	0.17	0.17
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3063	495	1781	3406	204
Grp Volume(v), veh/h	8	24	121	93	37	23	217	402	403	14	199	206
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1781	1781	1777	1834
Q Serve(g_s), s	0.3	0.7	4.4	2.6	0.9	0.6	7.1	12.3	12.3	0.5	6.2	6.3
Cycle Q Clear(g_c), s	0.3	0.7	4.4	2.6	0.9	0.6	7.1	12.3	12.3	0.5	6.2	6.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		0.11
Lane Grp Cap(c), veh/h	56	209	177	353	521	441	240	521	522	22	304	313
V/C Ratio(X)	0.14	0.11	0.68	0.26	0.07	0.05	0.91	0.77	0.77	0.65	0.65	0.66
Avail Cap(c_a), veh/h	464	943	799	464	943	799	240	690	692	105	556	573
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	23.8	25.4	20.2	15.8	15.7	25.4	19.2	19.2	29.3	23.0	23.0
Incr Delay (d2), s/veh	1.2	0.2	4.6	0.4	0.1	0.0	34.1	3.9	3.9	28.0	2.4	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	1.8	1.1	0.4	0.2	5.0	4.9	4.9	0.4	2.5	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	24.0	30.0	20.6	15.9	15.8	59.5	23.1	23.1	57.2	25.4	25.4
LnGrp LOS	C	C	C	C	B	B	E	C	C	E	C	C
Approach Vol, veh/h		153			153			1022			419	
Approach Delay, s/veh		29.0			18.7			30.8			26.5	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	23.8	15.8	13.1	14.0	16.6	5.9	23.1
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.5	14.3	4.6	6.4	9.1	8.3	2.3	2.9
Green Ext Time (p_c), s	0.0	3.1	0.1	0.5	0.0	1.6	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	28.6
HCM 6th LOS	C

APPENDIX D

K&D FACTORS DEFINITIONS

PEAK HOUR VOLUME DATA

Peak hour volume data consists of hourly volume relationships and data location. The hourly volumes are expressed as a percentage of the Annual Average Daily Traffic (AADT). The percentages are shown for both the AM and the PM peak periods.

The principle data described here are the K factor, the D factor and their product (KD). The K factor is the percentage of AADT during the peak hour for both directions of travel. The D factor is the percentage of the peak hour travel in the peak direction. KD multiplied with the AADT gives the one way peak period directional flow rate or the design hourly volume (DHV). The design hourly volume is used for either Operational Analysis or Design Analysis. Refer to the 2016 Highway Capacity Manual, 6th Edition A Guide for Multimodal Mobility Analysis for more details.

Following is a glossary of terms used in this listing of peak hour volume data:

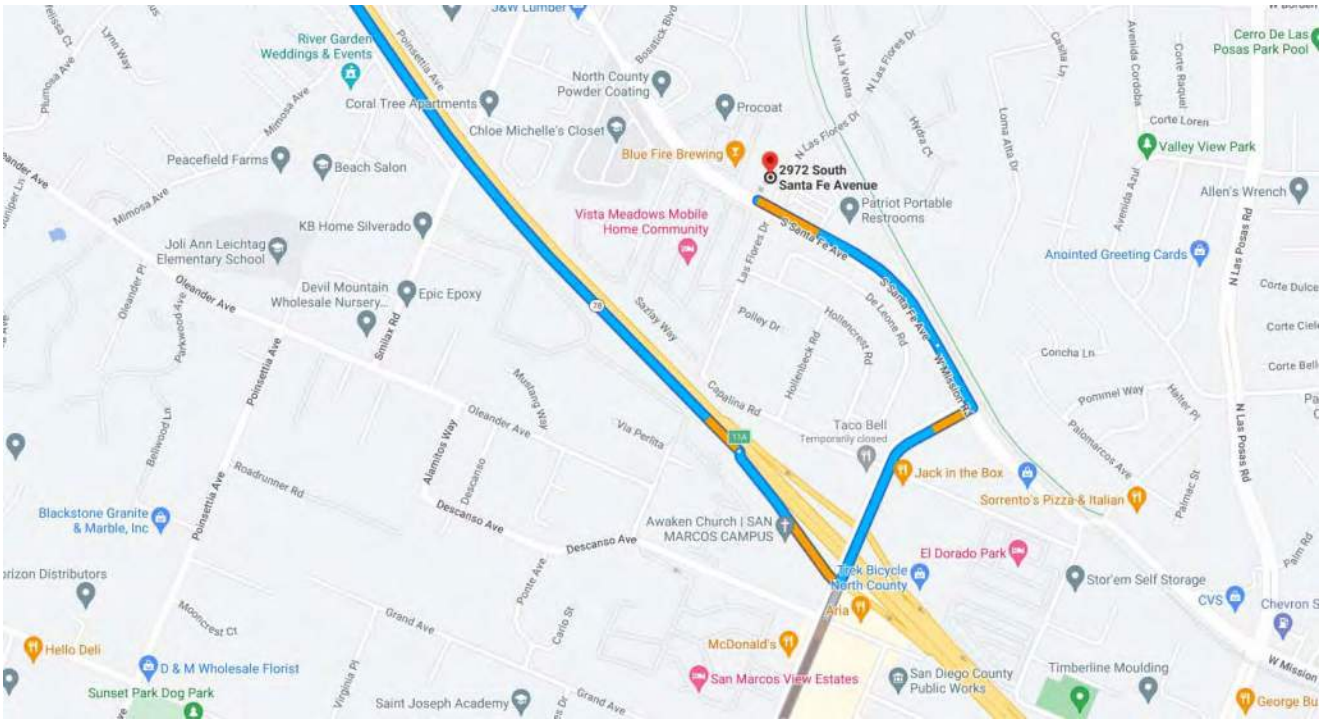
Dir	Indicates direction of travel for peak volume.
AADT	Annual Average Daily Traffic in vehicles per day (vpd).
AM Peak	Represents the morning peak period for traffic analysis.
CS	Control Station Number, Caltrans identification number for monitoring site.
CO	County abbreviation used by Caltrans.
D	D factor. The percentage of traffic in the peak direction during the peak hour. Values in this book are derived by dividing the measured PHV by the sum of both directions of travel during the peak hour.
DAY	Day of week for the peak volume.
DDHV	The directional design hour volume, in vehicles per hour (vph) DDHV=AADTxKxD. See Equation (3-1) on Page 3-13 of the 2016 Highway Capacity Manual.
DI	Caltrans has twelve transportation districts statewide. This abbreviation identifies the district in which the count station is located.
HR	The ending time for the peak hour volume listed. The volume observed from 1 to 2 would be recorded as 2.

K	The percentage of the AADT in both directions during the peak hour. Values in this table are derived by dividing the measured 2-way PHV by the AADT.
KD	The product of K and D. The percentage of AADT in the peak direction during the peak hour. Values in this table are derived by dividing the measured 1-way PHV by the AADT.
LEG	For traffic counting purposes, a highway intersection or interchange is assigned two legs according to increasing postmiles (route direction) and with a postmile reference at the center of the intersection or interchange. The volume of traffic on each leg is denoted by an A, B or O. A = ahead leg, B = back leg, and O – traffic volume being same for both back and ahead legs.
MNTH	The month that the peak volume occurred.
PHV	Peak Hour Volume in the peak direction. A one way volume in vehicles per hour (vph) as used here. The PHV is analogous to the DDHV as used for design purposes.
PM	The Post Mile is the mileage measured from the county line, or from the beginning of a route. Each postmile along a route in a county is a unique location on the state highway system.
PM Peak	Represents the afternoon peak period for traffic analysis.
PRE	The postmile may have a prefix like R, T, L, M, etc. When a length of highway is changed due to construction or realigment, new postmile values are assigned. To distinguish the new values from the old, an alpha code is prefixed to the new postmile.
RTE	The state highway route number.
YR	The year when the count was made. Traffic counting is on a 3-year cycle.

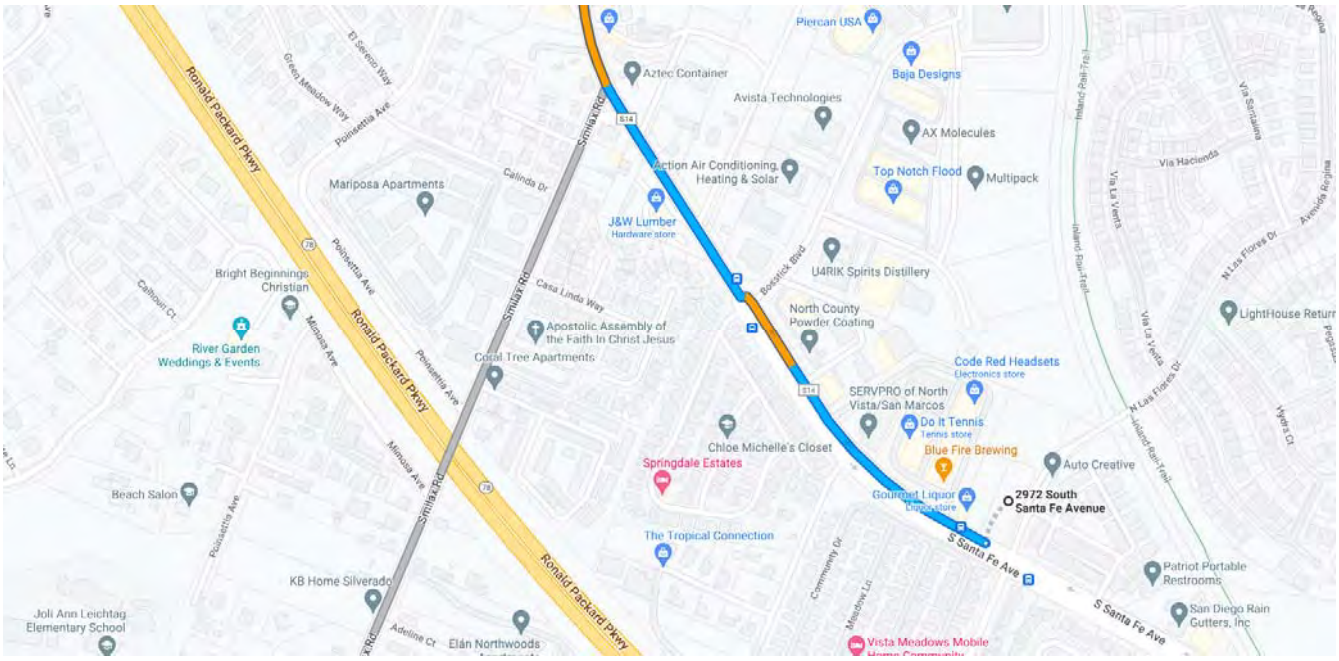
APPENDIX E

TRAVEL ROUTE MAPS

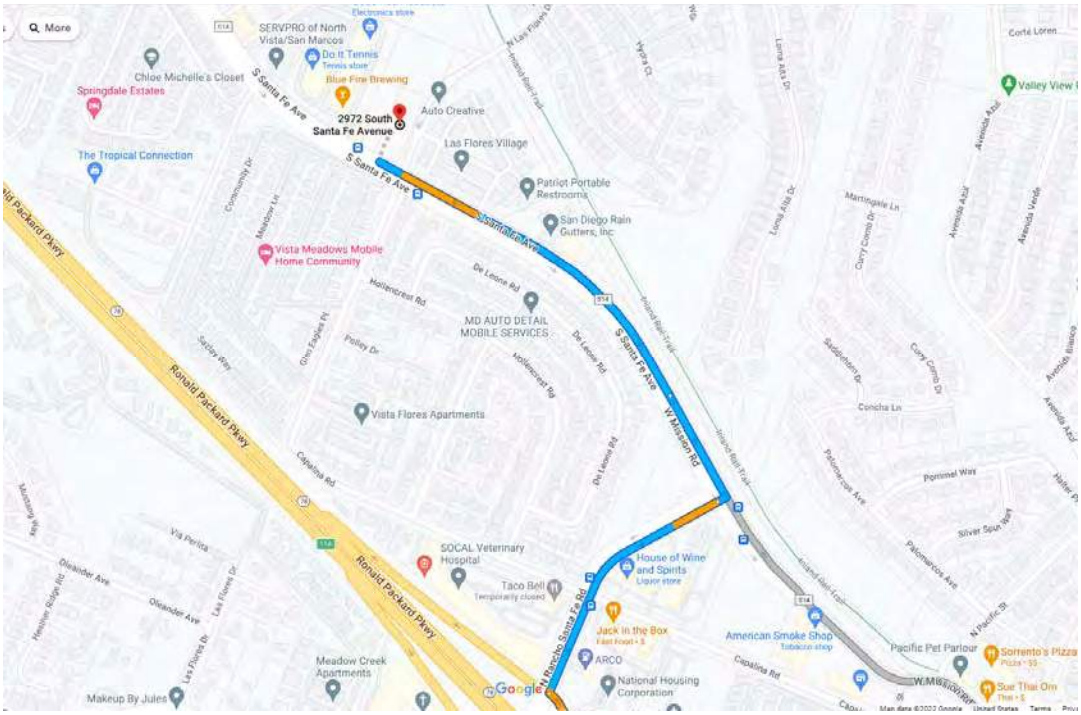
From Oceanside



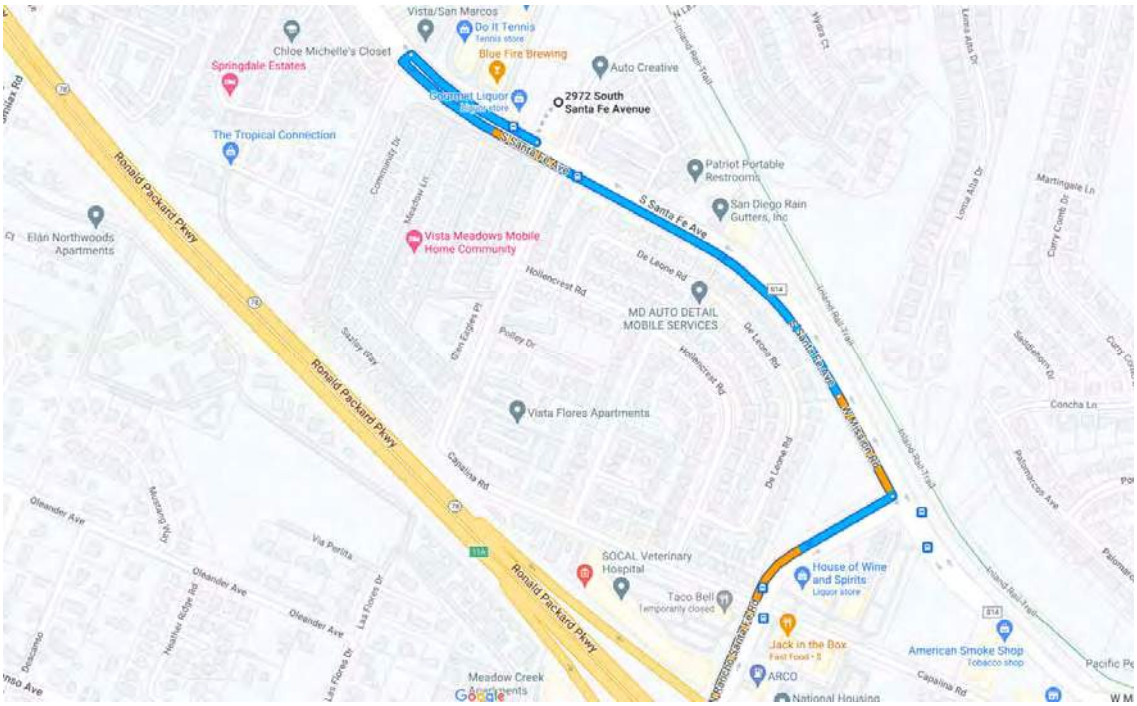
To Oceanside



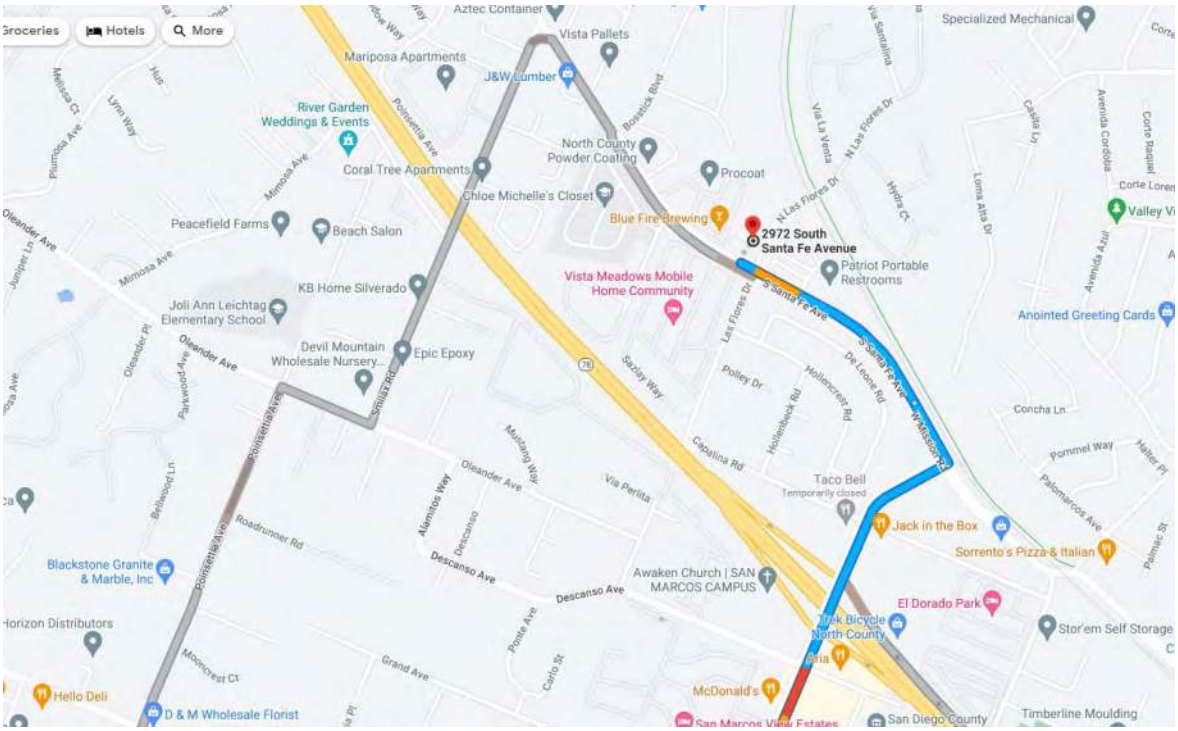
From Escondido



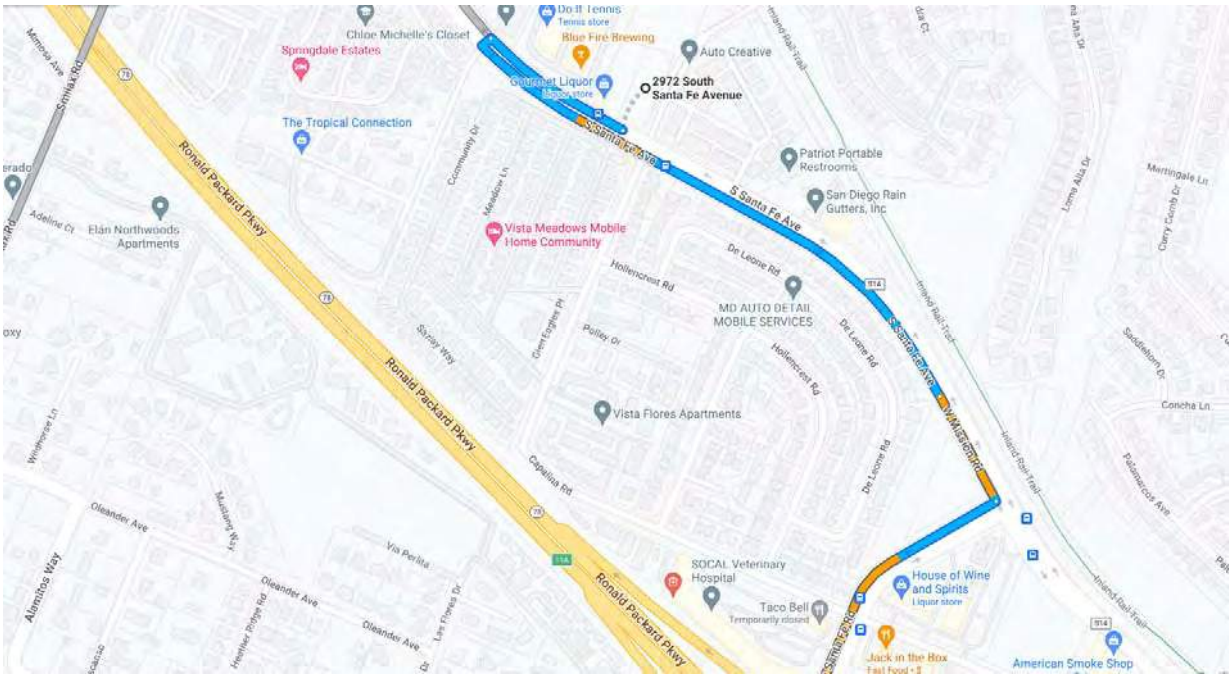
To Escondido



From Rancho Santa Fe



To Rancho Santa Fe



APPENDIX F

ANALYSIS WORKSHEETS – NEAR-TERM

Intersection	
Int Delay, s/veh	25.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	96	155	252	298	420	228
Future Vol, veh/h	96	155	252	298	420	228
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	109	176	286	339	477	259

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1518	607	736	0	-	0
Stage 1	607	-	-	-	-	-
Stage 2	911	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	131	496	870	-	-	-
Stage 1	544	-	-	-	-	-
Stage 2	392	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 78	496	870	-	-	-
Mov Cap-2 Maneuver	~ 78	-	-	-	-	-
Stage 1	324	-	-	-	-	-
Stage 2	392	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	137.5	5.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	870	-	78	496	-	-
HCM Lane V/C Ratio	0.329	-	1.399	0.355	-	-
HCM Control Delay (s)	11.2	0$	333.4	16.2	-	-
HCM Lane LOS	B	A	F	C	-	-
HCM 95th %tile Q(veh)	1.4	-	8.6	1.6	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	23	77	0	39	22	508	96	87	480	6
Future Volume (veh/h)	10	0	23	77	0	39	22	508	96	87	480	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	26	88	0	44	25	577	109	99	545	7
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	30	0	71	214	0	191	71	697	590	194	1587	20
Arrive On Green	0.06	0.00	0.06	0.12	0.00	0.12	0.04	0.37	0.37	0.11	0.44	0.44
Sat Flow, veh/h	487	0	1152	1781	0	1585	1781	1870	1585	1781	3593	46
Grp Volume(v), veh/h	37	0	0	88	0	44	25	577	109	99	269	283
Grp Sat Flow(s),veh/h/ln	1639	0	0	1781	0	1585	1781	1870	1585	1781	1777	1862
Q Serve(g_s), s	1.3	0.0	0.0	2.7	0.0	1.5	0.8	16.5	2.7	3.1	5.9	5.9
Cycle Q Clear(g_c), s	1.3	0.0	0.0	2.7	0.0	1.5	0.8	16.5	2.7	3.1	5.9	5.9
Prop In Lane	0.30		0.70	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	101	0	0	214	0	191	71	697	590	194	785	822
V/C Ratio(X)	0.37	0.00	0.00	0.41	0.00	0.23	0.35	0.83	0.18	0.51	0.34	0.34
Avail Cap(c_a), veh/h	808	0	0	242	0	216	251	1109	940	251	1054	1105
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	0.0	0.0	24.0	0.0	23.4	27.5	16.8	12.4	24.7	10.8	10.8
Incr Delay (d2), s/veh	2.2	0.0	0.0	1.3	0.0	0.6	2.9	3.0	0.1	2.1	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	1.1	0.0	0.6	0.4	6.2	0.8	1.3	1.8	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	0.0	0.0	25.2	0.0	24.0	30.4	19.7	12.6	26.8	11.1	11.1
LnGrp LOS	C	A	A	C	A	C	C	B	B	C	B	B
Approach Vol, veh/h		37			132			711			651	
Approach Delay, s/veh		28.7			24.8			19.0			13.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.6	27.3		9.1	6.5	31.4		11.8				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	5.1	18.5		3.3	2.8	7.9		4.7				
Green Ext Time (p_c), s	0.1	3.4		0.1	0.0	3.0		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		17.4	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

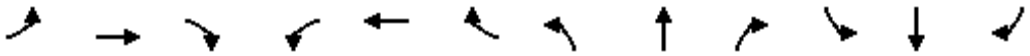
Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	674	6	10	612	9	7
Future Vol, veh/h	674	6	10	612	9	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	717	6	11	651	10	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	723	0	1068	362
Stage 1	-	-	-	-	720	-
Stage 2	-	-	-	-	348	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	875	-	217	635
Stage 1	-	-	-	-	443	-
Stage 2	-	-	-	-	686	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	875	-	214	635
Mov Cap-2 Maneuver	-	-	-	-	214	-
Stage 1	-	-	-	-	443	-
Stage 2	-	-	-	-	677	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	17.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	301	-	-	875	-
HCM Lane V/C Ratio	0.057	-	-	0.012	-
HCM Control Delay (s)	17.7	-	-	9.2	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	523	27	46	505	35	41	3	30	129	12	39
Future Volume (veh/h)	36	523	27	46	505	35	41	3	30	129	12	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	581	30	51	561	39	46	3	33	143	13	43
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	107	851	44	109	891	397	135	16	177	278	70	233
Arrive On Green	0.06	0.25	0.25	0.06	0.25	0.25	0.08	0.12	0.12	0.16	0.18	0.18
Sat Flow, veh/h	1781	3438	177	1781	3554	1585	1781	134	1472	1781	381	1262
Grp Volume(v), veh/h	40	300	311	51	561	39	46	0	36	143	0	56
Grp Sat Flow(s),veh/h/ln	1781	1777	1838	1781	1777	1585	1781	0	1605	1781	0	1643
Q Serve(g_s), s	1.1	7.6	7.6	1.4	7.0	0.9	1.2	0.0	1.0	3.7	0.0	1.4
Cycle Q Clear(g_c), s	1.1	7.6	7.6	1.4	7.0	0.9	1.2	0.0	1.0	3.7	0.0	1.4
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.92	1.00		0.77
Lane Grp Cap(c), veh/h	107	440	455	109	891	397	135	0	193	278	0	303
V/C Ratio(X)	0.38	0.68	0.68	0.47	0.63	0.10	0.34	0.00	0.19	0.51	0.00	0.18
Avail Cap(c_a), veh/h	255	788	815	219	1512	674	287	0	1133	406	0	1242
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.4	16.9	16.9	22.5	16.5	14.3	21.7	0.0	19.6	19.2	0.0	17.1
Incr Delay (d2), s/veh	2.2	1.9	1.8	3.1	0.7	0.1	1.5	0.0	0.5	1.5	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.7	2.8	0.6	2.3	0.3	0.5	0.0	0.4	1.5	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.6	18.8	18.7	25.6	17.3	14.4	23.2	0.0	20.1	20.7	0.0	17.4
LnGrp LOS	C	B	B	C	B	B	C	A	C	C	A	B
Approach Vol, veh/h		651			651			82			199	
Approach Delay, s/veh		19.1			17.8			21.9			19.7	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	17.7	9.3	15.1	7.4	17.8	12.4	12.0
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	3.4	9.6	3.2	3.4	3.1	9.0	5.7	3.0
Green Ext Time (p_c), s	0.0	2.7	0.0	0.3	0.0	2.8	0.2	0.2

Intersection Summary	
HCM 6th Ctrl Delay	18.8
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	26	53	5	13	64
Future Vol, veh/h	7	26	53	5	13	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	31	62	6	15	75

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	170	65	0	0	68	0
Stage 1	65	-	-	-	-	-
Stage 2	105	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	820	999	-	-	1533	-
Stage 1	958	-	-	-	-	-
Stage 2	919	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	812	999	-	-	1533	-
Mov Cap-2 Maneuver	812	-	-	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	910	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	1.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	952	1533	-
HCM Lane V/C Ratio	-	-	0.041	0.01	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	244	91	122	349	0	416	282
Future Volume (veh/h)	244	91	122	349	0	416	282
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	262	98	131	375		447	303
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	603	885	254	1946		1047	467
Arrive On Green	0.17	0.17	0.14	0.55		0.29	0.29
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	262	98	131	375		447	303
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	3.1	1.1	3.1	2.4		4.6	7.6
Cycle Q Clear(g_c), s	3.1	1.1	3.1	2.4		4.6	7.6
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	603	885	254	1946		1047	467
V/C Ratio(X)	0.43	0.11	0.52	0.19		0.43	0.65
Avail Cap(c_a), veh/h	1372	1505	393	3089		2697	1203
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	16.7	11.0	18.0	5.2		12.9	13.9
Incr Delay (d2), s/veh	0.5	0.1	1.6	0.0		0.3	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	1.2	0.5		1.4	2.2
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	17.2	11.0	19.6	5.2		13.2	15.5
LnGrp LOS	B	B	B	A		B	B
Approach Vol, veh/h	360			506		750	
Approach Delay, s/veh	15.5			9.0		14.1	
Approach LOS	B			A		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		30.9		14.4	11.5	19.5	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		4.4		5.1	5.1	9.6	
Green Ext Time (p_c), s		2.4		1.0	0.1	3.8	

Intersection Summary		
HCM 6th Ctrl Delay	12.8	
HCM 6th LOS	B	

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	188	67	48	105	6
Future Vol, veh/h	0	188	67	48	105	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	227	81	58	127	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	139	0	-	0	337	110
Stage 1	-	-	-	-	110	-
Stage 2	-	-	-	-	227	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1445	-	-	-	658	943
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	811	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1445	-	-	-	658	943
Mov Cap-2 Maneuver	-	-	-	-	658	-
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	811	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1445	-	-	-	669
HCM Lane V/C Ratio	-	-	-	-	0.2
HCM Control Delay (s)	0	-	-	-	11.7
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	16	233	86	13	18	156	340	117	13	376	6
Future Volume (veh/h)	6	16	233	86	13	18	156	340	117	13	376	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	18	259	96	14	20	173	378	130	14	418	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	372	315	329	666	564	209	699	237	21	582	10
Arrive On Green	0.03	0.20	0.20	0.18	0.36	0.36	0.12	0.27	0.27	0.01	0.16	0.16
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2604	884	1781	3577	60
Grp Volume(v), veh/h	7	18	259	96	14	20	173	256	252	14	207	218
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1711	1781	1777	1860
Q Serve(g_s), s	0.3	0.5	10.7	3.2	0.3	0.6	6.5	8.4	8.6	0.5	7.5	7.5
Cycle Q Clear(g_c), s	0.3	0.5	10.7	3.2	0.3	0.6	6.5	8.4	8.6	0.5	7.5	7.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.52	1.00		0.03
Lane Grp Cap(c), veh/h	49	372	315	329	666	564	209	477	459	21	289	303
V/C Ratio(X)	0.14	0.05	0.82	0.29	0.02	0.04	0.83	0.54	0.55	0.66	0.72	0.72
Avail Cap(c_a), veh/h	406	825	699	406	825	699	209	603	581	92	486	508
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	22.1	26.1	23.9	14.2	14.3	29.3	21.3	21.4	33.5	27.0	27.0
Incr Delay (d2), s/veh	1.3	0.1	5.4	0.5	0.0	0.0	23.0	0.9	1.0	29.4	3.3	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	4.3	1.3	0.1	0.2	3.9	3.3	3.2	0.4	3.2	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	22.1	31.5	24.4	14.2	14.3	52.3	22.2	22.4	62.9	30.3	30.2
LnGrp LOS	C	C	C	C	B	B	D	C	C	E	C	C
Approach Vol, veh/h		284			130			681			439	
Approach Delay, s/veh		30.9			21.8			29.9			31.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	24.7	16.6	20.0	14.0	17.5	5.9	30.7
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.5	10.6	5.2	12.7	8.5	9.5	2.3	2.6
Green Ext Time (p_c), s	0.0	2.3	0.1	0.9	0.0	1.5	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	29.8
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	49.6

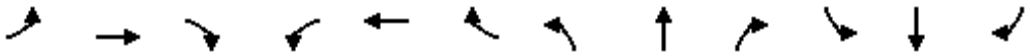
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	109	237	150	553	675	166
Future Vol, veh/h	109	237	150	553	675	166
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	124	269	170	628	767	189

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1830	862	956	0	-	0
Stage 1	862	-	-	-	-	-
Stage 2	968	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 84	355	719	-	-	-
Stage 1	414	-	-	-	-	-
Stage 2	368	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 54	355	719	-	-	-
Mov Cap-2 Maneuver	~ 54	-	-	-	-	-
Stage 1	264	-	-	-	-	-
Stage 2	368	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	265.7	2.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	719	-	54	355	-	-
HCM Lane V/C Ratio	0.237	-	2.294	0.759	-	-
HCM Control Delay (s)	11.6	0$	754.6	40.9	-	-
HCM Lane LOS	B	A	F	E	-	-
HCM 95th %tile Q(veh)	0.9	-	12.5	6	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	12	103	0	91	40	641	43	16	904	12
Future Volume (veh/h)	7	0	12	103	0	91	40	641	43	16	904	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	0	14	117	0	103	45	728	49	18	1027	14
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	25	0	43	238	0	212	111	843	714	62	1519	21
Arrive On Green	0.04	0.00	0.04	0.13	0.00	0.13	0.06	0.45	0.45	0.03	0.42	0.42
Sat Flow, veh/h	600	0	1051	1781	0	1585	1781	1870	1585	1781	3589	49
Grp Volume(v), veh/h	22	0	0	117	0	103	45	728	49	18	508	533
Grp Sat Flow(s),veh/h/ln	1651	0	0	1781	0	1585	1781	1870	1585	1781	1777	1862
Q Serve(g_s), s	0.8	0.0	0.0	3.5	0.0	3.5	1.4	20.4	1.0	0.6	13.5	13.5
Cycle Q Clear(g_c), s	0.8	0.0	0.0	3.5	0.0	3.5	1.4	20.4	1.0	0.6	13.5	13.5
Prop In Lane	0.36		0.64	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	68	0	0	238	0	212	111	843	714	62	752	788
V/C Ratio(X)	0.32	0.00	0.00	0.49	0.00	0.49	0.41	0.86	0.07	0.29	0.68	0.68
Avail Cap(c_a), veh/h	822	0	0	245	0	218	254	1121	950	254	1065	1116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	0.0	0.0	23.4	0.0	23.4	26.3	14.4	9.1	27.4	13.6	13.6
Incr Delay (d2), s/veh	2.7	0.0	0.0	1.6	0.0	1.7	2.4	5.6	0.0	2.6	1.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	1.5	0.0	1.3	0.6	7.6	0.3	0.3	4.3	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.8	0.0	0.0	25.0	0.0	25.1	28.7	20.0	9.1	30.0	14.6	14.6
LnGrp LOS	C	A	A	C	A	C	C	B	A	C	B	B
Approach Vol, veh/h		22			220			822			1059	
Approach Delay, s/veh		29.8			25.0			19.8			14.9	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	31.6		7.9	7.8	30.0		12.5				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	2.6	22.4		2.8	3.4	15.5		5.5				
Green Ext Time (p_c), s	0.0	3.9		0.1	0.0	6.1		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		18.0	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

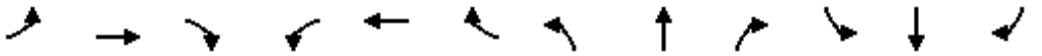
Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1052	6	37	733	6	5
Future Vol, veh/h	1052	6	37	733	6	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1119	6	39	780	6	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1125	0	1590	563
Stage 1	-	-	-	-	1122	-
Stage 2	-	-	-	-	468	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	617	-	98	470
Stage 1	-	-	-	-	273	-
Stage 2	-	-	-	-	597	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	617	-	92	470
Mov Cap-2 Maneuver	-	-	-	-	92	-
Stage 1	-	-	-	-	273	-
Stage 2	-	-	-	-	559	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	32
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	145	-	-	617	-
HCM Lane V/C Ratio	0.081	-	-	0.064	-
HCM Control Delay (s)	32	-	-	11.2	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.3	-	-	0.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	899	73	36	605	80	41	2	21	54	3	35
Future Volume (veh/h)	55	899	73	36	605	80	41	2	21	54	3	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	999	81	40	672	89	46	2	23	60	3	39
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	1200	97	89	1190	531	131	15	169	175	14	186
Arrive On Green	0.08	0.36	0.36	0.05	0.33	0.33	0.07	0.11	0.11	0.10	0.12	0.12
Sat Flow, veh/h	1781	3329	270	1781	3554	1585	1781	128	1476	1781	114	1488
Grp Volume(v), veh/h	61	533	547	40	672	89	46	0	25	60	0	42
Grp Sat Flow(s),veh/h/ln	1781	1777	1822	1781	1777	1585	1781	0	1605	1781	0	1603
Q Serve(g_s), s	1.8	15.0	15.0	1.2	8.5	2.2	1.3	0.0	0.8	1.7	0.0	1.3
Cycle Q Clear(g_c), s	1.8	15.0	15.0	1.2	8.5	2.2	1.3	0.0	0.8	1.7	0.0	1.3
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.92	1.00		0.93
Lane Grp Cap(c), veh/h	138	640	657	89	1190	531	131	0	184	175	0	200
V/C Ratio(X)	0.44	0.83	0.83	0.45	0.56	0.17	0.35	0.00	0.14	0.34	0.00	0.21
Avail Cap(c_a), veh/h	231	714	733	199	1370	611	260	0	1026	368	0	1098
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.1	16.0	16.0	25.3	14.9	12.8	24.1	0.0	21.8	23.0	0.0	21.5
Incr Delay (d2), s/veh	2.2	7.6	7.5	3.5	0.4	0.1	1.6	0.0	0.3	1.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.0	6.2	0.5	2.8	0.7	0.6	0.0	0.3	0.7	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.3	23.6	23.5	28.8	15.3	13.0	25.7	0.0	22.1	24.2	0.0	22.0
LnGrp LOS	C	C	C	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1141			801			71			102	
Approach Delay, s/veh		23.7			15.8			24.4			23.3	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	25.1	9.5	12.8	8.6	23.7	10.1	12.3
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	3.2	17.0	3.3	3.3	3.8	10.5	3.7	2.8
Green Ext Time (p_c), s	0.0	2.7	0.0	0.2	0.0	3.3	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	12	57	6	32	81
Future Vol, veh/h	4	12	57	6	32	81
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	14	67	7	38	95

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	242	71	0	0	74	0
Stage 1	71	-	-	-	-	-
Stage 2	171	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	746	991	-	-	1526	-
Stage 1	952	-	-	-	-	-
Stage 2	859	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	727	991	-	-	1526	-
Mov Cap-2 Maneuver	727	-	-	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	837	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	2.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	909	1526	-
HCM Lane V/C Ratio	-	-	0.021	0.025	-
HCM Control Delay (s)	-	-	9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	356	350	162	391	0	746	213
Future Volume (veh/h)	356	350	162	391	0	746	213
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	383	376	174	420		802	229
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	640	906	248	2050		1220	544
Arrive On Green	0.19	0.19	0.14	0.58		0.34	0.34
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	383	376	174	420		802	229
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	5.4	5.6	4.9	3.0		10.1	5.9
Cycle Q Clear(g_c), s	5.4	5.6	4.9	3.0		10.1	5.9
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	640	906	248	2050		1220	544
V/C Ratio(X)	0.60	0.42	0.70	0.20		0.66	0.42
Avail Cap(c_a), veh/h	1174	1336	336	2642		2307	1029
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	19.8	14.0	21.8	5.4		14.8	13.4
Incr Delay (d2), s/veh	0.9	0.3	4.0	0.0		0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	4.7	2.1	0.7		3.3	1.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	20.7	14.3	25.8	5.4		15.4	13.9
LnGrp LOS	C	B	C	A		B	B
Approach Vol, veh/h	759			594		1031	
Approach Delay, s/veh	17.5			11.4		15.0	
Approach LOS	B			B		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		36.7		16.3	12.4	24.3	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		5.0		7.6	6.9	12.1	
Green Ext Time (p_c), s		2.8		2.2	0.1	6.0	

Intersection Summary	
HCM 6th Ctrl Delay	14.9
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

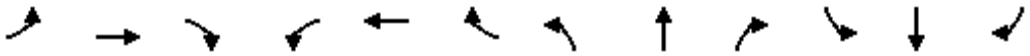
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	101	155	81	34	4
Future Vol, veh/h	0	101	155	81	34	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	122	187	98	41	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	285	0	-	0	358	236
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	122	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1277	-	-	-	640	803
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	903	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1277	-	-	-	640	803
Mov Cap-2 Maneuver	-	-	-	-	640	-
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	903	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1277	-	-	-	654
HCM Lane V/C Ratio	-	-	-	-	0.07
HCM Control Delay (s)	0	-	-	-	10.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	23	110	85	34	22	197	649	102	14	359	22
Future Volume (veh/h)	7	23	110	85	34	22	197	649	102	14	359	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	26	122	94	38	24	219	721	113	16	399	24
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	210	178	351	520	441	235	920	144	24	614	37
Arrive On Green	0.03	0.11	0.11	0.20	0.28	0.28	0.13	0.30	0.30	0.01	0.18	0.18
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3078	482	1781	3406	204
Grp Volume(v), veh/h	8	26	122	94	38	24	219	416	418	16	208	215
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1784	1781	1777	1834
Q Serve(g_s), s	0.3	0.8	4.5	2.7	0.9	0.7	7.4	13.0	13.0	0.5	6.6	6.6
Cycle Q Clear(g_c), s	0.3	0.8	4.5	2.7	0.9	0.7	7.4	13.0	13.0	0.5	6.6	6.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.27	1.00		0.11
Lane Grp Cap(c), veh/h	56	210	178	351	520	441	235	531	533	24	320	330
V/C Ratio(X)	0.14	0.12	0.69	0.27	0.07	0.05	0.93	0.78	0.78	0.66	0.65	0.65
Avail Cap(c_a), veh/h	456	927	786	456	927	786	235	678	681	103	546	564
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	24.2	25.8	20.6	16.1	16.0	26.0	19.4	19.4	29.7	23.0	23.0
Incr Delay (d2), s/veh	1.2	0.3	4.6	0.4	0.1	0.1	39.9	4.6	4.6	26.4	2.2	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	1.8	1.1	0.4	0.2	5.4	5.3	5.3	0.4	2.6	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.7	24.4	30.4	21.0	16.2	16.1	65.9	24.0	24.1	56.1	25.2	25.2
LnGrp LOS	C	C	C	C	B	B	E	C	C	E	C	C
Approach Vol, veh/h		156			156			1053			439	
Approach Delay, s/veh		29.4			19.1			32.7			26.3	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	24.5	15.9	13.3	14.0	17.3	5.9	23.3
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.5	15.0	4.7	6.5	9.4	8.6	2.3	2.9
Green Ext Time (p_c), s	0.0	3.1	0.1	0.5	0.0	1.6	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	29.7
HCM 6th LOS	C

APPENDIX G

ANALYSIS WORKSHEETS – NEAR-TERM + PROJECT

Intersection	
Int Delay, s/veh	26.8

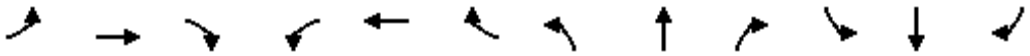
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	96	155	254	302	421	228
Future Vol, veh/h	96	155	254	302	421	228
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	109	176	289	343	478	259

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1529	608	737	0	-	0
Stage 1	608	-	-	-	-	-
Stage 2	921	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	129	496	869	-	-	-
Stage 1	543	-	-	-	-	-
Stage 2	388	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 76	496	869	-	-	-
Mov Cap-2 Maneuver	~ 76	-	-	-	-	-
Stage 1	320	-	-	-	-	-
Stage 2	388	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	144.2	5.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	869	-	76	496	-	-
HCM Lane V/C Ratio	0.332	-	1.435	0.355	-	-
HCM Control Delay (s)	11.2	0	$ 350.8	16.2	-	-
HCM Lane LOS	B	A	F	C	-	-
HCM 95th %tile Q(veh)	1.5	-	8.8	1.6	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	23	77	0	39	22	514	96	87	481	6
Future Volume (veh/h)	10	0	23	77	0	39	22	514	96	87	481	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	26	88	0	44	25	584	109	99	547	7
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	30	0	71	213	0	190	71	703	596	193	1597	20
Arrive On Green	0.06	0.00	0.06	0.12	0.00	0.12	0.04	0.38	0.38	0.11	0.44	0.44
Sat Flow, veh/h	487	0	1152	1781	0	1585	1781	1870	1585	1781	3593	46
Grp Volume(v), veh/h	37	0	0	88	0	44	25	584	109	99	270	284
Grp Sat Flow(s),veh/h/ln	1639	0	0	1781	0	1585	1781	1870	1585	1781	1777	1862
Q Serve(g_s), s	1.3	0.0	0.0	2.7	0.0	1.5	0.8	16.8	2.7	3.1	5.9	5.9
Cycle Q Clear(g_c), s	1.3	0.0	0.0	2.7	0.0	1.5	0.8	16.8	2.7	3.1	5.9	5.9
Prop In Lane	0.30		0.70	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	101	0	0	213	0	190	71	703	596	193	790	828
V/C Ratio(X)	0.37	0.00	0.00	0.41	0.00	0.23	0.35	0.83	0.18	0.51	0.34	0.34
Avail Cap(c_a), veh/h	803	0	0	241	0	214	250	1102	934	250	1047	1097
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.7	0.0	0.0	24.1	0.0	23.6	27.7	16.8	12.4	24.9	10.8	10.8
Incr Delay (d2), s/veh	2.2	0.0	0.0	1.3	0.0	0.6	2.9	3.2	0.1	2.1	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	1.1	0.0	0.6	0.4	6.3	0.8	1.3	1.8	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.9	0.0	0.0	25.4	0.0	24.2	30.6	20.0	12.5	27.0	11.0	11.0
LnGrp LOS	C	A	A	C	A	C	C	B	B	C	B	B
Approach Vol, veh/h		37			132			718			653	
Approach Delay, s/veh		28.9			25.0			19.2			13.4	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.6	27.7		9.1	6.6	31.7		11.8				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	5.1	18.8		3.3	2.8	7.9		4.7				
Green Ext Time (p_c), s	0.1	3.5		0.1	0.0	3.1		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		17.5
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

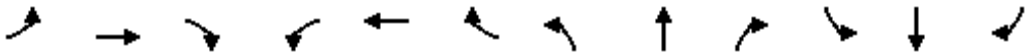
Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	675	6	23	618	9	7
Future Vol, veh/h	675	6	23	618	9	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	718	6	24	657	10	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	724	0	1098	362
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	377	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	874	-	207	635
Stage 1	-	-	-	-	443	-
Stage 2	-	-	-	-	663	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	874	-	201	635
Mov Cap-2 Maneuver	-	-	-	-	201	-
Stage 1	-	-	-	-	443	-
Stage 2	-	-	-	-	645	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	18.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	287	-	-	874	-
HCM Lane V/C Ratio	0.059	-	-	0.028	-
HCM Control Delay (s)	18.3	-	-	9.2	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	533	30	46	508	35	43	3	30	129	12	39
Future Volume (veh/h)	37	533	30	46	508	35	43	3	30	129	12	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	592	33	51	564	39	48	3	33	143	13	43
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	860	48	109	901	402	139	16	177	277	69	229
Arrive On Green	0.06	0.25	0.25	0.06	0.25	0.25	0.08	0.12	0.12	0.16	0.18	0.18
Sat Flow, veh/h	1781	3422	191	1781	3554	1585	1781	134	1472	1781	381	1262
Grp Volume(v), veh/h	41	307	318	51	564	39	48	0	36	143	0	56
Grp Sat Flow(s),veh/h/ln	1781	1777	1836	1781	1777	1585	1781	0	1605	1781	0	1643
Q Serve(g_s), s	1.1	7.8	7.8	1.4	7.0	0.9	1.3	0.0	1.0	3.7	0.0	1.4
Cycle Q Clear(g_c), s	1.1	7.8	7.8	1.4	7.0	0.9	1.3	0.0	1.0	3.7	0.0	1.4
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.92	1.00		0.77
Lane Grp Cap(c), veh/h	108	446	461	109	901	402	139	0	193	277	0	298
V/C Ratio(X)	0.38	0.69	0.69	0.47	0.63	0.10	0.35	0.00	0.19	0.52	0.00	0.19
Avail Cap(c_a), veh/h	253	783	809	218	1501	669	285	0	1125	403	0	1234
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.6	16.9	16.9	22.7	16.5	14.3	21.8	0.0	19.8	19.4	0.0	17.3
Incr Delay (d2), s/veh	2.2	1.9	1.8	3.1	0.7	0.1	1.5	0.0	0.5	1.5	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.8	2.9	0.6	2.4	0.3	0.6	0.0	0.4	1.5	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.7	18.8	18.8	25.8	17.3	14.4	23.3	0.0	20.2	20.9	0.0	17.6
LnGrp LOS	C	B	B	C	B	B	C	A	C	C	A	B
Approach Vol, veh/h		666			654			84			199	
Approach Delay, s/veh		19.2			17.8			22.0			20.0	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	18.0	9.4	15.1	7.4	18.1	12.5	12.0
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	3.4	9.8	3.3	3.4	3.1	9.0	5.7	3.0
Green Ext Time (p_c), s	0.0	2.7	0.0	0.3	0.0	2.8	0.2	0.2

Intersection Summary	
HCM 6th Ctrl Delay	18.8
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	27	54	5	14	66
Future Vol, veh/h	7	27	54	5	14	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	32	64	6	16	78

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	177	67	0	0	70	0
Stage 1	67	-	-	-	-	-
Stage 2	110	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	813	997	-	-	1531	-
Stage 1	956	-	-	-	-	-
Stage 2	915	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	804	997	-	-	1531	-
Mov Cap-2 Maneuver	804	-	-	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	905	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	1.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	950	1531	-
HCM Lane V/C Ratio	-	-	0.042	0.011	-
HCM Control Delay (s)	-	-	9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	246	91	122	349	0	420	288
Future Volume (veh/h)	246	91	122	349	0	420	288
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	265	98	131	375		452	310
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	600	880	253	1956		1062	474
Arrive On Green	0.17	0.17	0.14	0.55		0.30	0.30
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	265	98	131	375		452	310
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	3.1	1.1	3.1	2.4		4.7	7.8
Cycle Q Clear(g_c), s	3.1	1.1	3.1	2.4		4.7	7.8
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	600	880	253	1956		1062	474
V/C Ratio(X)	0.44	0.11	0.52	0.19		0.43	0.65
Avail Cap(c_a), veh/h	1363	1496	390	3068		2679	1195
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	16.9	11.1	18.1	5.2		12.9	13.9
Incr Delay (d2), s/veh	0.5	0.1	1.6	0.0		0.3	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	1.2	0.5		1.4	2.2
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	17.4	11.1	19.8	5.2		13.1	15.5
LnGrp LOS	B	B	B	A		B	B
Approach Vol, veh/h	363			506		762	
Approach Delay, s/veh	15.7			9.0		14.1	
Approach LOS	B			A		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		31.2		14.4	11.5	19.7	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		4.4		5.1	5.1	9.8	
Green Ext Time (p_c), s		2.4		1.0	0.1	3.9	

Intersection Summary		
HCM 6th Ctrl Delay		12.9
HCM 6th LOS		B

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

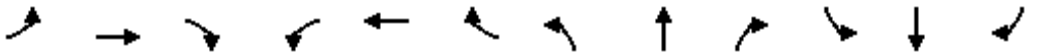
Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	190	68	49	106	6
Future Vol, veh/h	0	190	68	49	106	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	229	82	59	128	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	141	0	-	0	341	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	229	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1442	-	-	-	655	941
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	809	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1442	-	-	-	655	941
Mov Cap-2 Maneuver	-	-	-	-	655	-
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	809	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1442	-	-	-	666
HCM Lane V/C Ratio	-	-	-	-	0.203
HCM Control Delay (s)	0	-	-	-	11.8
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	16	236	86	13	18	157	342	117	13	382	6
Future Volume (veh/h)	6	16	236	86	13	18	157	342	117	13	382	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	18	262	96	14	20	174	380	130	14	424	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	375	318	328	668	566	208	702	237	21	587	10
Arrive On Green	0.03	0.20	0.20	0.18	0.36	0.36	0.12	0.27	0.27	0.01	0.16	0.16
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2608	881	1781	3578	59
Grp Volume(v), veh/h	7	18	262	96	14	20	174	257	253	14	210	221
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1712	1781	1777	1860
Q Serve(g_s), s	0.3	0.5	10.8	3.2	0.3	0.6	6.5	8.5	8.7	0.5	7.7	7.7
Cycle Q Clear(g_c), s	0.3	0.5	10.8	3.2	0.3	0.6	6.5	8.5	8.7	0.5	7.7	7.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.51	1.00		0.03
Lane Grp Cap(c), veh/h	49	375	318	328	668	566	208	478	461	21	292	305
V/C Ratio(X)	0.14	0.05	0.82	0.29	0.02	0.04	0.84	0.54	0.55	0.66	0.72	0.72
Avail Cap(c_a), veh/h	404	820	695	404	820	695	208	600	578	91	483	506
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	22.1	26.2	24.1	14.3	14.3	29.6	21.4	21.4	33.7	27.1	27.1
Incr Delay (d2), s/veh	1.3	0.1	5.4	0.5	0.0	0.0	24.5	0.9	1.0	29.5	3.4	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	4.4	1.3	0.1	0.2	4.0	3.3	3.3	0.4	3.3	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.8	22.1	31.6	24.6	14.3	14.4	54.0	22.3	22.5	63.1	30.5	30.4
LnGrp LOS	C	C	C	C	B	B	D	C	C	E	C	C
Approach Vol, veh/h		287			130			684			445	
Approach Delay, s/veh		31.1			21.9			30.4			31.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	24.8	16.6	20.2	14.0	17.6	5.9	30.9
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.5	10.7	5.2	12.8	8.5	9.7	2.3	2.6
Green Ext Time (p_c), s	0.0	2.3	0.1	0.9	0.0	1.5	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	30.1
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	52.1

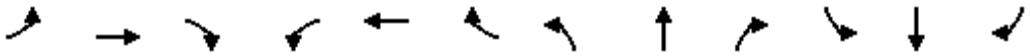
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	109	239	151	554	679	166
Future Vol, veh/h	109	239	151	554	679	166
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	124	272	172	630	772	189

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1841	867	961	0	-	0
Stage 1	867	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 83	352	716	-	-	-
Stage 1	411	-	-	-	-	-
Stage 2	366	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 52	352	716	-	-	-
Mov Cap-2 Maneuver	~ 52	-	-	-	-	-
Stage 1	259	-	-	-	-	-
Stage 2	366	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	279.3	2.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	716	-	52	352	-	-
HCM Lane V/C Ratio	0.24	-	2.382	0.772	-	-
HCM Control Delay (s)	11.6	0$	798.6	42.5	-	-
HCM Lane LOS	B	A	F	E	-	-
HCM 95th %tile Q(veh)	0.9	-	12.7	6.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	12	103	0	91	40	643	43	16	910	12
Future Volume (veh/h)	7	0	12	103	0	91	40	643	43	16	910	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	0	14	117	0	103	45	731	49	18	1034	14
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	25	0	43	237	0	211	111	845	716	62	1524	21
Arrive On Green	0.04	0.00	0.04	0.13	0.00	0.13	0.06	0.45	0.45	0.03	0.42	0.42
Sat Flow, veh/h	600	0	1051	1781	0	1585	1781	1870	1585	1781	3590	49
Grp Volume(v), veh/h	22	0	0	117	0	103	45	731	49	18	512	536
Grp Sat Flow(s),veh/h/ln	1651	0	0	1781	0	1585	1781	1870	1585	1781	1777	1862
Q Serve(g_s), s	0.8	0.0	0.0	3.6	0.0	3.5	1.4	20.5	1.0	0.6	13.6	13.6
Cycle Q Clear(g_c), s	0.8	0.0	0.0	3.6	0.0	3.5	1.4	20.5	1.0	0.6	13.6	13.6
Prop In Lane	0.36		0.64	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	68	0	0	237	0	211	111	845	716	62	754	790
V/C Ratio(X)	0.32	0.00	0.00	0.49	0.00	0.49	0.41	0.86	0.07	0.29	0.68	0.68
Avail Cap(c_a), veh/h	820	0	0	244	0	217	253	1118	948	253	1062	1113
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.2	0.0	0.0	23.5	0.0	23.5	26.3	14.4	9.0	27.5	13.6	13.6
Incr Delay (d2), s/veh	2.7	0.0	0.0	1.6	0.0	1.7	2.4	5.7	0.0	2.6	1.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	1.5	0.0	1.3	0.6	7.7	0.3	0.3	4.4	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.9	0.0	0.0	25.1	0.0	25.2	28.7	20.1	9.1	30.0	14.7	14.6
LnGrp LOS	C	A	A	C	A	C	C	C	A	C	B	B
Approach Vol, veh/h		22			220			825			1066	
Approach Delay, s/veh		29.9			25.1			19.9			14.9	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	31.8		7.9	7.8	30.2		12.5				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	2.6	22.5		2.8	3.4	15.6		5.6				
Green Ext Time (p_c), s	0.0	3.8		0.1	0.0	6.1		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		18.0	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

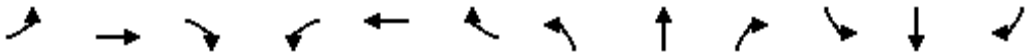
Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1058	6	43	735	6	5
Future Vol, veh/h	1058	6	43	735	6	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1126	6	46	782	6	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1132	0	1612	566
Stage 1	-	-	-	-	1129	-
Stage 2	-	-	-	-	483	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	613	-	95	467
Stage 1	-	-	-	-	271	-
Stage 2	-	-	-	-	586	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	613	-	88	467
Mov Cap-2 Maneuver	-	-	-	-	88	-
Stage 1	-	-	-	-	271	-
Stage 2	-	-	-	-	542	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	33.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	139	-	-	613	-
HCM Lane V/C Ratio	0.084	-	-	0.075	-
HCM Control Delay (s)	33.3	-	-	11.3	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.3	-	-	0.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	903	75	36	615	80	45	2	21	54	3	35
Future Volume (veh/h)	61	903	75	36	615	80	45	2	21	54	3	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	68	1003	83	40	683	89	50	2	23	60	3	39
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	1197	99	89	1172	523	138	15	175	175	14	185
Arrive On Green	0.08	0.36	0.36	0.05	0.33	0.33	0.08	0.12	0.12	0.10	0.12	0.12
Sat Flow, veh/h	1781	3323	275	1781	3554	1585	1781	128	1476	1781	114	1488
Grp Volume(v), veh/h	68	536	550	40	683	89	50	0	25	60	0	42
Grp Sat Flow(s),veh/h/ln	1781	1777	1821	1781	1777	1585	1781	0	1605	1781	0	1603
Q Serve(g_s), s	2.0	15.3	15.3	1.2	8.8	2.2	1.5	0.0	0.8	1.7	0.0	1.3
Cycle Q Clear(g_c), s	2.0	15.3	15.3	1.2	8.8	2.2	1.5	0.0	0.8	1.7	0.0	1.3
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.92	1.00		0.93
Lane Grp Cap(c), veh/h	146	640	656	89	1172	523	138	0	190	175	0	199
V/C Ratio(X)	0.46	0.84	0.84	0.45	0.58	0.17	0.36	0.00	0.13	0.34	0.00	0.21
Avail Cap(c_a), veh/h	229	709	726	197	1359	606	258	0	1018	365	0	1089
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.2	16.2	16.2	25.5	15.3	13.1	24.1	0.0	21.8	23.2	0.0	21.7
Incr Delay (d2), s/veh	2.3	8.1	7.9	3.5	0.5	0.2	1.6	0.0	0.3	1.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	6.2	6.3	0.5	2.9	0.7	0.6	0.0	0.3	0.7	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.4	24.3	24.1	29.0	15.8	13.3	25.7	0.0	22.1	24.4	0.0	22.2
LnGrp LOS	C	C	C	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1154			812			75			102	
Approach Delay, s/veh		24.3			16.2			24.5			23.5	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	25.3	9.8	12.9	8.9	23.6	10.1	12.5
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	3.2	17.3	3.5	3.3	4.0	10.8	3.7	2.8
Green Ext Time (p_c), s	0.0	2.6	0.0	0.2	0.0	3.3	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	21.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	14	59	6	33	82
Future Vol, veh/h	4	14	59	6	33	82
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	16	69	7	39	96

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	247	73	0	0	76	0
Stage 1	73	-	-	-	-	-
Stage 2	174	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	741	989	-	-	1523	-
Stage 1	950	-	-	-	-	-
Stage 2	856	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	721	989	-	-	1523	-
Mov Cap-2 Maneuver	721	-	-	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	833	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	2.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	914	1523	-
HCM Lane V/C Ratio	-	-	0.023	0.025	-
HCM Control Delay (s)	-	-	9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	361	350	162	395	0	748	215
Future Volume (veh/h)	361	350	162	395	0	748	215
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	388	376	174	425		804	231
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	641	906	248	2051		1222	545
Arrive On Green	0.19	0.19	0.14	0.58		0.34	0.34
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	388	376	174	425		804	231
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	5.5	5.6	4.9	3.0		10.2	5.9
Cycle Q Clear(g_c), s	5.5	5.6	4.9	3.0		10.2	5.9
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	641	906	248	2051		1222	545
V/C Ratio(X)	0.61	0.42	0.70	0.21		0.66	0.42
Avail Cap(c_a), veh/h	1172	1334	336	2638		2303	1027
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	19.8	14.0	21.8	5.4		14.8	13.4
Incr Delay (d2), s/veh	0.9	0.3	4.1	0.0		0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	4.7	2.1	0.7		3.3	1.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	20.8	14.3	25.9	5.4		15.4	13.9
LnGrp LOS	C	B	C	A		B	B
Approach Vol, veh/h	764			599		1035	
Approach Delay, s/veh	17.6			11.4		15.0	
Approach LOS	B			B		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		36.7		16.3	12.4	24.4	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		5.0		7.6	6.9	12.2	
Green Ext Time (p_c), s		2.8		2.3	0.1	6.1	

Intersection Summary	
HCM 6th Ctrl Delay	14.9
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

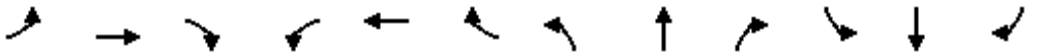
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	102	157	83	35	4
Future Vol, veh/h	0	102	157	83	35	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	123	189	100	42	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	289	0	-	0	362	239
Stage 1	-	-	-	-	239	-
Stage 2	-	-	-	-	123	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1273	-	-	-	637	800
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	902	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1273	-	-	-	637	800
Mov Cap-2 Maneuver	-	-	-	-	637	-
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	902	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1273	-	-	-	651
HCM Lane V/C Ratio	-	-	-	-	0.072
HCM Control Delay (s)	0	-	-	-	11
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	23	112	85	34	22	201	654	102	14	361	22
Future Volume (veh/h)	7	23	112	85	34	22	201	654	102	14	361	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	26	124	94	38	24	223	727	113	16	401	24
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	212	180	350	521	442	234	924	144	24	619	37
Arrive On Green	0.03	0.11	0.11	0.20	0.28	0.28	0.13	0.30	0.30	0.01	0.18	0.18
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3082	479	1781	3407	203
Grp Volume(v), veh/h	8	26	124	94	38	24	223	419	421	16	208	217
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1784	1781	1777	1834
Q Serve(g_s), s	0.3	0.8	4.6	2.7	0.9	0.7	7.6	13.1	13.1	0.5	6.6	6.7
Cycle Q Clear(g_c), s	0.3	0.8	4.6	2.7	0.9	0.7	7.6	13.1	13.1	0.5	6.6	6.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.27	1.00		0.11
Lane Grp Cap(c), veh/h	56	212	180	350	521	442	234	533	535	24	323	333
V/C Ratio(X)	0.14	0.12	0.69	0.27	0.07	0.05	0.95	0.79	0.79	0.66	0.65	0.65
Avail Cap(c_a), veh/h	454	923	782	454	923	782	234	675	678	103	544	561
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	24.2	25.9	20.7	16.1	16.1	26.2	19.5	19.5	29.8	23.1	23.1
Incr Delay (d2), s/veh	1.2	0.3	4.6	0.4	0.1	0.1	45.2	4.8	4.8	26.4	2.2	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	1.9	1.1	0.4	0.2	5.8	5.4	5.4	0.4	2.7	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.8	24.5	30.5	21.1	16.2	16.1	71.4	24.3	24.3	56.2	25.2	25.2
LnGrp LOS	C	C	C	C	B	B	E	C	C	E	C	C
Approach Vol, veh/h		158			156			1063			441	
Approach Delay, s/veh		29.5			19.2			34.2			26.3	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	24.6	15.9	13.4	14.0	17.5	5.9	23.4
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.5	15.1	4.7	6.6	9.6	8.7	2.3	2.9
Green Ext Time (p_c), s	0.0	3.1	0.1	0.5	0.0	1.6	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	30.6
HCM 6th LOS	C

APPENDIX H

ANALYSIS WORKSHEETS – LONG-TERM

Intersection	
Int Delay, s/veh	640.3

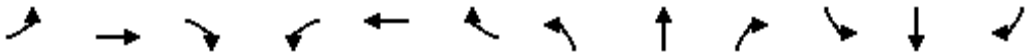
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	140	220	360	420	600	340
Future Vol, veh/h	140	220	360	420	600	340
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	159	250	409	477	682	386

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2170	875	1068	0	-	0
Stage 1	875	-	-	-	-	-
Stage 2	1295	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 51	349	653	-	-	-
Stage 1	408	-	-	-	-	-
Stage 2	257	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 8	349	653	-	-	-
Mov Cap-2 Maneuver	~ 8	-	-	-	-	-
Stage 1	~ 60	-	-	-	-	-
Stage 2	257	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 3680	8.9	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	653	-	8	349	-	-
HCM Lane V/C Ratio	0.626	-	19.886	0.716	-	-
HCM Control Delay (s)	19.3	$	9403.9	37.5	-	-
HCM Lane LOS	C	A	F	E	-	-
HCM 95th %tile Q(veh)	4.4	-	21.6	5.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	30	140	0	70	30	630	180	160	600	10
Future Volume (veh/h)	10	0	30	140	0	70	30	630	180	160	600	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	34	159	0	80	34	716	205	182	682	11
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	26	0	81	200	0	178	86	799	677	208	1773	29
Arrive On Green	0.07	0.00	0.07	0.11	0.00	0.11	0.05	0.43	0.43	0.12	0.50	0.50
Sat Flow, veh/h	398	0	1231	1781	0	1585	1781	1870	1585	1781	3579	58
Grp Volume(v), veh/h	45	0	0	159	0	80	34	716	205	182	339	354
Grp Sat Flow(s),veh/h/ln	1629	0	0	1781	0	1585	1781	1870	1585	1781	1777	1860
Q Serve(g_s), s	1.9	0.0	0.0	6.2	0.0	3.4	1.3	25.3	6.1	7.2	8.5	8.5
Cycle Q Clear(g_c), s	1.9	0.0	0.0	6.2	0.0	3.4	1.3	25.3	6.1	7.2	8.5	8.5
Prop In Lane	0.24		0.76	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	108	0	0	200	0	178	86	799	677	208	880	922
V/C Ratio(X)	0.42	0.00	0.00	0.79	0.00	0.45	0.40	0.90	0.30	0.88	0.38	0.38
Avail Cap(c_a), veh/h	663	0	0	200	0	178	208	916	776	208	880	922
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	0.0	0.0	30.8	0.0	29.6	32.9	18.9	13.4	31.0	11.2	11.2
Incr Delay (d2), s/veh	2.6	0.0	0.0	19.5	0.0	1.8	3.0	10.5	0.2	31.7	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	3.6	0.0	1.3	0.6	11.4	1.9	4.7	2.7	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.5	0.0	0.0	50.4	0.0	31.3	35.9	29.4	13.7	62.7	11.5	11.5
LnGrp LOS	C	A	A	D	A	C	D	C	B	E	B	B
Approach Vol, veh/h		45			239			955			875	
Approach Delay, s/veh		34.5			44.0			26.3			22.1	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.5	35.8		10.2	7.6	40.7		12.7				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	9.2	27.3		3.9	3.3	10.5		8.2				
Green Ext Time (p_c), s	0.0	3.1		0.2	0.0	3.9		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		26.7
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

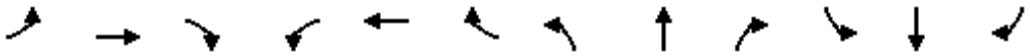
Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	770	10	10	700	10	10
Future Vol, veh/h	770	10	10	700	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	819	11	11	745	11	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	830	0	1220	415
Stage 1	-	-	-	-	825	-
Stage 2	-	-	-	-	395	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	798	-	172	586
Stage 1	-	-	-	-	391	-
Stage 2	-	-	-	-	650	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	798	-	170	586
Mov Cap-2 Maneuver	-	-	-	-	170	-
Stage 1	-	-	-	-	391	-
Stage 2	-	-	-	-	641	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	19.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	264	-	-	798	-
HCM Lane V/C Ratio	0.081	-	-	0.013	-
HCM Control Delay (s)	19.8	-	-	9.6	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	620	30	60	600	40	50	10	40	150	20	50
Future Volume (veh/h)	40	620	30	60	600	40	50	10	40	150	20	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	689	33	67	667	44	56	11	44	167	22	56
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	112	941	45	126	1003	447	150	40	160	273	82	209
Arrive On Green	0.06	0.27	0.27	0.07	0.28	0.28	0.08	0.12	0.12	0.15	0.18	0.18
Sat Flow, veh/h	1781	3452	165	1781	3554	1585	1781	327	1308	1781	467	1189
Grp Volume(v), veh/h	44	354	368	67	667	44	56	0	55	167	0	78
Grp Sat Flow(s),veh/h/ln	1781	1777	1841	1781	1777	1585	1781	0	1635	1781	0	1656
Q Serve(g_s), s	1.3	9.8	9.8	2.0	8.9	1.1	1.6	0.0	1.6	4.7	0.0	2.2
Cycle Q Clear(g_c), s	1.3	9.8	9.8	2.0	8.9	1.1	1.6	0.0	1.6	4.7	0.0	2.2
Prop In Lane	1.00		0.09	1.00		1.00	1.00		0.80	1.00		0.72
Lane Grp Cap(c), veh/h	112	484	502	126	1003	447	150	0	200	273	0	292
V/C Ratio(X)	0.39	0.73	0.73	0.53	0.66	0.10	0.37	0.00	0.28	0.61	0.00	0.27
Avail Cap(c_a), veh/h	234	724	750	201	1389	620	264	0	1060	373	0	1151
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.3	17.8	17.8	24.2	17.1	14.3	23.4	0.0	21.5	21.4	0.0	19.2
Incr Delay (d2), s/veh	2.3	2.2	2.1	3.5	0.8	0.1	1.5	0.0	0.7	2.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.5	3.7	0.8	3.1	0.4	0.7	0.0	0.6	2.0	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.6	20.0	19.9	27.7	17.9	14.4	24.9	0.0	22.3	23.6	0.0	19.7
LnGrp LOS	C	B	B	C	B	B	C	A	C	C	A	B
Approach Vol, veh/h		766			778			111			245	
Approach Delay, s/veh		20.3			18.5			23.6			22.3	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	20.1	10.0	15.5	7.8	20.6	13.0	12.6
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	4.0	11.8	3.6	4.2	3.3	10.9	6.7	3.6
Green Ext Time (p_c), s	0.0	2.9	0.0	0.5	0.0	3.1	0.2	0.3

Intersection Summary	
HCM 6th Ctrl Delay	20.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	30	70	10	20	90
Future Vol, veh/h	10	30	70	10	20	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	35	82	12	24	106

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	242	88	0	0	94	0
Stage 1	88	-	-	-	-	-
Stage 2	154	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	746	970	-	-	1500	-
Stage 1	935	-	-	-	-	-
Stage 2	874	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	733	970	-	-	1500	-
Mov Cap-2 Maneuver	733	-	-	-	-	-
Stage 1	935	-	-	-	-	-
Stage 2	859	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	1.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	897	1500	-
HCM Lane V/C Ratio	-	-	0.052	0.016	-
HCM Control Delay (s)	-	-	9.2	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	310	130	170	460	0	550	360
Future Volume (veh/h)	310	130	170	460	0	550	360
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	333	140	183	495		591	387
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	544	846	260	2111		1242	554
Arrive On Green	0.16	0.16	0.15	0.59		0.35	0.35
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	333	140	183	495		591	387
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	4.6	1.9	5.0	3.3		6.6	10.7
Cycle Q Clear(g_c), s	4.6	1.9	5.0	3.3		6.6	10.7
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	544	846	260	2111		1242	554
V/C Ratio(X)	0.61	0.17	0.70	0.23		0.48	0.70
Avail Cap(c_a), veh/h	1227	1397	351	2761		2411	1075
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	19.9	13.0	20.6	4.9		12.9	14.2
Incr Delay (d2), s/veh	1.1	0.1	4.0	0.1		0.3	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	2.1	0.7		2.0	3.1
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	21.0	13.0	24.6	4.9		13.1	15.8
LnGrp LOS	C	B	C	A		B	B
Approach Vol, veh/h	473			678		978	
Approach Delay, s/veh	18.7			10.2		14.2	
Approach LOS	B			B		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		36.2		14.5	12.4	23.8	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		5.3		6.6	7.0	12.7	
Green Ext Time (p_c), s		3.3		1.3	0.1	5.1	

Intersection Summary	
HCM 6th Ctrl Delay	13.9
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

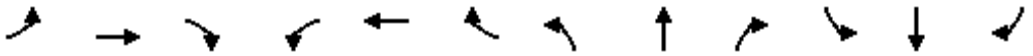
Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	200	70	50	110	10
Future Vol, veh/h	0	200	70	50	110	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	241	84	60	133	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	144	0	-	0	355	114
Stage 1	-	-	-	-	114	-
Stage 2	-	-	-	-	241	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1438	-	-	-	643	939
Stage 1	-	-	-	-	911	-
Stage 2	-	-	-	-	799	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1438	-	-	-	643	939
Mov Cap-2 Maneuver	-	-	-	-	643	-
Stage 1	-	-	-	-	911	-
Stage 2	-	-	-	-	799	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1438	-	-	-	660
HCM Lane V/C Ratio	-	-	-	-	0.219
HCM Control Delay (s)	0	-	-	-	12
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	20	250	90	20	30	170	450	130	20	500	10
Future Volume (veh/h)	10	20	250	90	20	30	170	450	130	20	500	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	22	278	100	22	33	189	500	144	22	556	11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	390	330	315	644	546	193	784	225	31	701	14
Arrive On Green	0.04	0.21	0.21	0.18	0.34	0.34	0.11	0.29	0.29	0.02	0.20	0.20
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2726	781	1781	3564	70
Grp Volume(v), veh/h	11	22	278	100	22	33	189	325	319	22	277	290
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1730	1781	1777	1858
Q Serve(g_s), s	0.4	0.7	12.4	3.6	0.6	1.0	7.8	11.8	11.9	0.9	11.0	11.0
Cycle Q Clear(g_c), s	0.4	0.7	12.4	3.6	0.6	1.0	7.8	11.8	11.9	0.9	11.0	11.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		0.04
Lane Grp Cap(c), veh/h	73	390	330	315	644	546	193	511	498	31	349	365
V/C Ratio(X)	0.15	0.06	0.84	0.32	0.03	0.06	0.98	0.64	0.64	0.72	0.79	0.79
Avail Cap(c_a), veh/h	374	759	644	374	759	644	193	555	541	84	447	468
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	23.4	28.1	26.5	16.1	16.2	32.9	22.9	23.0	36.1	28.3	28.3
Incr Delay (d2), s/veh	0.9	0.1	5.8	0.6	0.0	0.0	58.8	2.1	2.3	26.6	7.4	7.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	5.1	1.6	0.2	0.4	6.3	4.8	4.7	0.6	5.0	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.1	23.5	33.9	27.1	16.1	16.3	91.7	25.1	25.3	62.8	35.6	35.4
LnGrp LOS	D	C	C	C	B	B	F	C	C	E	D	D
Approach Vol, veh/h		311			155			833			589	
Approach Delay, s/veh		33.2			23.2			40.3			36.5	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	27.7	17.1	21.9	14.0	20.9	7.0	31.9
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.9	13.9	5.6	14.4	9.8	13.0	2.4	3.0
Green Ext Time (p_c), s	0.0	2.5	0.1	1.0	0.0	1.5	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	36.5
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	5274.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	160	340	210	790	960	250
Future Vol, veh/h	160	340	210	790	960	250
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	182	386	239	898	1091	284

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2609	1233	1375	0	-	0
Stage 1	1233	-	-	-	-	-
Stage 2	1376	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 27	~ 216	499	-	-	-
Stage 1	275	-	-	-	-	-
Stage 2	234	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 1	~ 216	499	-	-	-
Mov Cap-2 Maneuver	~ 1	-	-	-	-	-
Stage 1	~ 12	-	-	-	-	-
Stage 2	234	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 28581.9	3.9	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	499	-	1	216	-	-
HCM Lane V/C Ratio	0.478	-	181.818	1.789	-	-
HCM Control Delay (s)	18.6	0	$ 88445	$ 411	-	-
HCM Lane LOS	C	A	F	F	-	-
HCM 95th %tile Q(veh)	2.5	-	25.3	26.7	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	20	190	0	170	50	800	80	30	1130	20
Future Volume (veh/h)	10	0	20	190	0	170	50	800	80	30	1130	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	23	216	0	193	57	909	91	34	1284	23
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	0	61	202	0	180	119	926	785	98	1727	31
Arrive On Green	0.06	0.00	0.06	0.11	0.00	0.11	0.07	0.50	0.50	0.06	0.48	0.48
Sat Flow, veh/h	532	0	1112	1781	0	1585	1781	1870	1585	1781	3572	64
Grp Volume(v), veh/h	34	0	0	216	0	193	57	909	91	34	639	668
Grp Sat Flow(s),veh/h/ln	1644	0	0	1781	0	1585	1781	1870	1585	1781	1777	1859
Q Serve(g_s), s	1.4	0.0	0.0	8.0	0.0	8.0	2.2	33.6	2.2	1.3	20.4	20.4
Cycle Q Clear(g_c), s	1.4	0.0	0.0	8.0	0.0	8.0	2.2	33.6	2.2	1.3	20.4	20.4
Prop In Lane	0.32		0.68	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	91	0	0	202	0	180	119	926	785	98	859	899
V/C Ratio(X)	0.37	0.00	0.00	1.07	0.00	1.07	0.48	0.98	0.12	0.35	0.74	0.74
Avail Cap(c_a), veh/h	676	0	0	202	0	180	210	926	785	210	880	921
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	0.0	0.0	31.2	0.0	31.2	31.7	17.5	9.5	32.1	14.7	14.7
Incr Delay (d2), s/veh	2.5	0.0	0.0	82.6	0.0	87.7	3.0	25.0	0.1	2.1	3.4	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	7.9	0.0	7.3	1.0	17.6	0.6	0.6	7.3	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	0.0	0.0	113.8	0.0	119.0	34.7	42.5	9.6	34.1	18.0	17.9
LnGrp LOS	C	A	A	F	A	F	C	D	A	C	B	B
Approach Vol, veh/h		34			409			1057			1341	
Approach Delay, s/veh		34.7			116.2			39.2			18.4	
Approach LOS		C			F			D			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	40.3		9.4	8.9	39.5		12.7				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	3.3	35.6		3.4	4.2	22.4		10.0				
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	6.4		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		40.4	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

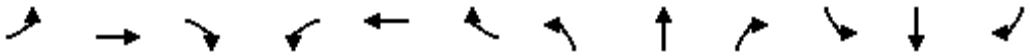
Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1200	10	40	840	10	10
Future Vol, veh/h	1200	10	40	840	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1277	11	43	894	11	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1288	0	1816	644
Stage 1	-	-	-	-	1283	-
Stage 2	-	-	-	-	533	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	534	-	69	416
Stage 1	-	-	-	-	224	-
Stage 2	-	-	-	-	553	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	534	-	63	416
Mov Cap-2 Maneuver	-	-	-	-	63	-
Stage 1	-	-	-	-	224	-
Stage 2	-	-	-	-	508	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	45.9
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	109	-	-	534	-
HCM Lane V/C Ratio	0.195	-	-	0.08	-
HCM Control Delay (s)	45.9	-	-	12.3	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	0.7	-	-	0.3	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1070	90	40	720	90	50	10	30	60	10	40
Future Volume (veh/h)	60	1070	90	40	720	90	50	10	30	60	10	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	67	1189	100	44	800	100	56	11	33	67	11	44
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	141	1243	104	93	1242	554	145	50	149	181	42	166
Arrive On Green	0.08	0.37	0.37	0.05	0.35	0.35	0.08	0.12	0.12	0.10	0.13	0.13
Sat Flow, veh/h	1781	3318	279	1781	3554	1585	1781	412	1236	1781	327	1308
Grp Volume(v), veh/h	67	636	653	44	800	100	56	0	44	67	0	55
Grp Sat Flow(s),veh/h/ln	1781	1777	1820	1781	1777	1585	1781	0	1648	1781	0	1635
Q Serve(g_s), s	2.1	20.5	20.6	1.4	11.1	2.6	1.8	0.0	1.4	2.1	0.0	1.8
Cycle Q Clear(g_c), s	2.1	20.5	20.6	1.4	11.1	2.6	1.8	0.0	1.4	2.1	0.0	1.8
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.75	1.00		0.80
Lane Grp Cap(c), veh/h	141	666	682	93	1242	554	145	0	199	181	0	208
V/C Ratio(X)	0.47	0.96	0.96	0.47	0.64	0.18	0.39	0.00	0.22	0.37	0.00	0.26
Avail Cap(c_a), veh/h	215	666	682	185	1277	569	243	0	982	343	0	1044
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.9	17.9	17.9	27.0	16.0	13.3	25.6	0.0	23.3	24.6	0.0	23.2
Incr Delay (d2), s/veh	2.5	24.3	24.5	3.7	1.1	0.2	1.7	0.0	0.6	1.2	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	11.1	11.4	0.6	3.8	0.9	0.8	0.0	0.6	0.9	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.3	42.2	42.4	30.7	17.1	13.4	27.2	0.0	23.9	25.9	0.0	23.8
LnGrp LOS	C	D	D	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1356			944			100			122	
Approach Delay, s/veh		41.6			17.4			25.8			24.9	
Approach LOS		D			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	27.4	10.3	13.5	9.1	25.9	10.7	13.1
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	3.4	22.6	3.8	3.8	4.1	13.1	4.1	3.4
Green Ext Time (p_c), s	0.0	0.0	0.0	0.3	0.0	3.3	0.1	0.2

Intersection Summary	
HCM 6th Ctrl Delay	31.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	20	80	10	40	110
Future Vol, veh/h	10	20	80	10	40	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	24	94	12	47	129

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	323	100	0	0	106	0
Stage 1	100	-	-	-	-	-
Stage 2	223	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	671	956	-	-	1485	-
Stage 1	924	-	-	-	-	-
Stage 2	814	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	648	956	-	-	1485	-
Mov Cap-2 Maneuver	648	-	-	-	-	-
Stage 1	924	-	-	-	-	-
Stage 2	786	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	825	1485	-
HCM Lane V/C Ratio	-	-	0.043	0.032	-
HCM Control Delay (s)	-	-	9.6	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	460	490	230	520	0	990	270
Future Volume (veh/h)	460	490	230	520	0	990	270
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	495	527	247	559		1065	290
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	727	991	258	2157		1384	617
Arrive On Green	0.21	0.21	0.14	0.61		0.39	0.39
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	495	527	247	559		1065	290
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	9.1	10.4	9.5	5.1		18.0	9.4
Cycle Q Clear(g_c), s	9.1	10.4	9.5	5.1		18.0	9.4
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	727	991	258	2157		1384	617
V/C Ratio(X)	0.68	0.53	0.96	0.26		0.77	0.47
Avail Cap(c_a), veh/h	902	1132	258	2157		1772	790
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	25.1	17.7	29.3	6.3		18.4	15.7
Incr Delay (d2), s/veh	1.5	0.4	44.0	0.1		1.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	8.4	6.9	1.4		6.5	3.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	26.6	18.1	73.3	6.4		20.0	16.3
LnGrp LOS	C	B	E	A		B	B
Approach Vol, veh/h	1022			806		1355	
Approach Delay, s/veh	22.2			26.9		19.2	
Approach LOS	C			C		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		48.0		21.0	15.0	33.0	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		7.1		12.4	11.5	20.0	
Green Ext Time (p_c), s		3.8		2.2	0.0	6.9	

Intersection Summary		
HCM 6th Ctrl Delay		22.1
HCM 6th LOS		C

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

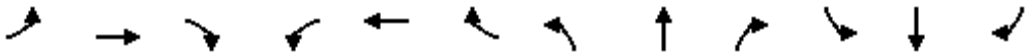
Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	110	170	90	40	10
Future Vol, veh/h	0	110	170	90	40	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	133	205	108	48	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	313	0	-	0	392	259
Stage 1	-	-	-	-	259	-
Stage 2	-	-	-	-	133	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1247	-	-	-	612	780
Stage 1	-	-	-	-	784	-
Stage 2	-	-	-	-	893	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1247	-	-	-	612	780
Mov Cap-2 Maneuver	-	-	-	-	612	-
Stage 1	-	-	-	-	784	-
Stage 2	-	-	-	-	893	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1247	-	-	-	640
HCM Lane V/C Ratio	-	-	-	-	0.094
HCM Control Delay (s)	0	-	-	-	11.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	30	120	90	40	30	210	860	110	20	480	30
Future Volume (veh/h)	10	30	120	90	40	30	210	860	110	20	480	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	33	133	100	44	33	233	956	122	22	533	33
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	221	187	336	497	421	212	1060	135	31	791	49
Arrive On Green	0.04	0.12	0.12	0.19	0.27	0.27	0.12	0.33	0.33	0.02	0.23	0.23
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3170	404	1781	3399	210
Grp Volume(v), veh/h	11	33	133	100	44	33	233	536	542	22	278	288
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1798	1781	1777	1833
Q Serve(g_s), s	0.4	1.1	5.4	3.2	1.2	1.0	8.0	19.3	19.3	0.8	9.6	9.6
Cycle Q Clear(g_c), s	0.4	1.1	5.4	3.2	1.2	1.0	8.0	19.3	19.3	0.8	9.6	9.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.22	1.00		0.11
Lane Grp Cap(c), veh/h	74	221	187	336	497	421	212	594	601	31	413	426
V/C Ratio(X)	0.15	0.15	0.71	0.30	0.09	0.08	1.10	0.90	0.90	0.70	0.67	0.68
Avail Cap(c_a), veh/h	411	836	709	411	836	709	212	612	619	93	493	508
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.0	26.6	28.5	23.4	18.5	18.5	29.5	21.3	21.3	32.8	23.4	23.4
Incr Delay (d2), s/veh	0.9	0.3	4.9	0.5	0.1	0.1	90.1	16.4	16.3	24.9	2.8	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.5	2.3	1.4	0.5	0.4	8.5	9.7	9.8	0.5	3.9	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.9	26.9	33.4	23.9	18.6	18.6	119.7	37.7	37.6	57.7	26.2	26.2
LnGrp LOS	C	C	C	C	B	B	F	D	D	E	C	C
Approach Vol, veh/h		177			177			1311			588	
Approach Delay, s/veh		32.1			21.6			52.2			27.4	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	28.8	16.7	14.4	14.0	22.0	6.8	24.3
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.8	21.3	5.2	7.4	10.0	11.6	2.4	3.2
Green Ext Time (p_c), s	0.0	1.1	0.2	0.6	0.0	1.8	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	41.8
HCM 6th LOS	D

APPENDIX I

ANALYSIS WORKSHEETS – LONG-TERM + PROJECT

Intersection	
Int Delay, s/veh	732.4

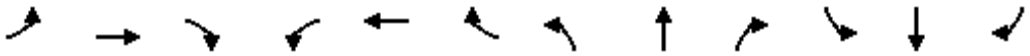
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	140	220	362	424	601	340
Future Vol, veh/h	140	220	362	424	601	340
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	159	250	411	482	683	386

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2180	876	1069	0	-	0
Stage 1	876	-	-	-	-	-
Stage 2	1304	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 51	348	652	-	-	-
Stage 1	407	-	-	-	-	-
Stage 2	254	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 7	348	652	-	-	-
Mov Cap-2 Maneuver	~ 7	-	-	-	-	-
Stage 1	~ 57	-	-	-	-	-
Stage 2	254	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, $	4226.1	9	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	652	-	7	348	-	-
HCM Lane V/C Ratio	0.631	-	22.727	0.718	-	-
HCM Control Delay (s)	19.5	$	10807.8	37.8	-	-
HCM Lane LOS	C	A	F	E	-	-
HCM 95th %tile Q(veh)	4.5	-	21.8	5.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	30	140	0	70	30	636	180	160	601	10
Future Volume (veh/h)	10	0	30	140	0	70	30	636	180	160	601	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	34	159	0	80	34	723	205	182	683	11
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	26	0	81	199	0	177	86	804	681	207	1781	29
Arrive On Green	0.07	0.00	0.07	0.11	0.00	0.11	0.05	0.43	0.43	0.12	0.50	0.50
Sat Flow, veh/h	398	0	1231	1781	0	1585	1781	1870	1585	1781	3579	58
Grp Volume(v), veh/h	45	0	0	159	0	80	34	723	205	182	339	355
Grp Sat Flow(s),veh/h/ln	1629	0	0	1781	0	1585	1781	1870	1585	1781	1777	1860
Q Serve(g_s), s	1.9	0.0	0.0	6.2	0.0	3.4	1.3	25.7	6.1	7.2	8.5	8.5
Cycle Q Clear(g_c), s	1.9	0.0	0.0	6.2	0.0	3.4	1.3	25.7	6.1	7.2	8.5	8.5
Prop In Lane	0.24		0.76	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	108	0	0	199	0	177	86	804	681	207	884	925
V/C Ratio(X)	0.42	0.00	0.00	0.80	0.00	0.45	0.40	0.90	0.30	0.88	0.38	0.38
Avail Cap(c_a), veh/h	660	0	0	199	0	177	207	912	773	207	884	925
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	0.0	0.0	31.0	0.0	29.7	33.1	19.0	13.4	31.2	11.2	11.2
Incr Delay (d2), s/veh	2.6	0.0	0.0	20.1	0.0	1.8	3.0	10.9	0.2	32.7	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	3.7	0.0	1.3	0.6	11.6	1.9	4.7	2.8	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	0.0	0.0	51.1	0.0	31.5	36.0	29.9	13.6	63.8	11.4	11.4
LnGrp LOS	C	A	A	D	A	C	D	C	B	E	B	B
Approach Vol, veh/h		45			239			962			876	
Approach Delay, s/veh		34.7			44.6			26.7			22.3	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.5	36.2		10.2	7.6	41.0		12.7				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	9.2	27.7		3.9	3.3	10.5		8.2				
Green Ext Time (p_c), s	0.0	3.0		0.2	0.0	3.9		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		27.1
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

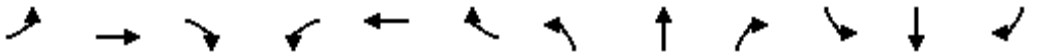
Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	771	10	23	706	10	10
Future Vol, veh/h	771	10	23	706	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	820	11	24	751	11	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	831	0	1250	416
Stage 1	-	-	-	-	826	-
Stage 2	-	-	-	-	424	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	797	-	165	585
Stage 1	-	-	-	-	390	-
Stage 2	-	-	-	-	628	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	797	-	160	585
Mov Cap-2 Maneuver	-	-	-	-	160	-
Stage 1	-	-	-	-	390	-
Stage 2	-	-	-	-	609	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	20.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	251	-	-	797	-
HCM Lane V/C Ratio	0.085	-	-	0.031	-
HCM Control Delay (s)	20.7	-	-	9.7	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	630	33	60	603	40	52	10	40	150	20	50
Future Volume (veh/h)	41	630	33	60	603	40	52	10	40	150	20	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	700	37	67	670	44	58	11	44	167	22	56
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	115	949	50	125	1009	450	153	40	159	271	81	206
Arrive On Green	0.06	0.28	0.28	0.07	0.28	0.28	0.09	0.12	0.12	0.15	0.17	0.17
Sat Flow, veh/h	1781	3433	181	1781	3554	1585	1781	327	1308	1781	467	1189
Grp Volume(v), veh/h	46	362	375	67	670	44	58	0	55	167	0	78
Grp Sat Flow(s),veh/h/ln	1781	1777	1838	1781	1777	1585	1781	0	1635	1781	0	1656
Q Serve(g_s), s	1.3	10.1	10.1	2.0	9.0	1.1	1.7	0.0	1.7	4.8	0.0	2.2
Cycle Q Clear(g_c), s	1.3	10.1	10.1	2.0	9.0	1.1	1.7	0.0	1.7	4.8	0.0	2.2
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.80	1.00		0.72
Lane Grp Cap(c), veh/h	115	491	508	125	1009	450	153	0	199	271	0	287
V/C Ratio(X)	0.40	0.74	0.74	0.54	0.66	0.10	0.38	0.00	0.28	0.62	0.00	0.27
Avail Cap(c_a), veh/h	233	720	744	200	1381	616	262	0	1054	371	0	1144
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.4	17.9	17.9	24.4	17.2	14.3	23.5	0.0	21.7	21.5	0.0	19.5
Incr Delay (d2), s/veh	2.2	2.2	2.2	3.5	0.8	0.1	1.5	0.0	0.7	2.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.6	3.8	0.8	3.1	0.4	0.7	0.0	0.6	2.0	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.6	20.1	20.0	27.9	17.9	14.4	25.0	0.0	22.4	23.8	0.0	20.0
LnGrp LOS	C	C	C	C	B	B	C	A	C	C	A	B
Approach Vol, veh/h		783			781			113			245	
Approach Delay, s/veh		20.4			18.6			23.7			22.6	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	20.4	10.2	15.4	7.9	20.8	13.0	12.6
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	4.0	12.1	3.7	4.2	3.3	11.0	6.8	3.7
Green Ext Time (p_c), s	0.0	2.9	0.0	0.5	0.0	3.1	0.2	0.3

Intersection Summary	
HCM 6th Ctrl Delay	20.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	31	71	10	21	92
Future Vol, veh/h	10	31	71	10	21	92
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	36	84	12	25	108

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	248	90	0	0	96	0
Stage 1	90	-	-	-	-	-
Stage 2	158	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	740	968	-	-	1498	-
Stage 1	934	-	-	-	-	-
Stage 2	871	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	727	968	-	-	1498	-
Mov Cap-2 Maneuver	727	-	-	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	855	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	1.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	896	1498	-
HCM Lane V/C Ratio	-	-	0.054	0.016	-
HCM Control Delay (s)	-	-	9.2	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	312	130	170	460	0	554	366
Future Volume (veh/h)	312	130	170	460	0	554	366
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	335	140	183	495		596	394
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	541	841	258	2120		1256	560
Arrive On Green	0.16	0.16	0.15	0.60		0.35	0.35
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	335	140	183	495		596	394
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	4.6	1.9	5.0	3.3		6.6	10.9
Cycle Q Clear(g_c), s	4.6	1.9	5.0	3.3		6.6	10.9
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	541	841	258	2120		1256	560
V/C Ratio(X)	0.62	0.17	0.71	0.23		0.47	0.70
Avail Cap(c_a), veh/h	1219	1389	349	2743		2395	1068
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	20.1	13.1	20.8	4.8		12.8	14.2
Incr Delay (d2), s/veh	1.2	0.1	4.2	0.1		0.3	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	2.1	0.7		2.0	3.2
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	21.3	13.2	25.0	4.9		13.1	15.8
LnGrp LOS	C	B	C	A		B	B
Approach Vol, veh/h	475			678		990	
Approach Delay, s/veh	18.9			10.3		14.2	
Approach LOS	B			B		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		36.5		14.5	12.4	24.1	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		5.3		6.6	7.0	12.9	
Green Ext Time (p_c), s		3.3		1.4	0.1	5.1	

Intersection Summary	
HCM 6th Ctrl Delay	14.0
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

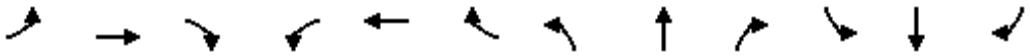
Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	202	71	51	111	10
Future Vol, veh/h	0	202	71	51	111	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	243	86	61	134	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	147	0	-	0	360	117
Stage 1	-	-	-	-	117	-
Stage 2	-	-	-	-	243	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1435	-	-	-	639	935
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	797	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1435	-	-	-	639	935
Mov Cap-2 Maneuver	-	-	-	-	639	-
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	797	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1435	-	-	-	656
HCM Lane V/C Ratio	-	-	-	-	0.222
HCM Control Delay (s)	0	-	-	-	12
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	20	253	90	20	30	171	452	130	20	506	10
Future Volume (veh/h)	10	20	253	90	20	30	171	452	130	20	506	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	22	281	100	22	33	190	502	144	22	562	11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	393	333	314	646	547	192	787	224	31	705	14
Arrive On Green	0.04	0.21	0.21	0.18	0.35	0.35	0.11	0.29	0.29	0.02	0.20	0.20
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2729	778	1781	3565	70
Grp Volume(v), veh/h	11	22	281	100	22	33	190	326	320	22	280	293
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1730	1781	1777	1858
Q Serve(g_s), s	0.4	0.7	12.6	3.6	0.6	1.0	7.9	11.9	12.0	0.9	11.1	11.2
Cycle Q Clear(g_c), s	0.4	0.7	12.6	3.6	0.6	1.0	7.9	11.9	12.0	0.9	11.1	11.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		0.04
Lane Grp Cap(c), veh/h	73	393	333	314	646	547	192	512	499	31	351	367
V/C Ratio(X)	0.15	0.06	0.84	0.32	0.03	0.06	0.99	0.64	0.64	0.72	0.80	0.80
Avail Cap(c_a), veh/h	372	755	640	372	755	640	192	553	538	84	445	465
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.4	23.5	28.2	26.7	16.1	16.3	33.1	23.0	23.1	36.3	28.4	28.4
Incr Delay (d2), s/veh	0.9	0.1	5.8	0.6	0.0	0.0	62.1	2.2	2.3	26.7	7.8	7.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	5.2	1.6	0.2	0.4	6.5	4.8	4.8	0.6	5.1	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.3	23.5	34.0	27.3	16.1	16.3	95.2	25.2	25.4	63.1	36.1	35.9
LnGrp LOS	D	C	C	C	B	B	F	C	C	E	D	D
Approach Vol, veh/h		314			155			836			595	
Approach Delay, s/veh		33.3			23.4			41.2			37.0	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	27.8	17.1	22.1	14.0	21.1	7.0	32.1
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.9	14.0	5.6	14.6	9.9	13.2	2.4	3.0
Green Ext Time (p_c), s	0.0	2.5	0.1	1.0	0.0	1.5	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	37.1
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	5260.7

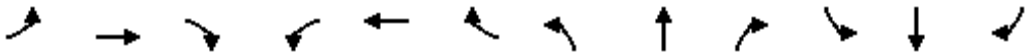
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	160	342	211	791	964	250
Future Vol, veh/h	160	342	211	791	964	250
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	182	389	240	899	1095	284

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2616	1237	1379	0	-	0
Stage 1	1237	-	-	-	-	-
Stage 2	1379	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 27	~ 215	497	-	-	-
Stage 1	274	-	-	-	-	-
Stage 2	234	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 1	~ 215	497	-	-	-
Mov Cap-2 Maneuver	~ 1	-	-	-	-	-
Stage 1	~ 10	-	-	-	-	-
Stage 2	234	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 28475.4	4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	497	-	1	215	-	-
HCM Lane V/C Ratio	0.482	-	181.818	1.808	-	-
HCM Control Delay (s)	18.8	0	$ 88445	$ 419.4	-	-
HCM Lane LOS	C	A	F	F	-	-
HCM 95th %tile Q(veh)	2.6	-	25.3	27.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	20	190	0	170	50	802	80	30	1136	20
Future Volume (veh/h)	10	0	20	190	0	170	50	802	80	30	1136	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	23	216	0	193	57	911	91	34	1291	23
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	0	61	202	0	180	119	926	785	98	1727	31
Arrive On Green	0.06	0.00	0.06	0.11	0.00	0.11	0.07	0.50	0.50	0.06	0.48	0.48
Sat Flow, veh/h	532	0	1112	1781	0	1585	1781	1870	1585	1781	3572	64
Grp Volume(v), veh/h	34	0	0	216	0	193	57	911	91	34	642	672
Grp Sat Flow(s),veh/h/ln	1644	0	0	1781	0	1585	1781	1870	1585	1781	1777	1859
Q Serve(g_s), s	1.4	0.0	0.0	8.0	0.0	8.0	2.2	33.8	2.2	1.3	20.6	20.6
Cycle Q Clear(g_c), s	1.4	0.0	0.0	8.0	0.0	8.0	2.2	33.8	2.2	1.3	20.6	20.6
Prop In Lane	0.32		0.68	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	91	0	0	202	0	180	119	926	785	98	859	899
V/C Ratio(X)	0.37	0.00	0.00	1.07	0.00	1.07	0.48	0.98	0.12	0.35	0.75	0.75
Avail Cap(c_a), veh/h	676	0	0	202	0	180	210	926	785	210	880	921
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	0.0	0.0	31.2	0.0	31.2	31.7	17.5	9.5	32.1	14.7	14.7
Incr Delay (d2), s/veh	2.5	0.0	0.0	82.6	0.0	87.7	3.0	25.5	0.1	2.1	3.5	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	7.9	0.0	7.3	1.0	17.8	0.6	0.6	7.4	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	0.0	0.0	113.8	0.0	119.0	34.7	43.0	9.6	34.1	18.2	18.0
LnGrp LOS	C	A	A	F	A	F	C	D	A	C	B	B
Approach Vol, veh/h		34			409			1059			1348	
Approach Delay, s/veh		34.7			116.2			39.7			18.5	
Approach LOS		C			F			D			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	40.3		9.4	8.9	39.5		12.7				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	3.3	35.8		3.4	4.2	22.6		10.0				
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	6.3		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		40.6	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

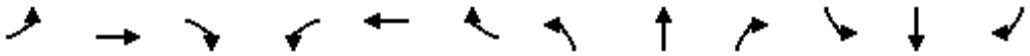
Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1206	10	46	842	10	10
Future Vol, veh/h	1206	10	46	842	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1283	11	49	896	11	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1294	0	1835	647
Stage 1	-	-	-	-	1289	-
Stage 2	-	-	-	-	546	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	531	-	67	414
Stage 1	-	-	-	-	222	-
Stage 2	-	-	-	-	544	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	531	-	61	414
Mov Cap-2 Maneuver	-	-	-	-	61	-
Stage 1	-	-	-	-	222	-
Stage 2	-	-	-	-	494	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	47.3
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	106	-	-	531	-
HCM Lane V/C Ratio	0.201	-	-	0.092	-
HCM Control Delay (s)	47.3	-	-	12.5	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	0.7	-	-	0.3	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	1074	92	40	730	90	54	10	30	60	10	40
Future Volume (veh/h)	66	1074	92	40	730	90	54	10	30	60	10	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	1193	102	44	811	100	60	11	33	67	11	44
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	148	1236	106	93	1223	546	151	51	153	181	41	166
Arrive On Green	0.08	0.37	0.37	0.05	0.34	0.34	0.08	0.12	0.12	0.10	0.13	0.13
Sat Flow, veh/h	1781	3313	283	1781	3554	1585	1781	412	1236	1781	327	1308
Grp Volume(v), veh/h	73	639	656	44	811	100	60	0	44	67	0	55
Grp Sat Flow(s),veh/h/ln	1781	1777	1819	1781	1777	1585	1781	0	1648	1781	0	1635
Q Serve(g_s), s	2.3	20.7	20.8	1.4	11.4	2.6	1.9	0.0	1.4	2.1	0.0	1.8
Cycle Q Clear(g_c), s	2.3	20.7	20.8	1.4	11.4	2.6	1.9	0.0	1.4	2.1	0.0	1.8
Prop In Lane	1.00		0.16	1.00		1.00	1.00		0.75	1.00		0.80
Lane Grp Cap(c), veh/h	148	663	679	93	1223	546	151	0	204	181	0	207
V/C Ratio(X)	0.49	0.96	0.97	0.47	0.66	0.18	0.40	0.00	0.22	0.37	0.00	0.27
Avail Cap(c_a), veh/h	215	663	679	184	1272	567	242	0	978	341	0	1040
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.9	18.1	18.1	27.1	16.4	13.5	25.5	0.0	23.3	24.7	0.0	23.3
Incr Delay (d2), s/veh	2.6	26.1	26.4	3.7	1.2	0.2	1.7	0.0	0.5	1.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	11.5	11.8	0.6	4.0	0.9	0.8	0.0	0.6	0.9	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.4	44.2	44.5	30.8	17.7	13.7	27.2	0.0	23.8	26.0	0.0	23.9
LnGrp LOS	C	D	D	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1368			955			104			122	
Approach Delay, s/veh		43.5			17.9			25.8			25.1	
Approach LOS		D			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	27.4	10.5	13.5	9.3	25.7	10.7	13.3
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	3.4	22.8	3.9	3.8	4.3	13.4	4.1	3.4
Green Ext Time (p_c), s	0.0	0.0	0.0	0.3	0.0	3.2	0.1	0.2

Intersection Summary	
HCM 6th Ctrl Delay	32.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	22	82	10	41	111
Future Vol, veh/h	10	22	82	10	41	111
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	26	96	12	48	131

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	329	102	0	0	108	0
Stage 1	102	-	-	-	-	-
Stage 2	227	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	665	953	-	-	1483	-
Stage 1	922	-	-	-	-	-
Stage 2	811	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	642	953	-	-	1483	-
Mov Cap-2 Maneuver	642	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	783	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	828	1483	-
HCM Lane V/C Ratio	-	-	0.045	0.033	-
HCM Control Delay (s)	-	-	9.6	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	465	490	230	524	0	992	272
Future Volume (veh/h)	465	490	230	524	0	992	272
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	500	527	247	563		1067	292
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	727	991	258	2158		1386	618
Arrive On Green	0.21	0.21	0.14	0.61		0.39	0.39
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	500	527	247	563		1067	292
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	9.2	10.4	9.5	5.1		18.1	9.5
Cycle Q Clear(g_c), s	9.2	10.4	9.5	5.1		18.1	9.5
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	727	991	258	2158		1386	618
V/C Ratio(X)	0.69	0.53	0.96	0.26		0.77	0.47
Avail Cap(c_a), veh/h	901	1131	258	2158		1770	790
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	25.2	17.7	29.3	6.3		18.4	15.8
Incr Delay (d2), s/veh	1.6	0.4	44.3	0.1		1.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	8.4	6.9	1.4		6.5	3.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	26.8	18.1	73.6	6.4		20.0	16.3
LnGrp LOS	C	B	E	A		B	B
Approach Vol, veh/h	1027			810		1359	
Approach Delay, s/veh	22.4			26.9		19.2	
Approach LOS	C			C		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		48.0		21.0	15.0	33.0	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		7.1		12.4	11.5	20.1	
Green Ext Time (p_c), s		3.8		2.2	0.0	6.9	

Intersection Summary	
HCM 6th Ctrl Delay	22.2
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

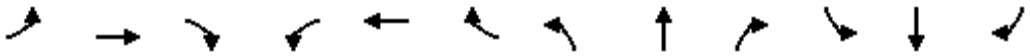
Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	111	172	92	41	10
Future Vol, veh/h	0	111	172	92	41	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	134	207	111	49	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	318	0	-	0	397	263
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	134	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1242	-	-	-	608	776
Stage 1	-	-	-	-	781	-
Stage 2	-	-	-	-	892	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1242	-	-	-	608	776
Mov Cap-2 Maneuver	-	-	-	-	608	-
Stage 1	-	-	-	-	781	-
Stage 2	-	-	-	-	892	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1242	-	-	-	635
HCM Lane V/C Ratio	-	-	-	-	0.097
HCM Control Delay (s)	0	-	-	-	11.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3



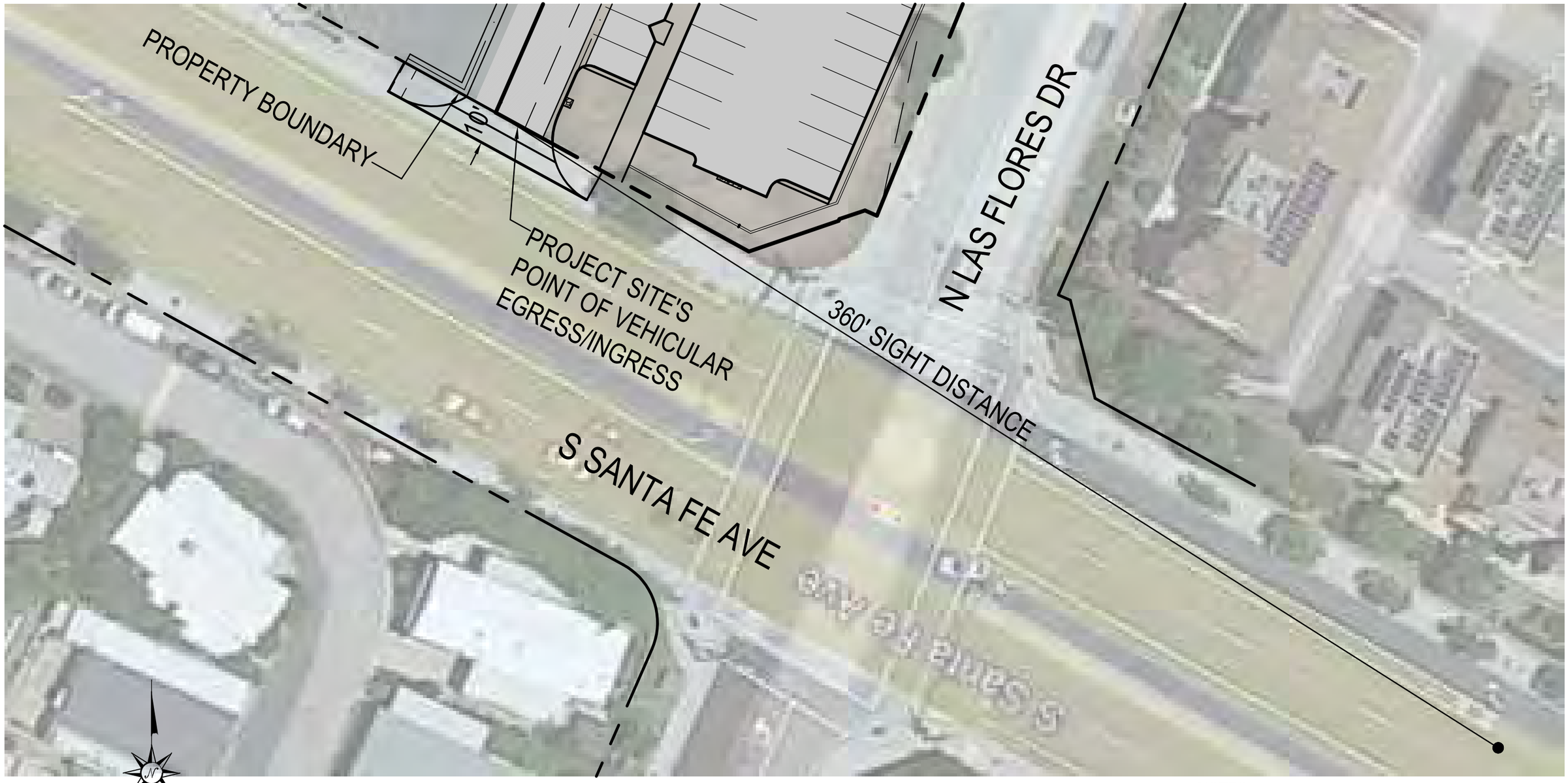
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	30	122	90	40	30	214	865	110	20	482	30
Future Volume (veh/h)	10	30	122	90	40	30	214	865	110	20	482	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	33	136	100	44	33	238	961	122	22	536	33
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	224	190	336	499	423	212	1060	135	31	792	49
Arrive On Green	0.04	0.12	0.12	0.19	0.27	0.27	0.12	0.33	0.33	0.02	0.23	0.23
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3172	403	1781	3401	209
Grp Volume(v), veh/h	11	33	136	100	44	33	238	538	545	22	280	289
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1798	1781	1777	1833
Q Serve(g_s), s	0.4	1.1	5.6	3.3	1.2	1.1	8.0	19.5	19.5	0.8	9.6	9.7
Cycle Q Clear(g_c), s	0.4	1.1	5.6	3.3	1.2	1.1	8.0	19.5	19.5	0.8	9.6	9.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.22	1.00		0.11
Lane Grp Cap(c), veh/h	74	224	190	336	499	423	212	594	601	31	414	427
V/C Ratio(X)	0.15	0.15	0.72	0.30	0.09	0.08	1.13	0.91	0.91	0.70	0.68	0.68
Avail Cap(c_a), veh/h	410	833	706	410	833	706	212	609	617	93	491	506
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.1	26.6	28.5	23.5	18.5	18.5	29.7	21.4	21.4	32.9	23.5	23.5
Incr Delay (d2), s/veh	0.9	0.3	5.0	0.5	0.1	0.1	99.6	17.0	17.0	25.0	2.9	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.5	2.3	1.4	0.5	0.4	9.0	9.8	10.0	0.6	4.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.1	26.9	33.5	24.0	18.6	18.6	129.2	38.5	38.4	57.9	26.4	26.4
LnGrp LOS	C	C	C	C	B	B	F	D	D	E	C	C
Approach Vol, veh/h		180			177			1321			591	
Approach Delay, s/veh		32.2			21.6			54.8			27.6	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	28.9	16.7	14.6	14.0	22.1	6.8	24.5
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.8	21.5	5.3	7.6	10.0	11.7	2.4	3.2
Green Ext Time (p_c), s	0.0	1.0	0.2	0.6	0.0	1.8	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	43.3
HCM 6th LOS	D

APPENDIX J

SIGHT DISTANCE EXHIBIT



SIGHT DISTANCE EXHIBIT

2972 S. SANTA FE APARTMENTS

PLSA JOB NO. 3527
07-26-2022
SHEET 1 OF 1

0 30 60 90

SCALE: 1" = 30'

NOTES

* DISTANCES FOLLOW THE CALTRANS HIGHWAY DESIGN MANUAL, CHAPTER 200, INDEX 201.1, ASSUMING A 45MPH SPEED LIMIT ON S SANTA FE AVENUE

PASCO LARET SUITER & ASSOCIATES
San Diego | Encinitas | Orange County
Phone 858.259.8212 | www.plsaengineering.com

SAVE DATE: 07/26/22 ~ PLOT DATE: 07/26/22 ~ FILE NAME: J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\DRAWING\EXHIBITS\Sight Distance\3527-SIGHT-DISTANCE-EXHIBIT.dwg

APPENDIX K

Vehicle Miles Traveled Analysis

VEHICLE MILES TRAVELED ANALYSIS

SANTA FE FLORES PROJECT

San Marcos, California
July 27, 2022

LLG Ref. 3-22-3523

Prepared by:
Amelia Giacalone
Senior Transportation Planner

Under the Supervision of:
John Boarman, P.E.
Principal

Linscott, Law & Greenspan, Engineers
4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers

TABLE OF CONTENTS

SECTION		PAGE
1.0	**Introduction**	**1**
2.0	**Project Description**	**2**
2.1	Project Location & Description	2
2.2	Project Trip Generation	2
2.3	Trip Generation	2
2.3.1	Trip Rates	2
2.3.2	Project Trips	2
3.0	**Vehicle Miles Traveled Assessment**	**8**
3.1	VMT Background	8
3.2	VMT Assessment	8
4.0	**Conclusions**	**11**

LIST OF FIGURES

SECTION—FIGURE #		PAGE
Figure 2–1	Vicinity Map	5
Figure 2–2	Project Area Map	6
Figure 2–3	Project Site Plan	7
Figure 3–1	SANDAG Screening Map Results	10

LIST OF TABLES

SECTION—TABLE #		PAGE
Table 2-1	Project Trip Generation	4

VEHICLE MILES TRAVELED ANALYSIS

SANTA FE FLORES PROJECT

San Marcos, California
April 27, 2022

1.0 INTRODUCTION

Linscott, Law & Greenspan, Engineers (LLG) has prepared the following Vehicle Miles Traveled (VMT) analysis for the proposed Santa Fe Flores project (proposed Project) located at 2972 and 2982 S. Santa Fe Avenue on the northwest corner of the S. Santa Fe Avenue / Las Flores Drive intersection in the City of San Marcos.

A Non-CEQA Local Transportation Analysis is provided under separate cover.

The following items are included in this transportation study:

- Project Description
- VMT Assessment
- Conclusions

2.0 PROJECT DESCRIPTION

2.1 Project Location & Description

The Project is located in the city of San Marcos at 2972 and 2982 South Santa Fe Avenue adjacent to Las Flores Drive on assessor parcel numbers 217-161-1800 and 217-161-1900. The 2.5-acre Project site is undeveloped and is currently designated Commercial and Light Industrial in the City General Plan and zoned as Commercial and Light Industrial. The Project would be located on a previously graded site and require a General Plan amendment and Rezone to Multifamily Residential to allow the development of 50 multi-family residential units that would be 3-4 stories in height. The Project would also include a 1,000 square-foot roof deck for fitness and leisure, a 1,170 square-foot ground floor leasing and amenity center, and a 120 square-foot ground floor fire command center. Vehicle parking would include a total of 107 surface parking spaces and bicycle parking would include a total of 11 lockers or bike storage rooms located on the upper and lower levels.

Access to the site will be provided via a single right-in/right-out only driveway on S. Santa Fe Avenue.

Figure 2–1 shows the vicinity map. ***Figure 2–2*** shows a more detailed project area map. ***Figure 2–3*** shows the conceptual site plan for the Project.

2.2 Project Trip Generation

As described in *Section 2.1*, the proposed Project would provide 50 apartment units. The following is a discussion of the traffic expected to be generated by the Project.

2.3 Trip Generation

2.3.1 *Trip Rates*

Trip generation for the Project's multi-family housing was estimated using trip rates from SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002*. The trip generation rate for "Apartment (or any multi-family units more than 20 DU/acre)" was used based on the proposed use.

2.3.2 *Project Trips*

Table 2–1 tabulates the total Project traffic generation. The Project is calculated to generate a total of 300 ADT with 24 AM peak hour trips (5 inbound / 19 outbound) and 27 PM peak hour trips (19 inbound and 8 outbound).

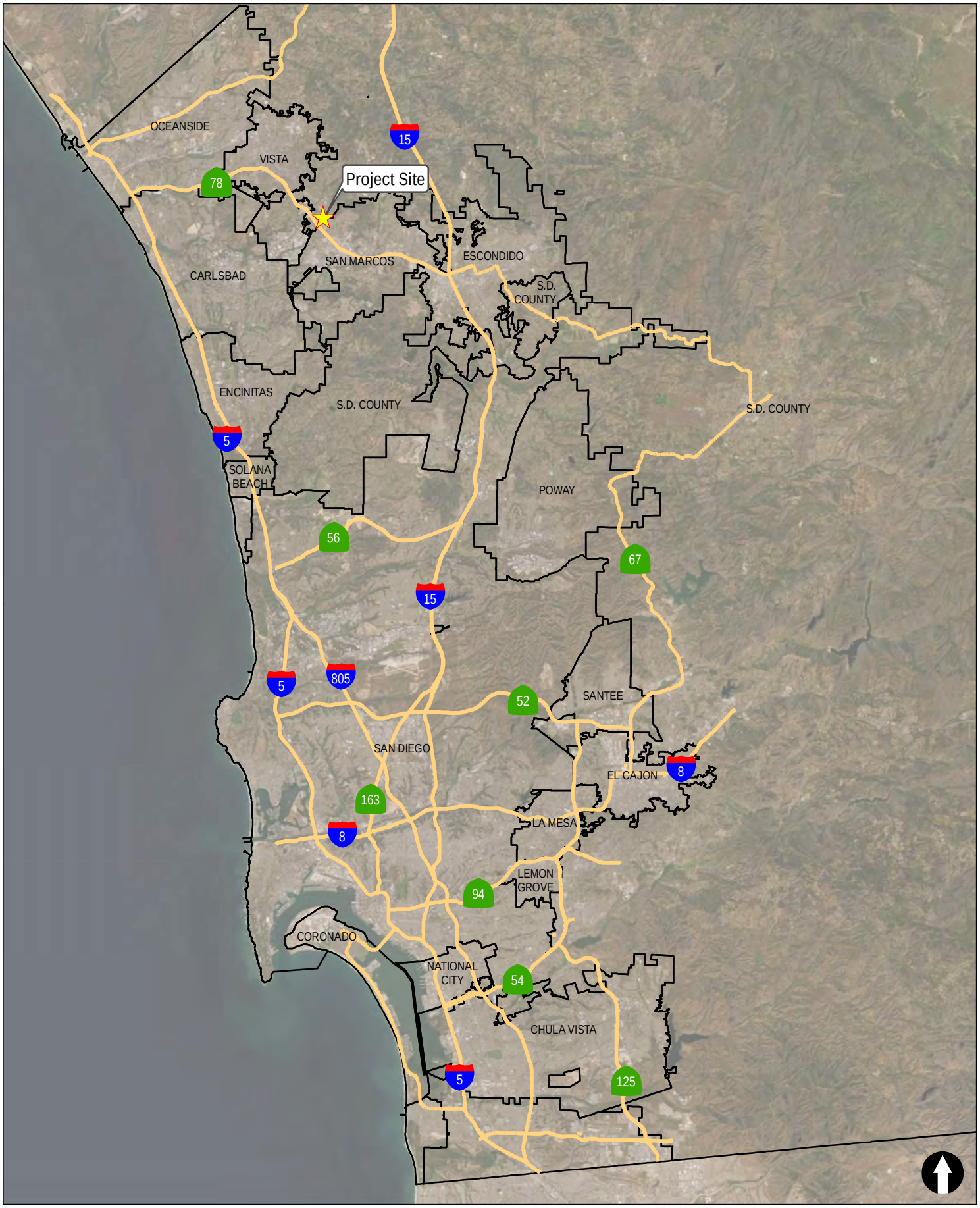
TABLE 2-1
PROJECT TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADT)[b]		AM Peak Hour					PM Peak Hour				
		Rate [a]	Volume	% of ADT	In:Out Split	Volume			% of ADT	In:Out Split	Volume		
						In	Out	Total			In	Out	Total
Proposed Project													
Apartments	50 DU	6 /DU	300	8%	20 : 80	5	19	24	9%	70 : 30	19	8	27
		Project Total	***300***			***5***	***19***	***24***			***19***	***8***	***27***

Footnotes:

a. Trip rates from *SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*

b. Average Daily Trips



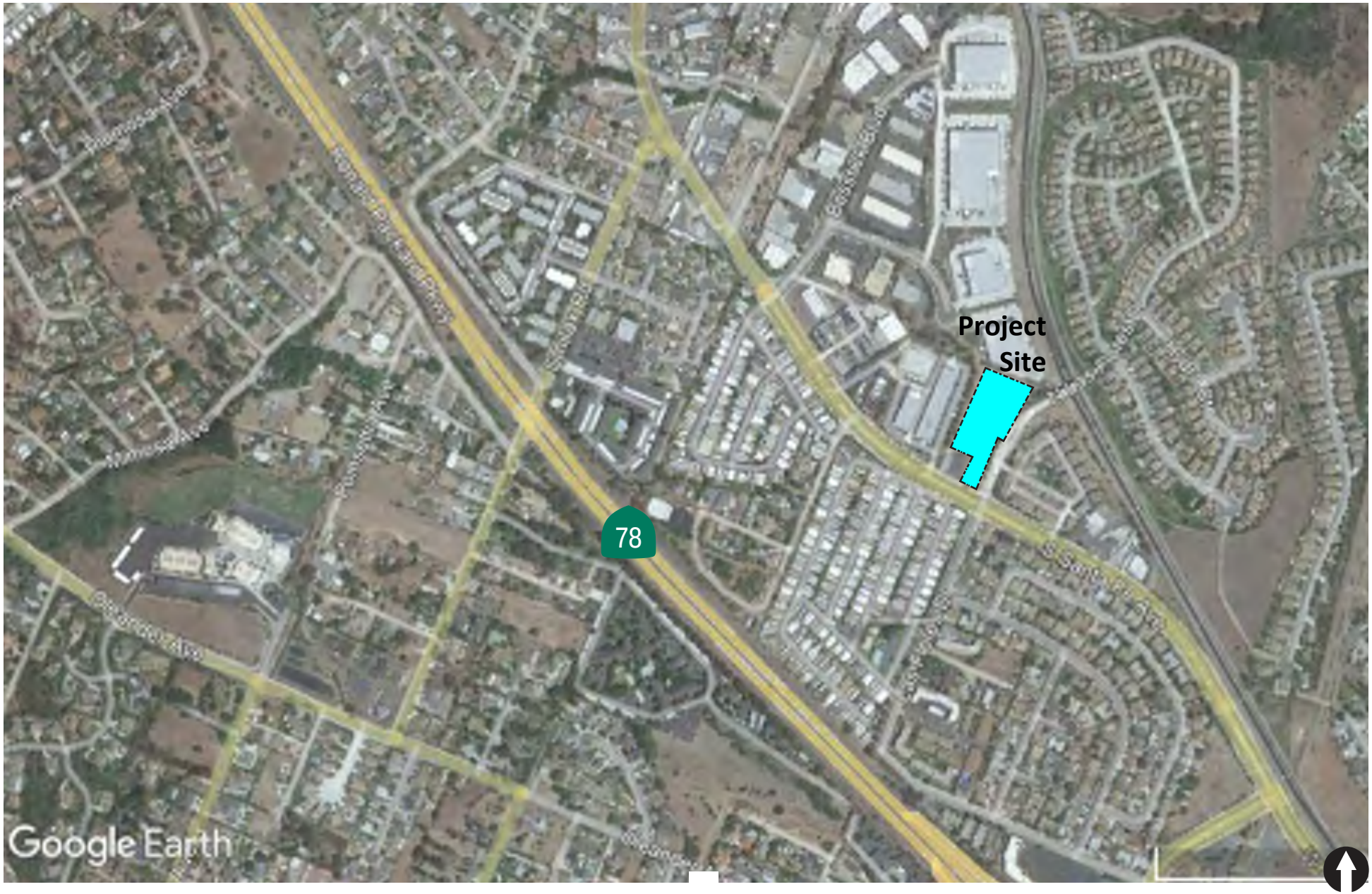
LINSCOTT LAW & GREENSPAN engineers

N:\3523\Figures
Date: 3/28/2022
Time: 2:23 PM

Figure 2-1

Vicinity Map

Santa Fe Las I 1184

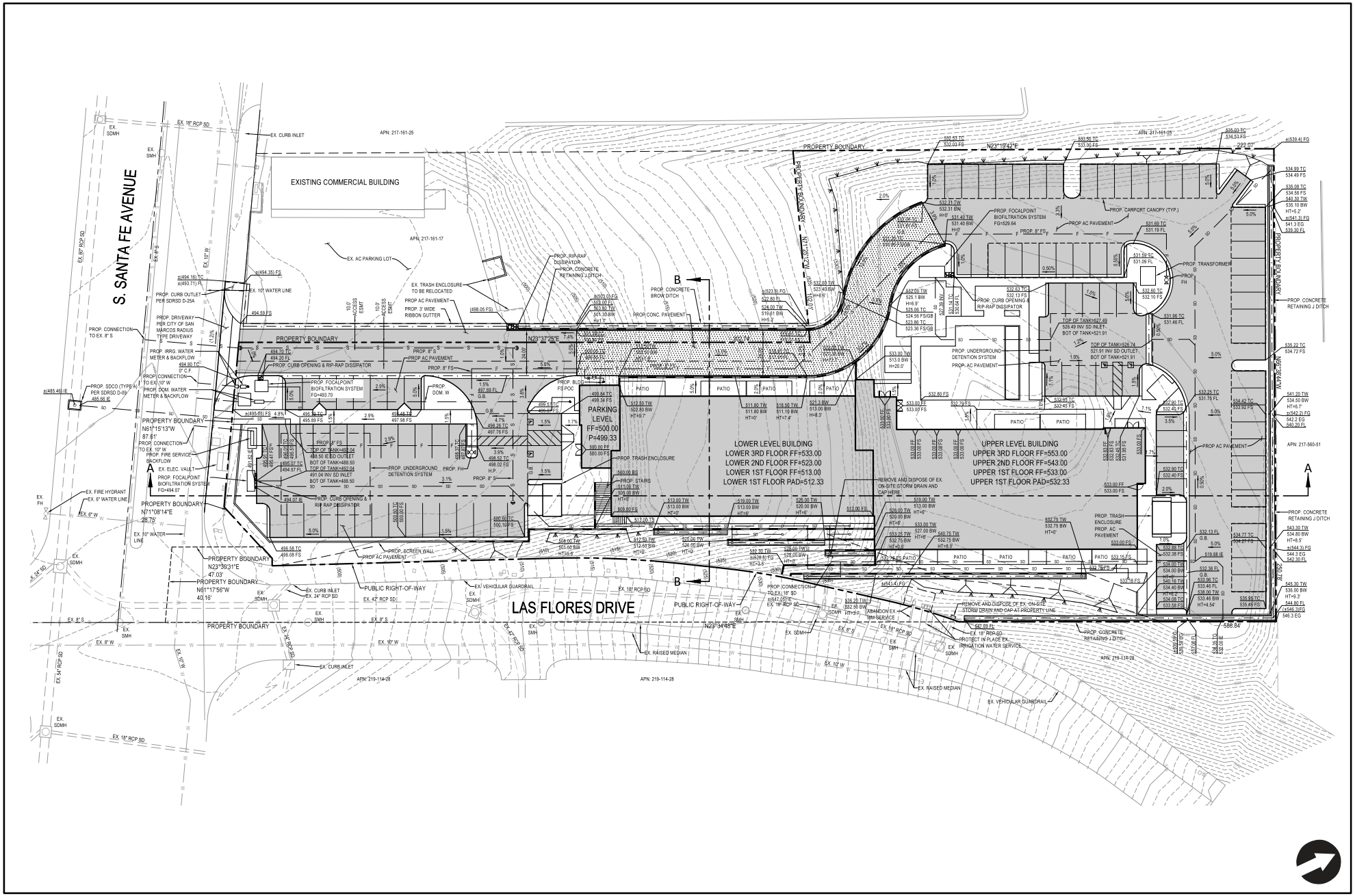


N:\3523\Figures
Date: 03/28/22

Figure 2-2

Project Area Map

Santa Fe Las Flores


S. SANTA FE AVENUE
LAS FLORES DRIVE
EXISTING COMMERCIAL BUILDING
PROPERTY BOUNDARY
PROPOSED DRIVEWAY
PROPOSED DRIVEWAY
PARKING LEVEL FF=500.00 P=499.33
LOWER LEVEL BUILDING
LOWER 3RD FLOOR FF=533.00
LOWER 2ND FLOOR FF=523.00
LOWER 1ST FLOOR FF=513.00
LOWER 1ST FLOOR PAD=512.33
UPPER LEVEL BUILDING
UPPER 3RD FLOOR FF=553.00
UPPER 2ND FLOOR FF=543.00
UPPER 1ST FLOOR FF=533.00
UPPER 1ST FLOOR PAD=532.33
PUBLIC RIGHT-OF-WAY
EX. RAISED MEDIAN
EX. VEHICULAR GUARDRAIL
PROP. FOCALPOINT BIOFILTRATION SYSTEM
PROP. CARPORT CANOPY (TYP.)
PROP. CONCRETE RETAINING J DITCH
PROP. TRANSFORMER
PROP. UNDERGROUND DETENTION SYSTEM
PROP. TRASH ENCLOSURE
PROP. STAIRS
PROP. SCREEN WALL
PROP. CURB OPENING & RIP-RAP DISSIPATOR
PROP. RIP-RAP DISSIPATOR
PROP. CONCRETE BROW DITCH
PROP. CONC. PAVEMENT
PROP. AC PAVEMENT
EX. AC PARKING LOT
EX. TRASH ENCLOSURE TO BE RELOCATED
PROP. 3' WIDE RIBBON GUTTER
PROP. CONNECTION TO EX. 8" S
PROP. IRRG. WATER METER & BACKFLOW
PROP. DOM. WATER METER & BACKFLOW
PROP. SDCO (TYP.) PER SDRSD D-09
PROP. DRIVEWAY PER CITY OF SAN MARCOS RADIUS TYPE DRIVEWAY
PROP. CURB OUTLET PER SDRSD D-25A
PROP. CONNECTION TO EX. 10" W
PROP. FIRE SERVICE BACKFLOW
EX. ELEC. VAULT
EX. FIRE HYDRANT
EX. 6" WATER LINE
EX. 10" WATER LINE
EX. CURB INLET
EX. SDMH
EX. 18" RCP SD
EX. 42" RCP SD
EX. 24" RCP SD
EX. 54" RCP SD
EX. 8" S
EX. 8" W
EX. 10" W
PROP. 8" S
PROP. 8" FS
PROP. 8" SS
PROP. 8" W
PROP. 6" W
PROP. 4" FS
PROP. 4" W
PROP. 1" W
PROP. FH
PROP. BLDG FS POC
PROP. 24" SD
PROP. 18" SD
PROP. 10" W
PROP. CONNECTION TO EX. 16" SD
REMOVE AND DISPOSE OF EX. ON-SITE STORM DRAIN AND CAP HERE
REMOVE AND DISPOSE OF EX. ON-SITE STORM DRAIN AND CAP AT PROPERTY LINE
ABANDON EX. WM SERVICE
PROTECT IN PLACE EX. IRRIGATION WATER SERVICE
PROP. CONCRETE RETAINING J DITCH
PROP. CONCRETE RETAINING J DITCH
PROP. CONCRETE RETAINING J DITCH
PROP. CONCRETE RETAINING J DITCH
PROP. AC PAVEMENT
PROP. CURB OPENING & RIP-RAP DISSIPATOR
PROP. CURB OUTLET PER SDRSD D-25A
PROP. 3' WIDE RIBBON GUTTER
PROP. CONCRETE BROW DITCH
PROP. CONC. PAVEMENT
PROP. CONNECTION TO EX. 8" S
PROP. DRIVEWAY PER CITY OF SAN MARCOS RADIUS TYPE DRIVEWAY
PROP. IRRG. WATER METER & BACKFLOW
PROP. DOM. WATER METER & BACKFLOW
PROP. SDCO (TYP.) PER SDRSD D-09
PROP. CONNECTION TO EX. 10" W
PROP. FIRE SERVICE BACKFLOW
PROP. FOCALPOINT BIOFILTRATION SYSTEM
PROP. CURB OPENING & RIP-RAP DISSIPATOR
PROP. UNDERGROUND DETENTION SYSTEM
PROP. TRASH ENCLOSURE
PROP. STAIRS
PROP. SCREEN WALL
PROP. CONNECTION TO EX. 16" SD
PROP. CARPORT CANOPY (TYP.)
PROP. TRANSFORMER
PROP. UNDERGROUND DETENTION SYSTEM
PROP. AC PAVEMENT
PROP. CONCRETE RETAINING J DITCH
PROP. CONCRETE RETAINING J DITCH
PROP. CONCRETE RETAINING J DITCH
PROP. CONCRETE RETAINING J DITCH
PROP. TRASH ENCLOSURE
PROP. AC PAVEMENT
REMOVE AND DISPOSE OF EX. ON-SITE STORM DRAIN AND CAP HERE
REMOVE AND DISPOSE OF EX. ON-SITE STORM DRAIN AND CAP AT PROPERTY LINE
ABANDON EX. WM SERVICE
PROTECT IN PLACE EX. IRRIGATION WATER SERVICE
PROP. CONCRETE RETAINING J DITCH
PROP. AC PAVEMENT
PROP. CONCRETE RETAINING J DITCH
PROP. CONCRETE RETAINING J DITCH
PROP. CONCRETE RETAINING J DITCH
PROP. CONCRETE RETAINING J DITCH

3.0 VEHICLE MILES TRAVELED ASSESSMENT

The following VMT assessment has been prepared to evaluate the effects of the Project based on VMT, as proposed by the California Governor's Office of Planning and Research (OPR) to implement California State Law Senate Bill (SB) 743 and subsequently adopted by the City of San Marcos in November 2020. The analysis methodology contained in this report utilizes the City of San Marcos' latest *Transportation Impact Analysis Guidelines* (November 16, 2020).

3.1 VMT Background

VMT is defined as the "amount and distance of automobile travel attributable to a project" per CEQA Guidelines Section 15064.3. VMT is a measure of the use and efficiency of the transportation network as well land uses in a region. VMT is calculated based on individual vehicle trips generated and their associated trip lengths. VMT accounts for two-way (roundtrip) travel and is estimated for a typical weekday for the purposes of measuring transportation impacts.

The potential transportation impacts of the proposed Project are based on VMT to satisfy the California Environmental Quality Act (CEQA) guidelines through SB 743. Public Resources Code section 20199, enacted pursuant to SB 743, identifies VMT as an appropriate metric for measuring transportation impacts along with the elimination of auto delay/Level of service (LOS) for CEQA purposes statewide.

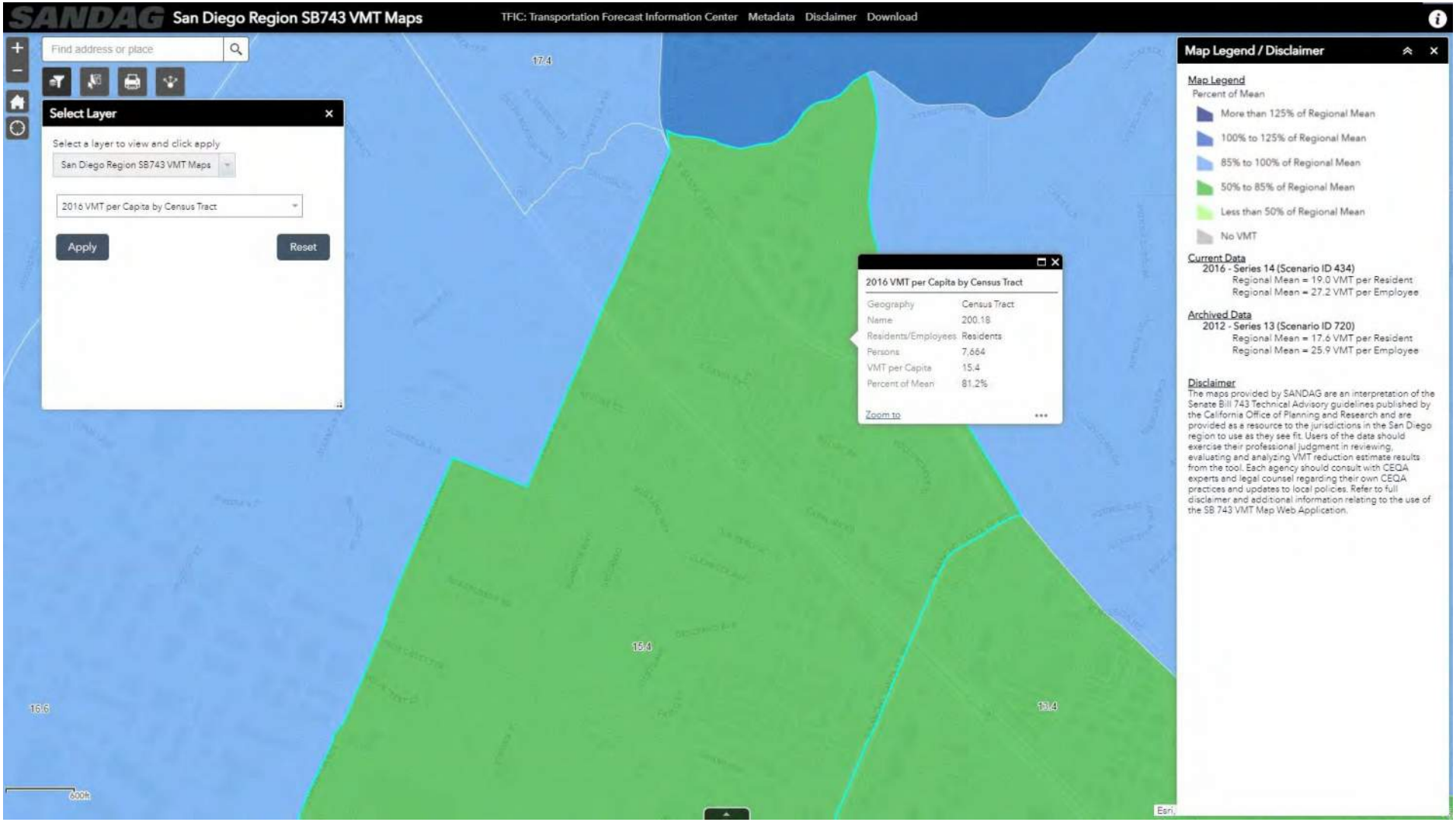
3.2 VMT Assessment

Based on the City of San Marcos *Transportation Impact Analysis Guidelines*, the requirement to prepare a detailed transportation VMT analysis applies to all land development projects except for those that meet at least one of the provided screening criteria. A project that meets at least one of the screening criteria listed below would be considered to have a less-than-significant impact due to the project or location characteristics.

1. Small Projects (less than 110 daily vehicle trips)
2. Affordable Housing (100% deed restricted)
3. Local Serving Retail and Public Facilities (50,000 square feet gross floor area or less)
4. Adjacency to High-Quality Transit
5. Map-Based Screening (projects located in VMT efficient areas): Residential and employment projects that are proposed in areas that generate VMT below adopted City thresholds can be presumed to have a less-than-significant transportation impact and would not require a detailed VMT analysis. This determination must be made using SANDAG's online residential and employment VMT maps, which show census tracts in the city where the VMT is below the regional average. The following types of projects could be screened out using this approach:
    - Residential projects proposed in census tracts with residential VMT per capita below the City's threshold of exceeding 85 percent of the SANDAG regional average

- Employment projects proposed in census tracts with work VMT per employee below the City's threshold of exceeding 85 percent of the SANDAG regional average

Per SANDAG's online residential VMT map, the Project site is located within Census Tract 200.18 as shown in ***Figure 3-1***. The VMT per capita of this Census Tract is 15.4 VMT, which is 81.2% of the SANDAG regional average of 19.0 VMT per capita. Therefore, screening criteria number five (5) listed above is applicable. As such, the Project can be presumed to have a less-than-significant transportation impact and would not require a detailed VMT analysis.



N:\3523\Figures\VMT Figures
Date: 07/27/22

Figure 3-1

SANDAG Screening Map Results

SANTA FE LAS FLORES

4.0 CONCLUSIONS

The preceding Vehicle Miles Traveled analysis was prepared to determine and evaluate the potential impacts and effects to the local roadway system due to the proposed Project.

Based on the SANDAG's online residential VMT map, the Project's VMT per Resident is less than 15% below the regionwide average. As such, the Project can be presumed to have a less-than-significant transportation impact.

ATTACHMENT D.2

AIR QUALITY ANALYSIS

Air Quality Analysis for the Santa Fe Flores Townhomes Project San Marcos, California

Project Nos. GPA25-0001, R25-0001, MFSDP25-0001, and TSM25-0001

Prepared for
Santa Fe Flores, LP
P.O. Box 903
Rancho Santa Fe, CA 92067
Contact: Paul Mayer

Prepared by
RECON Environmental, Inc.
3111 Camino del Rio North, Suite 600
San Diego, CA 92108
P 619.308.9333

RECON Number 10587
January 28, 2026

Jessica Fleming
Senior Air Quality/Noise/GHG Specialist

TABLE OF CONTENTS

Acronyms and Abbreviations iii
Executive Summary 1
1.0 Introduction 2
2.0 Project Description 3
3.0 Regulatory Framework 3
3.1 Federal Regulations 3
3.2 State Regulations 7
3.3 San Diego Air Pollution Control District 11
4.0 Environmental Setting 13
4.1 Geographic Setting 13
4.2 Climate 13
4.3 Existing Air Quality 14
5.0 Thresholds of Significance 18
6.0 Air Quality Assessment 19
6.1 Construction Emissions 19
6.2 Operation Emissions 21
6.3 Impact Analysis 22
7.0 Conclusions 27
8.0 References Cited 28

FIGURES

1: Regional Location 4
2: Project Location on Aerial Photograph 5
3: Site Plan 6

TABLES

1: Ambient Air Quality Standards 8
2: Summary of Air Quality Measurements Recorded at the Camp Pendleton and Kearny Villa Road Monitoring Stations 15
3: Air Quality Impact Screening Levels 19
4: Summary of Maximum Construction Emissions 20
5: Summary of Project Operational Emissions 22

TABLE OF CONTENTS (cont.)

TABLES (cont.)

6: Commercial and Industrial Land Use Operational Emissions 23
7: CARB Land Use Siting Constraints 27

ATTACHMENTS

1: CalEEMod Output – Project Emissions
2: CalEEMod Output – Industrial, Commercial, and Convenience Market Project Emissions

Acronyms and Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
AAQS	Ambient Air Quality Standards
AB	Assembly Bill
APN	assessor parcel number
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
City	City of San Marcos
CO	carbon monoxide
DPM	diesel particulate matter
General Plan	City of San Marcos General Plan
GPA	General Plan Amendment
MND	Mitigated Negative Declaration
NAAQS	National Ambient Air Quality Standards
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
O_3	oxygen
Pb	lead
PM_{10}	particulate matter with an aerodynamic diameter of 10 microns or less
$PM_{2.5}$	particulate matter with an aerodynamic diameter of 2.5 microns or less
ppb	parts per billion
ppm	parts per million
project	Santa Fe Flores Townhomes Project
RAQS	Regional Air Quality Standards
ROG	reactive organic gases
SANDAG	San Diego Association of Governments
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Pollution Control District
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_X	oxides of sulfur
TAC	toxic air contaminants
TCM	Transportation Control Measures
U.S. EPA	U.S. Environmental Protection Agency
USC	United States Code
VOC	volatile organic compounds

Executive Summary

This report evaluates potential local and regional air quality impacts associated with the proposed Santa Fe Flores Townhomes Project (project), located in the city of San Marcos at 2966, 2972, and 2982 South Santa Fe Avenue adjacent to North Las Flores Drive. The 2.6-acre (net) project site comprises assessor parcel numbers (APNs) 217-161-18 and 217-161-19, as well as 0.37 acres of APN 217-161-17. The project would require a General Plan Amendment and Rezone to allow the development of 46 multi-family residential townhome units. The project also proposes approximately 0.12 acres of off-site improvements, including the construction of a new shared driveway extending into the southern portion of APN 217-161-17, upgrades to the existing liquor store parking lot, and landscaping within the 8-foot-wide irrevocable offer of dedication area along the project frontage. The liquor store, Gourmet Liquor, located on the southern portion of APN 217-161-17 is not part of the project and would remain.

The primary goal of the San Diego Air Pollution Control District's Regional Air Quality Strategy (RAQS) is to reduce ozone precursor emissions. Projects that propose development that is consistent with the growth anticipated by the San Diego Association of Governments' growth projections and the City of San Marcos (City) General Plan would not conflict with the RAQS. In the event that a project would propose development that is less dense than anticipated by the growth projections, the project would likewise be consistent with the RAQS. As calculated in this analysis, project emissions would be less than operational emissions associated with an industrial, commercial, and convenience market project that is consistent with the land use assumptions used in the RAQS. Therefore, the project would not result in an increase in emissions that are not already accounted for in the RAQS. Thus, it can be concluded that the project would not obstruct or conflict with the implementation of the RAQS.

Additionally, as calculated in this analysis, project construction emissions would not exceed the applicable screening level emissions thresholds. These thresholds are designed to provide limits below which project emissions would not significantly change regional air quality. Therefore, as project emissions would be well below these limits, project construction would not result in a cumulatively considerable net increase in emissions of ozone (O_3), particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}), or particulate matter with an aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$), and impacts would be less than significant. Additionally, construction emissions would be temporary, intermittent, and would cease at the end of project construction.

Long-term emissions of regional air pollutants occur from operational sources. Based on emissions estimates, project operational emissions would not exceed the applicable regional emissions thresholds. Therefore, as project operational emissions would be below these limits, project operation would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant.

Sensitive land uses include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities. The nearest sensitive receptors are the residential uses located 300 feet to the northeast, 100 feet to the southeast, 160 feet to the south, and 115 feet to the southwest. The project is not anticipated to result in a carbon monoxide (CO) hot spot at

project area intersections. Construction of the project and associated infrastructure would result in short-term diesel exhaust emissions from on-site, heavy-duty equipment. However, given the temporary nature of construction activities and implementation of Best Available Control Technology for Toxics measures, the project would not result in the exposure of sensitive receptors to substantial pollutant concentrations during construction.

The project does not include heavy industrial or agricultural uses that are typically associated with objectionable odors. The project would involve the use of diesel-powered equipment during construction. Diesel exhaust may occasionally be noticeable at adjacent properties; however, construction activities would be temporary, and the odors would dissipate quickly in an outdoor environment. Therefore, this impact would be less than significant.

1.0 Introduction

The purpose of this report is to assess potential short-term and long-term local and regional air quality impacts resulting from development of the proposed Santa Fe Flores Townhomes Project (project).

Air pollution affects all southern Californians. Effects can include increased respiratory infections, increased discomfort, missed days from work and school, and increased mortality. Polluted air also damages agriculture and our natural environment.

The state of California is divided geographically into 15 air basins for managing the air resources of the state on a regional basis. Areas within each air basin are considered to share the same air masses and, therefore, are expected to have similar ambient air quality. The project site is located within the San Diego Air Basin (SDAB). The SDAB is currently classified as a federal non-attainment area for ozone, and a state non-attainment area for particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}), particulate matter with an aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$), and ozone (O_3).

Air quality impacts can result from the construction and operation of the project. Construction impacts are short term and result from fugitive dust, equipment exhaust, and indirect effects associated with construction workers and deliveries. Operational impacts can occur on two levels: regional impacts resulting from growth-inducing development, or local hot-spot effects stemming from sensitive receivers being placed close to highly congested roadways. In the case of this project, operational impacts would be primarily due to emissions to the basin from mobile sources associated with vehicular travel along the roadways within the project area.

The analysis of impacts is based on federal and state Ambient Air Quality Standards and is assessed in accordance with the guidelines, policies, and standards established by the City of San Marcos (City) and the San Diego Air Pollution Control District (SDAPCD). Project compatibility with the adopted air quality plan for the area is also assessed. Measures are recommended, as required, to reduce potentially significant impacts.

2.0 Project Description

The 2.6-acre (net) project site is located in the city of San Marcos at 2966, 2972, and 2982 South Santa Fe Avenue adjacent to North Las Flores Drive on assessor parcel numbers (APNs) 217-161-18 and 217-161-19, as well as 0.37 acres of APN 217-161-17. The project also proposes approximately 0.12 acres of off-site improvements, including the construction of a new shared driveway extending into the southern portion of APN 217-161-17, upgrades to the existing liquor store parking lot, and landscaping within the 8-foot-wide irrevocable offer of dedication area along the project frontage. Figure 1 shows the regional location. Figure 2 shows an aerial photograph of the project site and vicinity.

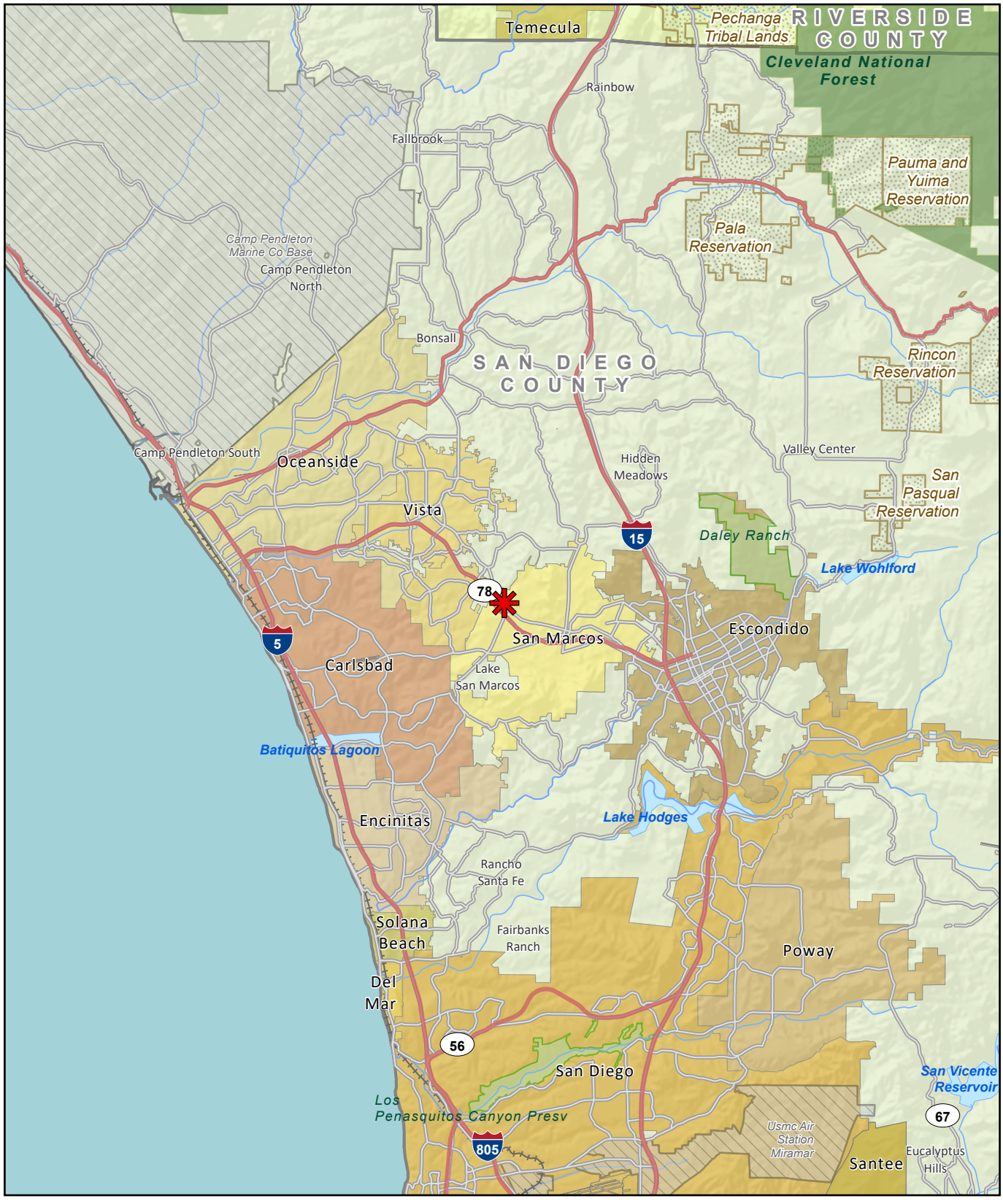
On February 28, 2023, the City Council adopted a Mitigated Negative Declaration (MND; ND22-008; State Clearinghouse Number 2022090486), approved a General Plan Amendment (GPA; GPA21-0008), and approved a Multi-Family Site Development Plan (MFSDP21-0002) for the Santa Fe Flores, LP Project (approved project). The requested Rezone (R21-0004) required a second reading prior to approval on March 14, 2023. The approved project evaluated the impacts associated with a GPA to change the land use from Commercial (C) and Light Industrial (L-I) to Medium Density Residential 2 (MDR2) and a zone change from Commercial (C) and Light Industrial (L-I) to Multi-Family Residential (R-3-10) to allow for the construction of 50 multi-family residential townhome units, in conjunction with a Density Bonus, on a 2.23-acre site consisting of two parcels, APNs 217-161-18 and 217-161-19.

Subsequent to MND approval, the applicant modified the site plan and added 0.37 acres of APN 217-161-17 through a lot line adjustment to be processed. The project would require a GPA from Medium Density Residential 2 (MDR2) to Medium High Density Residential (MHDR) for APNs 217-161-18 and 217-161-19, and a GPA from Commercial (C) to Medium High Density Residential (MHDR) for 0.37 acres of the northern portion of APN 217-161-17. Additionally, the project would rezone APNs 217-161-18 and 217-161-19 from Multi-Family Residential 3 (R-3-10) to Multi-Family Residential (R-3-6) and 0.37 acres of the northern portion of APN 217-161-17 from Commercial (C) to Multi-Family Residential (R-3-6). The project would develop 46 multi-family residential townhome units in seven buildings that would be three stories and 35 feet 4 inches in height. Vehicle parking would include 92 spaces within attached garages and 15 guest spaces. The liquor store would not be part of the project and would remain. Project grading would include 23,300 cubic yards of cut and 3,200 cubic yards of fill resulting in the export of 20,100 cubic yards of soil. Figure 3 shows the proposed site plan.

3.0 Regulatory Framework

3.1 Federal Regulations

Ambient Air Quality Standards (AAQS) represent the maximum levels of background pollution considered safe, with an adequate margin of safety, to protect public health and welfare. The federal Clean Air Act (CAA) was enacted in 1970 and amended in 1977 and 1990 (42 United States Code [USC] 7401) for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. In 1971, in order to achieve the purposes of



Project Location

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 10/29/2024 fmm

FIGURE 1
Regional Location

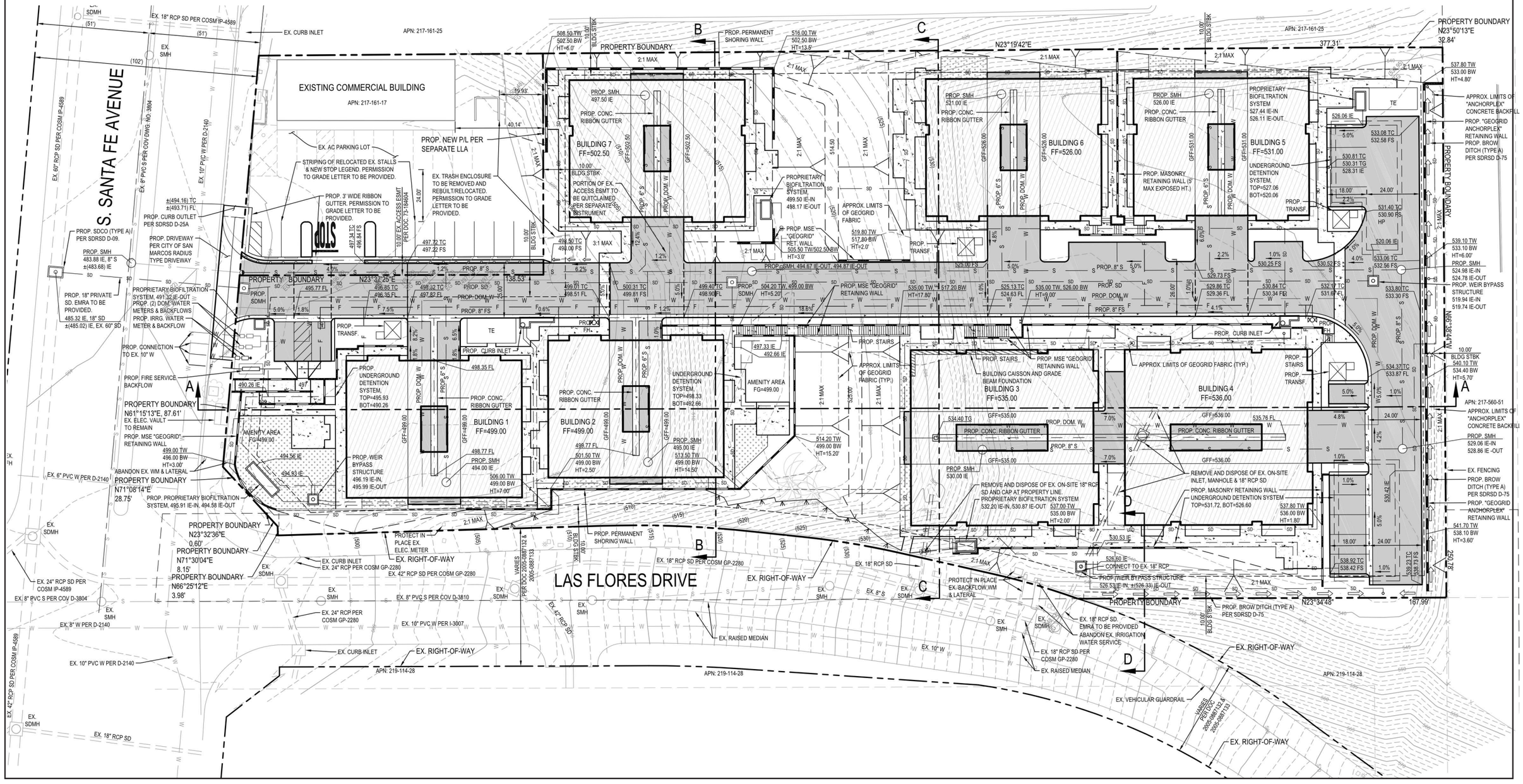
Image Source: Nearmap (flown May 2025)

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 07/21/2025 bma

FIGURE 2
Project Location on Aerial Photograph

Map Source: PLSA Engineering



RECON

M:\JOBS6\10587\nos\graphics\Fig3.afdesign 07/22/25 bma

FIGURE 3
Site Plan

Section 109 of the CAA [42 USC 7409], the U.S. Environmental Protection Agency (U.S. EPA) developed primary and secondary National Ambient Air Quality Standards (NAAQS).

Six criteria pollutants of primary concern have been designated: ozone, carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), lead (Pb), and respirable particulate matter (PM_{10} and $PM_{2.5}$). The primary NAAQS ". . . in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health . . ." and the secondary standards ". . . protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air" (42 USC 7409[b][2]). The primary NAAQS were established, with a margin of safety, considering long-term exposure for the most sensitive groups in the general population (i.e., children, senior citizens, and people with breathing difficulties). The NAAQS are presented in Table 1 (California Air Resources Board [CARB] 2024).

An air basin is designated as either attainment or non-attainment for a particular pollutant. Once a non-attainment area has achieved the AAQS for a particular pollutant, it is re-designated as an attainment area for that pollutant. To be redesignated, the area must meet air quality standards for three consecutive years. After re-designation to attainment, the area is known as a maintenance area and must develop a 10-year plan for continuing to meet and maintain air quality standards, as well as satisfy other requirements of the federal CAA. The SDAB is a non-attainment area for the federal ozone standard.

3.2 State Regulations

3.2.1 Criteria Pollutants

The CARB has developed the California Ambient Air Quality Standards (CAAQS) and generally has set more stringent limits on the criteria pollutants than the NAAQS (see Table 1). In addition to the federal criteria pollutants, the CAAQS also specify standards for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride (see Table 1).

Similar to the federal CAA, the state classifies as either "attainment" or "non-attainment" areas for each pollutant based on the comparison of measured data with the CAAQS. The SDAB is a non-attainment area for the state ozone standards, the state PM_{10} standard, and the state $PM_{2.5}$ standard.

3.2.2 Toxic Air Contaminants

The public's exposure to toxic air contaminants (TACs) is a significant public health issue in California. Diesel-exhaust particulate matter emissions have been established as TACs. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health (Assembly Bill [AB] 1807: Health and Safety Code Sections 39650–39674). The California Legislature established a two-step process to address the potential health effects from TACs. The first step is the risk assessment (or identification) phase. The second step is the risk management (or control) phase of the process.

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.07 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM_{10})[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		–		
Fine Particulate Matter ($PM_{2.5}$)[9]	24 Hour	No Separate State Standard		35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	9 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-dispersive Infrared Photometry	35 ppm (40 mg/m^3)	–	Non-dispersive Infrared Photometry
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	–	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		–	–	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemi-luminescence	100 ppb (188 µg/m^3)	–	Gas Phase Chemi-luminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	–	Ultraviolet Fluorescence; Spectro-photometry (Pararosaniline Method)
	3 Hour	–		–	0.5 ppm (1,300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas)[11]	–	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	–	–	High Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	–		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chroma-tography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chroma-tography			

See footnotes on next page.

Table 1
Ambient Air Quality Standards

ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter; – = not applicable.

[1] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Any equivalent measurement method which can be shown to the satisfaction of the Air Resources Board to give equivalent results at or near the level of the air quality standard may be used.

[5] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[6] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[7] Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

[8] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[9] On February 7, 2024, the national annual $PM_{2.5}$ primary standard was lowered from 12.0 µg/m^3 to 9.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standards of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[10] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of ppb. California standards are in units of ppm. To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[11] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated non-attainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
Note that the 1-hour national standard is in units of ppb. California standards are in units of ppm. To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

[12] The Air Resources Board has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[13] The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated non-attainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

[14] In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

SOURCE: CARB 2024.

The California air toxics Program establishes the process for the identification and control of TACs and includes provisions to make the public aware of significant toxic exposures and for reducing risk. Additionally, the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly Bill) was enacted in 1987 and requires stationary sources to report the types and quantities of certain substances routinely released into the air.

The goals of the Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, to notify nearby residents of significant risks, and to reduce those significant risks to acceptable levels.

The Children's Environmental Health Protection Act, California Senate Bill 25 (Chapter 731, Escutia, Statutes of 1999), focuses on children's exposure to air pollutants. The act requires CARB to review its air quality standards from a children's health perspective, evaluate the statewide air monitoring network, and develop any additional air toxic control measures needed to protect children's health. Locally, toxic air pollutants are regulated through the SDAPCD's Regulation XII. Of particular concern statewide are diesel-exhaust particulate matter emissions. Diesel-exhaust particulate matter was established as a TAC in 1998 and is estimated to represent a majority of the cancer risk from TACs statewide (based on the statewide average). Diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB and are listed as carcinogens either under the state's Proposition 65 or under the federal Hazardous Air Pollutants program.

Following the identification of diesel particulate matter (DPM) as a TAC in 1998, CARB has worked on developing strategies and regulations aimed at reducing the risk from DPM. The overall strategy for achieving these reductions is found in the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (CARB 2000). To monitor the effectiveness of the efforts to reduce DPM, CARB has supported field campaigns that measure real-world emissions from heavy-duty vehicles, and results indicate that regulations aimed at reducing emissions of DPM have been successful.

In April 2005, CARB published the *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB 2005). The handbook makes recommendations directed at protecting sensitive land uses from air pollutant emissions while balancing a myriad of other land use issues (e.g., housing, transportation needs, economics). It notes that the handbook is not regulatory or binding on local agencies and recognizes that application takes a qualitative approach. As reflected in the CARB Handbook, there is currently no adopted standard for the significance of health effects from mobile sources. Therefore, the CARB has provided guidelines for the siting of land uses near heavily traveled roadways. Of pertinence to this study, the CARB guidelines indicate that siting new sensitive land uses within 500 feet of a freeway or urban roads with 100,000 or more vehicles per day should be avoided when possible.

However, transit-oriented, infill, and compact development characterizes many communities located near heavily traveled roadways. This type of development pattern has many benefits, including reducing traffic. To address these issues, in April 2017, CARB published the *Technical Advisory: Strategies to Reduce Air Pollution Exposure Near High Volume Roadways* (Technical Advisory; CARB 2017). The Technical Advisory acknowledges the benefits of transit-oriented infill development, which

often occurs adjacent to high-volume roadways, and identifies strategies to reduce exposure, including practices and technologies that reduce traffic emissions, increase dispersion of traffic pollution, and remove pollution from the air. Strategies that reduce traffic emissions include speed reduction mechanisms (e.g., reduced speed limits, speed bumps, roundabouts) and traffic signal management. Strategies that increase the dispersion of traffic emissions include land use designs that promote airflow and pollutant dispersion along street corridors, solid barriers (such as sound walls), and vegetation. Strategies that remove pollution from the air include indoor high efficiency filtration.

As an ongoing process, CARB will continue to establish new programs and regulations for the control of diesel particulate and other air-toxics emissions as appropriate. The continued development and implementation of these programs and policies will ensure that the public's exposure to DPM will continue to decline.

3.2.3 State Implementation Plan

The State Implementation Plan (SIP) is a collection of documents that set forth the state's strategies for achieving the NAAQS. In California, the SIP is a compilation of new and previously submitted plans, programs (air quality management plans, monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls. The CARB is the lead agency for all purposes related to the SIP under state law. Local air districts and other agencies, such as the Department of Pesticide Regulation and the Bureau of Automotive Repair, prepare SIP elements and submit them to CARB for review and approval. The CARB then forwards SIP revisions to the U.S. EPA for approval and publication in the Federal Register. All the items included in the California SIP are listed in the Code of Federal Regulations (CFR) at 40 CFR 52.220.

The SDAPCD is responsible for preparing and implementing the portion of the SIP applicable to the SDAB. The SIP plans for San Diego County specifically include the Redesignation Request and Maintenance Plan for the 1997 National Ozone Standard for San Diego County (SDAPCD 2012), the 2004 Revision to the California State Implementation Plan for Carbon Monoxide–Updated Maintenance Plan for Ten Federal Planning Areas (CARB 2004), and the 2020 Plan for Attaining the National Ambient Air Quality Standard for Ozone in San Diego County (SDAPCD 2020).

3.2.4 The California Environmental Quality Act

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of any inconsistencies between the project and applicable general plans and regional plans, including the applicable air quality attainment or maintenance plan (or SIP).

3.3 San Diego Air Pollution Control District

3.3.1 Regional Air Quality Strategy

The SDAPCD is the agency that regulates air quality in the SDAB. The SDAPCD prepared the Regional Air Quality Strategy (RAQS) in response to the requirements set forth in the California CAA AB 2595

(SDAPCD 1992) and the federal CAA. Motor vehicles are San Diego County's leading source of air pollution (SDAPCD 2022). In addition to these sources, other mobile sources include construction equipment, trains, and airplanes. Reducing mobile source emissions requires the technological improvement of existing mobile sources and the examination of future mobile sources, such as those associated with new or modification projects (e.g., retrofitting older vehicles with cleaner emission technologies). In addition to mobile sources, stationary sources also contribute to air pollution in the SDAB. Stationary sources include gasoline stations, power plants, dry cleaners, and other commercial and industrial uses. Stationary sources of air pollution are regulated by the local air pollution control or management district, in this case the SDAPCD.

The SDAPCD is responsible for preparing and implementing the RAQS. As part of the RAQS, the SDAPCD developed Transportation Control Measures (TCMs) for the air quality plan prepared by the San Diego Association of Governments (SANDAG) in accordance with AB 2595 and adopted by SANDAG on March 27, 1992, as Resolution Number 92-49 and Addendum. The RAQS and TCM set forth the steps needed to accomplish attainment of NAAQS and CAAQS. The most recent update of the RAQS and TCM occurred in 2022 (SDAPCD 2022).

3.3.2 Rules and Regulations

The SDAPCD has also established a set of rules and regulations initially adopted on January 1, 1969, and periodically reviewed and updated. The following rules and regulations are applicable to the project:

- SDAPCD Regulation IV: Prohibitions; Rule 50: Visible Emissions. Prohibits discharge into the atmosphere from any single source of emissions whatsoever any air contaminant for a period or periods aggregating more than three minutes in any period of 60 consecutive minutes that is darker in shade than that designated as Number 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or of such opacity as to obscure an observer's view to a degree greater than does smoke of a shade designated as Number 1 on the Ringelmann Chart.

- SDAPCD Regulation IV: Prohibitions; Rule 51: Nuisance. Prohibits the discharge, from any source, of such quantities of air contaminants or other materials that cause or have a tendency to cause injury, detriment, nuisance, annoyance to people and/or the public, or damage to any business or property.

- SDAPCD Regulation IV: Prohibitions; Rule 55: Fugitive Dust. Regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas, as well as track-out and carry-out onto paved roads beyond a project site.

- SDAPCD Regulation IV: Prohibitions; Rule 67.0.1: Architectural Coatings. Requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce volatile organic compounds (VOC) emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

- SDAPCD Regulation XII: Toxic Air Contaminates; Rule 1200: Toxic Air Contaminants – New Source Review. Requires new or modified stationary source units with the potential to emit TACs above rule threshold levels to either demonstrate that they will not increase the maximum incremental cancer risk above one in one million at every receptor location, or demonstrate that toxics best available control technology will be employed if maximum incremental cancer risk is equal to or less than 10 in one million, or demonstrate compliance with SDAPCD's protocol for those sources with an increase in maximum incremental cancer risk at any receptor location of greater than 10 in one million but less than 100 in one million.

- SDAPCD Regulation XII: Toxic Air Contaminates; Rule 1210: Toxic Air Contaminant Public Health Risks – Public Notification and Risk Reduction. Requires each stationary source that is required to prepare a public risk assessment to provide written public notice of risks at or above the following levels: maximum incremental cancer risks equal to or greater than 10 in one million, or cancer burden equal to or greater than 1.0, or total acute non-cancer health hazard index equal to or greater than 1.0, or total chronic non-cancer health hazard index equal to or greater than 1.0.

4.0 Environmental Setting

4.1 Geographic Setting

The project is located in the city of San Marcos, about eight miles east of the Pacific Ocean. The eastern portion of the SDAB is surrounded by mountains to the north, east, and south. These mountains tend to restrict airflow and concentrate pollutants in the valleys and low-lying areas below.

4.2 Climate

The project area, like the rest of San Diego County, has a Mediterranean climate characterized by warm, dry summers and mild winters. The mean annual temperature for the project area is 63 degrees Fahrenheit (°F). The average annual precipitation is 10 inches, falling primarily from November to April. Winter low temperatures in the project area average about 47°F, and summer high temperatures average about 75°F (National Oceanic and Atmospheric Administration 2024).

The dominant meteorological feature affecting the region is the Pacific High Pressure Zone, which produces the prevailing westerly to northwesterly winds. These winds tend to blow pollutants away from the coast toward the inland areas. Consequently, air quality near the coast is generally better than that which occurs at the base of the coastal mountain range.

Fluctuations in the strength and pattern of winds from the Pacific High Pressure Zone interacting with the daily local cycle produce periodic temperature inversions that influence the dispersal or containment of air pollutants in the SDAB. Beneath the inversion layer pollutants become "trapped" as their ability to disperse diminishes. The mixing depth is the area under the inversion layer. Generally, the morning inversion layer is lower than the afternoon inversion layer. The greater the change between the morning and afternoon mixing depths, the greater the ability of the atmosphere to disperse pollutants.

Throughout the year, the height of the temperature inversion in the afternoon varies between approximately 1,500 and 2,500 feet above mean sea level. In winter, the morning inversion layer is about 800 feet above mean sea level. In summer, the morning inversion layer is about 1,100 feet above mean sea level. Therefore, air quality generally tends to be better in the winter than in the summer.

The prevailing westerly wind pattern is sometimes interrupted by regional "Santa Ana" conditions. A Santa Ana occurs when a strong high pressure develops over the Nevada-Utah area and overcomes the prevailing westerly coastal winds, sending strong, steady, hot, dry northeasterly winds over the mountains and out to sea.

Strong Santa Anas tend to blow pollutants out over the ocean, producing clear days. However, at the onset or during breakdown of these conditions, or if the Santa Ana is weak, local air quality may be adversely affected. In these cases, emissions from the South Coast Air Basin to the north are blown out over the ocean, and low pressure over Baja California draws this pollutant-laden air mass southward. As the high pressure weakens, prevailing northwesterly winds reassert themselves and send this cloud of contamination ashore in the SDAB. When this event does occur, the combination of transported and locally produced contaminants produce the worst air quality measurements recorded in the basin.

4.3 Existing Air Quality

Air quality at a particular location is a function of the kinds, amounts, and dispersal rates of pollutants being emitted into the air locally and throughout the basin. The major factors affecting pollutant dispersion are wind speed and direction, the vertical dispersion of pollutants (which is affected by inversions), and the local topography.

Air quality is commonly expressed as the number of days in which air pollution levels exceed state standards set by the CARB or federal standards set by the U.S. EPA. The SDAPCD currently maintains nine air quality monitoring stations located throughout the greater San Diego metropolitan region. Air pollutant concentrations and meteorological information are continuously recorded at these stations. Measurements are then used by scientists to help forecast daily air pollution levels.

The Camp Pendleton monitoring station, located at 21441 West B Street, approximately 12 miles northwest of the project site, is the nearest station to the project site. The Camp Pendleton monitoring station measures ozone (O_3), nitrogen dioxide (NO_2), and $PM_{2.5}$. The closest station of the project site that has more complete $PM_{2.5}$ data is the San Diego–Kearny Villa Road monitoring station located at 6125A Kearny Villa Road, approximately 22 miles south of the project site. The San Diego–Kearny Villa Road monitoring station measures ozone, NO_2, and $PM_{2.5}$. Table 2 provides a summary of measurements collected at the Camp Pendleton and Kearny Villa Road monitoring station for the years 2020 through 2024, which is the most recent available data.

Table 2 Summary of Air Quality Measurements Recorded at the Camp Pendleton and Kearny Villa Road Monitoring Stations					
Pollutant/Standard	2020	2021	2022	2023	2024
CAMP PENDLETON MONITORING STATION					
Ozone					
Federal Max 8-hr (ppm)	0.074	0.059	0.067	0.077	0.065
Days 2015 Federal 8-hour Standard Exceeded (0.07 ppm)	3	0	0	1	0
Days 2008 Federal 8-hour Standard Exceeded (0.075 ppm)	0	0	0	1	0
State Max 8-hr (ppm)	0.074	0.059	0.067	0.077	0.065
Days State 8-hour Standard Exceeded (0.07 ppm)	3	0	0	1	0
Max. 1-hour (ppm)	0.094	0.074	0.076	0.090	0.074
Days State 1-hour Standard Exceeded (0.09 ppm)	0	0	0	0	0
Nitrogen Dioxide					
Max 1-hour (ppm)	0.058	0.059	0.0504	0.0632	0.0454
Days State 1-hour Standard Exceeded (0.18 ppm)	0	0	0	0	0
Days Federal 1-hour Standard Exceeded (0.100 ppb)	0	0	0	0	0
Annual Average (ppm)	0.006	--	0.005	0.005	0.004
$PM_{2.5}$*					
Federal Max. Daily ($\mu g/m^3$)	--	--	17.0	26.5	25.8
Measured Days Federal 24-hour Standard Exceeded (35 $\mu g/m^3$)	--	--	0	0	0
Calculated Days Federal 24-hour Standard Exceeded (35 $\mu g/m^3$)	--	--	--	0.0	0.0
Federal Annual Average ($\mu g/m^3$)	--	--	--	7.8	7.6
State Max. Daily ($\mu g/m^3$)	61.1	20.7	17.7	--	--
State Annual Average ($\mu g/m^3$)	9.5	--	--	--	--
SAN DIEGO – KEARNY VILLA ROAD MONITORING STATION					
Ozone					
Federal Max 8-hr (ppm)	0.102	0.071	0.083	0.079	0.080
Days 2015 Federal 8-hour Standard Exceeded (0.07 ppm)	10	1	2	3	3
Days 2008 Federal 8-hour Standard Exceeded (0.075 ppm)	6	0	1	1	1
State Max 8-hr (ppm)	0.102	0.072	0.083	0.080	0.081
Days State 8-hour Standard Exceeded (0.07 ppm)	12	2	2	3	3
Max. 1-hour (ppm)	0.123	0.095	0.095	0.091	0.112
Days State 1-hour Standard Exceeded (0.09 ppm)	2	1	1	0	2
Nitrogen Dioxide					
Max 1-hour (ppm)	0.052	0.060	0.0512	0.0384	0.0421
Days State 1-hour Standard Exceeded (0.18 ppm)	0	0	0	0	0
Days Federal 1-hour Standard Exceeded (0.100 ppb)	0	0	0	0	0
Annual Average (ppm)	0.007	0.007	0.008	0.006	0.005
$PM_{2.5}$*					
Federal Max. Daily ($\mu g/m^3$)	57.5	20.9	13.9	24.5	21.1
Measured Days Federal 24-hour Standard Exceeded (35 $\mu g/m^3$)	2	0	0	0	0
Calculated Days Federal 24-hour Standard Exceeded (35 $\mu g/m^3$)	5.8	0.0	0.0	0.0	0.0
Federal Annual Average ($\mu g/m^3$)	8.7	7.6	6.8	7.0	8.0
State Max. Daily ($\mu g/m^3$)	--	--	--	--	--
State Annual Average ($\mu g/m^3$)	--	--	--	--	--

SOURCE: CARB 2025.
ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; -- = Not available.
* Calculated days value. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

4.3.1 Ozone

Nitrogen oxides (NO_X) and hydrocarbons (reactive organic gases [ROG]) are known as the chief "precursors" of ozone. These compounds react in the presence of sunlight to produce ozone, which is the primary air pollution problem in the SDAB. Because sunlight plays such an important role in its formation, ozone pollution—or smog—is mainly a concern during the daytime in summer months. The SDAB is currently designated a federal and state non-attainment area for ozone. During the past three decades, San Diego had experienced a decline in the number of days with unhealthy levels of ozone despite the region's growth in population and vehicle miles traveled (SDAPCD 2022).

About half of smog-forming emissions come from automobiles. Population growth in San Diego has resulted in a large increase in the number of automobiles expelling ozone-forming pollutants while operating on area roadways. In addition, the occasional transport of smog-filled air from the South Coast Air Basin only adds to the SDAB's ozone problem. Stricter automobile emission controls, including more efficient automobile engines, have played a large role in why ozone levels have steadily decreased.

The adverse health effects associated with exposure to ozone pertain primarily to the respiratory system. Scientific evidence indicates that ambient levels of ozone affect not only sensitive receptors, such as asthma sufferers and children, but healthy adults as well. Exposure to ozone has been found to significantly alter lung functions by increasing respiratory rates and pulmonary resistance, decreasing tidal volumes (the amount of air inhaled and exhaled), and impairing respiratory mechanics. Symptomatic responses include throat dryness, chest tightness, headache, and nausea.

4.3.2 Carbon Monoxide

The SDAB is classified as a state attainment area and as a federal maintenance area for CO. Until 2003, no violations of the state standard for CO had been recorded in the SDAB since 1991, and no violations of the national standard had been recorded in the SDAB since 1989. The violations that took place in 2003 were likely the result of massive wildfires that occurred throughout the county. No violations of the state or federal CO standards have occurred since 2003.

Small-scale, localized concentrations of CO above the state and national standards have the potential to occur at intersections with stagnation points such as those that occur on major highways and heavily traveled and congested roadways. Localized high concentrations of CO are referred to as "CO hot spots" and are a concern at congested intersections, where automobile engines burn fuel less efficiently and their exhaust contains more CO.

Adverse health effects associated with high concentrations of CO include the reduction of the oxygen-carrying capacity of the blood, which can cause headaches, nausea, dizziness, and fatigue; impair central nervous system function; and induce angina (chest pain) in persons with serious heart disease. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases. Very high levels of CO can be fatal.

4.3.3 Nitrogen Dioxide

Nitrogen dioxide is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. The national and state standards for NO_2 are being met in the SDAB. Inhalation is the most common route of exposure to NO_2. Because NO_2 has relatively low solubility in water, the principal site of toxicity is in the lower respiratory tract. The severity of the adverse health effects depends primarily on the concentration inhaled rather than the duration of exposure. An individual may experience a variety of acute symptoms, including coughing, difficulty with breathing, vomiting, headache, and eye irritation during or shortly after exposure. After a period of approximately 4 to 12 hours, an exposed individual may experience chemical pneumonitis or pulmonary edema with breathing abnormalities, cough, cyanosis, chest pain, and rapid heartbeat.

4.3.4 Sulfur Dioxide

Sulfur dioxide is a combustion product, with the primary source being power plants and heavy industries that use coal or oil as fuel. SO_2 is also a product of diesel engine combustion. The national and state standards for SO_2 are being met in the SDAB. The health effects of SO_2 include lung disease and breathing problems for people with asthma. SO_2 in the atmosphere contributes to the formation of acid rain.

4.3.5 Particulate Matter

Particulate matter is a complex mixture of microscopic solid or liquid particles including chemicals, soot, and dust. Anthropogenic sources of direct particulate emissions include crushing or grinding operations, dust stirred up by vehicle traffic, and combustion sources such as motor vehicles, power plants, wood burning, forest fires, agricultural burning and industrial processes. Additionally, indirect emissions may be formed when aerosols react with compounds found in the atmosphere.

Health studies have shown a significant association between exposure to particulate matter and premature death in people with heart or lung diseases. Other important effects include aggravation of respiratory and cardiovascular disease, lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems such as heart attacks and irregular heartbeat (U.S. EPA 2025).

As its properties vary based on the size of suspended particles, particulate matter is generally categorized as PM_{10} or $PM_{2.5}$.

4.3.5.1 PM_{10}

PM_{10}, occasionally referred to as "inhalable coarse particles," has an aerodynamic diameter of about one-seventh of the diameter of a human hair. High concentrations of PM_{10} are often found near roadways, construction, mining, or agricultural operations.

4.3.5.2 $PM_{2.5}$

$PM_{2.5}$, occasionally referred to as "inhalable fine particles," has an aerodynamic diameter of about one-thirtieth of the diameter of a human hair. $PM_{2.5}$ is the main cause of haze in many parts of the United States. Federal standards applicable to $PM_{2.5}$ were first adopted in 1997.

4.3.6 Lead

Lead is a metal found naturally in the environment as well as in manufactured products. At high levels of exposure, lead can have detrimental effects on the central nervous system. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase out of leaded gasoline, metal processing is currently the primary source of lead emissions. The previous standards for lead are being met in the SDAB.

4.3.7 Other Criteria Pollutants

The SDAB is in attainment of the state standards for vinyl chloride, hydrogen sulfide, sulfates, and visibility-reducing particulates.

5.0 Thresholds of Significance

Thresholds used to evaluate potential impacts to air quality are based on applicable criteria in the CEQA Guidelines Appendix G. The project would have a significant air quality impact if it would:

1. Obstruct or conflict with the implementation of the RAQS.

2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

3. Expose sensitive receptors to substantial pollutant concentrations.

4. Result in other emissions such as those leading to odors adversely affecting a substantial number of people.

The City has not adopted air quality significance thresholds. The SDAPCD also does not provide specific numeric thresholds for determining the significance of air quality impacts under CEQA. However, the SDAPCD does specify Air Quality Impact Analysis trigger levels for new or modified stationary sources (SDAPCD Rules 20.1, 20.2, and 20.3). The SDAPCD does not consider these trigger levels to represent adverse air quality impacts, rather, if these trigger levels are exceeded by a project, the SDAPCD requires an air quality analysis to determine if a significant air quality impact would occur. While, these trigger levels do not generally apply to mobile sources or general land development projects, for comparative purposes these levels are used to evaluate the increased emissions that would be discharged to the SDAB if the project were approved. The air quality impact screening levels used in this analysis are shown in Table 3.

Table 3 Air Quality Impact Screening Levels			
	Emission Rate		
Pollutant	Pounds/Hour	Pounds/Day	Tons/Year
NO_X	25	250	40
SO_X	25	250	40
CO	100	550	100
PM_{10}	--	100	15
Lead	--	3.2	0.6
VOC, ROG[1]	--	250	--
$PM_{2.5}$	--	67	10
SOURCE: SDAPCD, Rules 20.1, 20.2, 20.3. [1]ROG threshold based on federal General Conformity *de minimus* levels for ozone precursors.			

6.0 Air Quality Assessment

Construction impacts are short term and result from fugitive dust, equipment exhaust, and indirect effects associated with construction workers and deliveries. Operational impacts can occur on two levels: regional or local. In the case of this project, operational impacts are primarily due to emissions from mobile sources associated with vehicular travel along the roadways within the project area.

Construction and operation air emissions were calculated using California Emissions Estimator Model (CalEEMod) 2022.1.33 (California Air Pollution Control Officers Association 2022). The CalEEMod program is a tool used to estimate air emissions resulting from land development projects based on California-specific emission factors. The model estimates mass emissions from two basics sources: construction sources and operational sources (i.e., area, energy, and mobile sources).

Inputs to CalEEMod include such items as the air basin containing the project, land uses, trip generation rates, trip lengths, vehicle fleet mix (i.e., percentage of autos, medium truck, etc.), trip destination (i.e., percent of trips from home to work, etc.), duration of construction phases, construction equipment usage, grading areas, season, and ambient temperature, as well as other parameters. The CalEEMod output files contained in Attachment 1 indicate the specific outputs for each model run. Emissions of NO_X, CO, SO_X, PM_{10}, $PM_{2.5}$, and ROG are calculated. Emission factors are not available for lead, and consequently, lead emissions are not calculated. The SDAB is currently in attainment of the federal and state lead standards. Furthermore, fuel used in construction equipment and most other vehicles is not leaded.

6.1 Construction Emissions

Construction-related activities are temporary, short-term sources of air emissions. Sources of construction-related air emissions include the following:

- fugitive dust from grading activities;
- construction equipment exhaust;
- construction-related trips by workers, delivery trucks, and material-hauling trucks; and
- construction-related power consumption.

Construction-related pollutants result from dust raised during grading, emissions from construction vehicles, and chemicals used during construction. Fugitive dust emissions vary greatly during construction and are dependent on the amount and type of activity, silt content of the soil, and the weather. Vehicles moving over paved and unpaved surfaces, demolition, excavation, earth movement, grading, and wind erosion from exposed surfaces are all sources of fugitive dust. Construction operations are subject to the requirements established in Regulation 4, Rules 52, 54, and 55 of the SDAPCD's rules and regulations.

Heavy-duty construction equipment is usually diesel powered. In general, emissions from diesel-powered equipment contain more NO_X, SO_X, and particulate matter than gasoline-powered engines. However, diesel-powered engines generally produce less CO and less ROG than gasoline-powered engines. Standard construction equipment includes tractors/loaders/backhoes, rubber-tired dozers, excavators, graders, cranes, forklifts, rollers, paving equipment, generator sets, welders, cement and mortar mixers, and air compressors.

Primary inputs are the numbers of each piece of equipment and the length of each construction stage. Specific construction phasing and equipment parameters are not available at this time. However, CalEEMod can estimate the required construction equipment when project-specific information is unavailable. The estimates are based on surveys, performed by the South Coast Air Quality Management District and the Sacramento Metropolitan Air Quality Management District, of typical construction projects which provide a basis for scaling equipment needs and schedule with a project's size. Air emission estimates in CalEEMod are based on the duration of construction phases; construction equipment type, quantity, and usage; grading area; season; and ambient temperature, among other parameters. Construction emissions were modeled assuming construction would begin in January 2026 and last for approximately one year. This is based on CalEEMod default construction duration for all phases except for grading, which is anticipated to last for one month. Assuming construction would begin in January 2026 is conservative, as continued implementation of regulations for off-road equipment, the primary construction emission source, would reduce emissions from these sources over time. Project grading would include 23,300 cubic yards of cut and 3,200 cubic yards of fill resulting in the export of 20,100 cubic yards of soil.

Table 4 shows the total projected construction maximum daily emission levels for each criteria pollutant. The CalEEMod output files for construction emissions are contained in Attachment 1.

Table 4
Summary of Maximum Construction Emissions
(pounds per day)

Construction	Pollutant					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Site Preparation	1	10	11	<1	1	<1
Grading	2	23	18	<1	6	3
Building Construction	1	10	13	<1	1	<1
Paving	1	6	9	<1	<1	<1
Architectural Coatings	63	1	1	<1	<1	<1
Maximum Daily Emissions	**63**	**23**	**18**	**<1**	**6**	**3**
Significance Threshold	*250*	*250*	*550*	*250*	*100*	*67*

Standard dust control measures would be implemented as a part of project construction in accordance with SDAPCD rules and regulations. Fugitive dust emissions were calculated using CalEEMod default values and did not take into account the required dust control measures. Thus, the emissions shown in Table 4 are conservative.

For assessing the significance of the air quality emissions resulting during construction of the project, the construction emissions were compared to the screening thresholds shown in Table 4. As shown in Table 4, maximum daily construction emissions associated with the project are projected to be less than the applicable thresholds for all criteria pollutants. Construction related air quality impacts would be less than significant.

6.2 Operation Emissions

Mobile source emissions would originate from traffic generated by the project. Energy source emissions result from the combustion of natural gas. Area source emissions would result from the use of consumer products, architectural coatings, and landscaping activities.

6.2.1 Mobile Source Emissions

Mobile source operational emissions are based on the trip rate and trip length. The project would generate eight trips per unit for a total of 368 average daily trips (Linscott, Law and Greenspan, Engineers 2026). Default trip distances and default vehicle emission factors for the soonest operational year of 2027 were used.

6.2.2 Energy Source Emissions

Energy sources of emissions include natural gas used in space and water heating. Emissions are generated from the combustion of natural gas used in space and water heating. Emissions are based on the Residential Appliance Saturation Survey which is a comprehensive energy use assessment that includes the end use for various climate zones in California. As required by the County's Climate Action Plan, the project would not include natural gas appliances. Energy-source emissions were modeled using CalEEMod default assumptions.

6.2.3 Area Source Emissions

Area source emissions associated with the project include consumer products, architectural coatings, and landscaping equipment. Hearths (fireplaces) and woodstoves are also a source of area emissions; however, the project would not include hearths or woodstoves. Consumer products are chemically formulated products used by household and institutional consumers, including, but not limited to, detergents, cleaning compounds, polishes, floor finishes, disinfectants, sanitizers, and aerosol paints but not including other paint products, furniture coatings, or architectural coatings. Emissions due to consumer products are calculated using total building area and product emission factors.

For architectural coatings, emissions result from evaporation of solvents contained in surface coatings such as in paints and primers. Emissions are based on the building surface area, architectural

coating emission factors, and a reapplication rate of 10 percent of area per year. Landscaping maintenance includes fuel combustion emission from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers as well as air compressors, generators, and pumps. Emission calculations take into account building area, equipment emission factors, and the number of operational days (summer days).

6.2.4 Total Operational Emissions

Table 5 provides a summary of the operational emissions generated by the project. CalEEMod output files for project operation are contained in Attachment 1. As shown, project-generated emissions are projected to be less than the screening level thresholds for all criteria pollutants.

Table 5
Summary of Project Operational Emissions
(pounds per day)

Source	Pollutant					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Mobile Sources	1	1	9	<1	2	<1
Area Sources	3	<1	3	<1	<1	<1
Energy Sources	<1	<1	<1	<1	<1	<1
Total	**4**	**1**	**11**	**<1**	**2**	**<1**
Significance Threshold	*250*	*250*	*550*	*250*	*100*	*67*
NOTE: Totals may vary due to independent rounding.						

6.3 Impact Analysis

1. Would the project obstruct or conflict with the implementation of the San Diego RAQS?

The RAQS is the applicable regional air quality plan that sets forth the SDAPCD's strategies for achieving the NAAQS and CAAQS. The SDAB is designated non-attainment for the federal and state ozone standards. Accordingly, the RAQS was developed to identify feasible emission control measures and provide expeditious progress toward attaining the standards for ozone. The two pollutants addressed in the RAQS are ROG and NO_X, which are precursors to the formation of ozone. Projected increases in motor vehicle usage, population, and growth create challenges in controlling emissions and by extension to maintaining and improving air quality. The RAQS was most recently updated in 2022.

The growth projections used by the SDAPCD to develop the RAQS emissions budgets are based on the population, vehicle trends, and land use plans developed in general plans and used by SANDAG in the development of the regional transportation plans and sustainable communities strategy. As such, projects that propose development that is consistent with the growth anticipated by SANDAG's growth projections and/or the general plan would not conflict with the RAQS. In the event that a project would propose development that is less dense than anticipated by the growth projections, the project would likewise be consistent with the RAQS. In the event a project proposes development that is greater than anticipated in the growth projections, further analysis would be warranted to

determine if the project would exceed the growth projections used in the RAQS for the specific subregional area.

As discussed in Section 2.0, the approved project included a GPA to change the land uses of APNs 217-161-18 and 217-161-19 from Commercial (C) and Light Industrial (L-I) to Medium Density Residential 2 (MDR2). The approved MND found that even with this GPA, the approved project would not conflict with implementation of the 2016 RAQS. The 2022 RAQS was adopted in March 2023 after approval of the MND; therefore, the land uses considered in the 2022 RAQS are Commercial (C) and Light Industrial (L-I). As analyzed in the MND, these land use designations would allow for the construction of approximately 38,000 square feet of light industrial development and 24,000 square feet of commercial development based on the floor area ratios established in Title 20–Zoning of the City's Municipal Code. Additionally, the project also includes 0.37 acres of APN 217-161-1700 which would be redesignated from Commercial (C) to Medium High Density Residential (MHDR). The additional parcel is currently developed with a 2,200-square-foot liquor store that would remain in operation.

In order to determine if emissions associated with the project are accounted for in the growth projections assumed in the 2022 RAQS, emissions due to operation of a project consistent with the land use and zoning designations assumed in the 2022 RAQS (prior to MND adoption) were calculated and compared to emissions associated with operation of the project. Emissions were calculated for 38,000 square feet of light industrial development, 24,000 square feet of commercial development, and the existing 2,200 square foot convenience market. Emissions were modeled using the CalEEMod default trip generations rates. Table 6 summarizes the emissions associated with industrial, commercial, and convenience market land uses along with the emissions associated with the project. The CalEEMod output files for the project are contained in Attachment 1, and the CalEEMod output files for the industrial and commercial project are contained in Attachment 2.

Table 6
Commercial and Industrial Land Use Operational Emissions
(pounds per day)

Source	Pollutant					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
PROJECT EMISSIONS						
Mobile Sources	1	1	9	<1	2	<1
Area Sources	3	<1	3	<1	<1	<1
Energy Sources	<1	<1	<1	<1	<1	<1
Total	**4**	**1**	**11**	**<1**	**2**	**<1**
INDUSTRIAL, COMMERCIAL, AND CONVENIENCE MARKET EMISSIONS						
Mobile Sources	14	11	106	<1	23	6
Area Sources	2	<1	3	<1	<1	<1
Energy Sources	<1	<1	<1	<1	<1	<1
Total	**16**	**11**	**109**	**<1**	**23**	**6**
NOTE: Totals may vary due to independent rounding.						

As shown, project emissions would be less than operational emissions associated with an industrial, commercial, and convenience market project that is consistent with the land use assumptions used

in the 2022 RAQS. Therefore, the project would not result in an increase in emissions that are not already accounted for in the 2022 RAQS.

Additionally, shown in Tables 4 and 5, project emissions would not exceed the screening level thresholds. Therefore, the project would not result in an increase in emissions that are not already accounted for in the RAQS. The project would not obstruct or conflict with implementation of the RAQS, and impacts would be less than significant.

2. *Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?*

The region is classified as an attainment area for all criterion pollutants except ozone, PM_{10}, and $PM_{2.5}$. The SDAB is a non-attainment area for the 8-hour federal and state ozone standards. Ozone is not emitted directly, but is a result of atmospheric activity on precursors. NO_X and ROG are known as the chief "precursors" of ozone. These compounds react in the presence of sunlight to produce ozone. $PM_{2.5}$ includes fine particles that are found in smoke and haze and are emitted from all types of combustion activities (motor vehicles, power plants, wood burning, etc.) and certain industrial processes. PM_{10} includes both fine and coarse dust particles, and sources include crushing or grinding operations and dust from paved or unpaved roads.

As shown in Table 4, project construction would not exceed the applicable regional emissions thresholds. These thresholds are designed to provide limits below which project emissions would not significantly change regional air quality. Therefore, as project construction emissions would be below these limits, project construction would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant.

Long-term emissions of regional air pollutants occur from operational sources. As shown in Table 5, project operation would not exceed the applicable regional emissions thresholds. Therefore, as operational emissions would be below these limits, the project would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant.

3. *Would the project expose sensitive receptors to substantial pollutant concentrations?*

Sensitive land uses include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities. The nearest sensitive receptors are the residential uses located 300 feet to the northeast, 100 feet to the southeast, 160 feet to the south, and 115 feet to the southwest.

Carbon Monoxide Hot Spots

Localized CO concentration is a direct function of motor vehicle activity at signalized intersections (e.g., idling time and traffic flow conditions), particularly during peak commute hours and meteorological conditions. The SDAB is a CO maintenance area under the federal CAA. This means that SDAB was previously a non-attainment area and is currently implementing a 10-year plan for continuing to meet and maintain air quality standards.

Due to increased requirements for cleaner vehicles, equipment, and fuels, CO levels in the state have dropped substantially. All air basins are attainment or maintenance areas for CO. Therefore, more recent screening procedures based on more current methodologies have been developed. The Bay Area Air Quality Management District developed a screening threshold in their 2022 CEQA Guidelines (Bay Area Air Quality Management District 2022). These screening criteria are considered applicable in the SDAB because the San Francisco Bay Air Basin and the SDAB have the same CO maintenance designations, and the vehicle classifications in the regions are similar. If the following screening criteria are met, operation of a project would result in less than significant impacts related to CO:

- The project is consistent with an applicable congestion management program established by the County of San Diego congestion management agency for designated roads or highways, the regional transportation plan, and local congestion management agency plans.

- Project-generated traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.

- Project-generated traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

As discussed, the project would generate 368 daily trips. Based on the Local Transportation Analysis (Linscott, Law and Greenspan, Engineers 2026), peak hour turning volumes at the study area intersections would be well less than 44,000 vehicles per hour. Additionally, all signalized intersections are projected to operate at an acceptable level of service. Therefore, the project is not anticipated to result in a CO hot spot.

Diesel Particulate Matter – Construction

Construction of the project and associated infrastructure would result in short-term diesel exhaust emissions from on-site heavy-duty equipment. Construction of the project would result in the generation of diesel-exhaust DPM emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities and on-road diesel equipment used to bring materials to and from the project site.

Generation of DPM from construction projects typically occurs in a single area for a short period. Construction is anticipated to last for approximately one year. The dose to which the receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the Maximally Exposed Individual. The risks estimated for a Maximally Exposed Individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period; however, such assessments should be limited to the period/duration of activities

associated with the project (Office of Environmental Health Hazard Assessment 2015). Thus, if the duration of proposed construction activities near any specific sensitive receptor were one year, the exposure would be 3 percent of the total 30-year exposure period used for health risk calculation. Further, the project would implement construction best management practices and would be conducted in accordance with CARB regulations. Specifically, the project would implement the following Best Available Control Technology for Toxics measures during construction:

- The construction fleet shall use any combination of diesel catalytic converters, diesel oxidation catalysts, diesel particulate filters and/or utilize CARB/U.S. EPA Engine Certification Tier 3 or better, or other equivalent methods approved by the CARB.
- The engine size of construction equipment shall be the minimum size suitable for the required job.
- Construction equipment shall be properly tuned and maintained in accordance with the manufacturer's specifications.
- Per CARB's Airborne Toxic Control Measures 13 (California Code of Regulations Chapter 10 Section 2485), the applicant shall not allow idling time to exceed 5 minutes unless more time is required per engine manufacturers' specifications or for safety reasons.

Therefore, DPM generated by project construction is not expected to create conditions where the probability is greater than 10 in 1 million of contracting cancer for the Maximally Exposed Individual or to generate ground-level concentrations of noncarcinogenic TACs that exceed a Hazard Index greater than 1 for the Maximally Exposed Individual. Additionally, with ongoing implementation of U.S. EPA and CARB requirements for cleaner fuels; off-road diesel engine retrofits; and new, low-emission diesel engine types, the DPM emissions of individual equipment would be substantially reduced. Therefore, project construction would not expose sensitive receptors to substantial pollutant concentration.

Stationary Sources

CARB provides guidance on siting land uses near major emitters or facilities of concern. These facilities include distribution centers, chrome platers, dry cleaners using perchloroethylene, and large gas stations. CARB siting constraints are summarized in Table 7.

The project would not include any of the sources included in Table 7. The project would not construct a stationary source of toxic emissions.

Table 7 CARB Land Use Siting Constraints	
Source Category	Recommended Buffer Distances (feet)
Distribution centers (that accommodate more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units per day, or where transport refrigeration unit operations exceed 300 hours per week)	1,000
Chrome platers	1,000
Dry cleaners using perchloroethylene (1 machine)	300
Dry cleaners using perchloroethylene (2 machines)	500
Dry cleaners using perchloroethylene (3 or more machines)	Requires consultation with APCD
Large gas station (3.6 million gallons or more per year)	300
Other gas stations	50
SOURCE: CARB 2005.	

4. *Would the project result in other emissions such as those leading to odors adversely affecting a substantial number of people?*

The project does not include heavy industrial or agricultural uses that are typically associated with odor complaints. During construction, diesel equipment may generate some nuisance odors. However, exposure to odors associated with project construction would be short term and temporary in nature. Impacts associated with odors would be less than significant.

7.0 Conclusions

The primary goal of the RAQS is to reduce ozone precursor emissions. The project would require a GPA to Medium High Density Residential (MHDR); however, as calculated in this analysis, project emissions would be less than operational emissions associated with an industrial, commercial, and convenience market project that is consistent with the land use assumptions used in the 2022 RAQS. Therefore, the project would not result in an increase in emissions that are not already accounted for in the RAQS. Thus, it can be concluded that the project would not obstruct or conflict with the implementation of the RAQS.

As shown in Table 4, project construction emissions would not exceed the applicable regional emissions thresholds. These thresholds are designed to provide limits below which project emissions would not significantly change regional air quality. Therefore, as project construction emissions would be below these limits, project construction would not result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant. Additionally, construction emissions would be temporary, intermittent, and would cease at the end of project construction.

Long-term emissions of regional air pollutants occur from operational sources. As shown in Table 5, project operational emissions would not exceed the applicable regional emissions thresholds. Therefore, as project operational emissions would be below these limits, project operation would not

result in a cumulatively considerable net increase in emissions of ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant.

Sensitive land uses include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities. The nearest sensitive receptors are the residential uses located 300 feet to the northeast, 100 feet to the southeast, 160 feet to the south, and 115 feet to the southwest. The project is not anticipated to result in a CO hot spot at project area intersections. Construction of the project and associated infrastructure would result in short-term diesel exhaust emissions from on-site heavy-duty equipment. However, given the temporary nature of construction activities and implementation of Best Available Control Technology for Toxics measures, the project would not result in the exposure of sensitive receptors to substantial pollutant concentrations during construction.

The project does not include heavy industrial or agricultural uses that are typically associated with objectionable odors. The project would involve the use of diesel-powered construction equipment. Diesel exhaust may be noticeable temporarily at adjacent properties; however, construction activities would be temporary. Therefore, odor impacts would be less than significant.

8.0 References Cited

Bay Area Air Quality Management District
2022 California Environmental Quality Act Air Quality Guidelines.

California Air Pollution Control Officers Association
2022 California Emissions Estimator model (CalEEMod). User's Guide Version 2022.1.

California Air Resources Board (CARB)
2000 Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. California Air Resources Board. Stationary Source Division, Mobile Source Control Division. October.

2004 2004 Revisions to the California State Implementation Plan for Carbon Monoxide. Updated Maintenance Plan for Ten Federal Planning Areas. Adopted July 22, 2004.

2005 Air Quality and Land Use Handbook: A Community Health Perspective. California Air Resources Board. April.

2017 Technical Advisory: Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways. April 2017.

2024 Ambient Air Quality Standards. California Air Resources Board. Updated July 16, 2024.

2025 California Air Quality Data Statistics. Top 4 Summary and Hourly Listing. http://www.arb.ca.gov/adam/welcome.html. Accessed on November 20, 2025.

Linscott, Law and Greenspan, Engineers, Inc.
2026 Local Transportation Analysis for the Santa Fe Flores Project. LLG Ref. 3-24-3940. January.

National Oceanic and Atmospheric Administration
2024 Climate Database – SC ACIS Version 2. http://scacis.rcc-acis.org/. Updated October 10, 2024.

Office of Environmental Health Hazard Assessment
2015 Air Toxics Hot Spots Program Guidance Manual for the Preparation of Risk Assessments (Guidance Manual), February.

San Diego Air Pollution Control District (SDAPCD)
1992 1991/1992 Regional Air Quality Strategies. Air Pollution Control District. June.

2012 Redesignation Request and Maintenance Plan for the 1997 National Ozone Standard for San Diego County. Adopted December 5, 2012.

2020 2020 Plan for Attaining the National Ambient Air Quality Standard for Ozone in San Diego County. October 2020.

2022 2022 Regional Air Quality Strategy.

U.S. Environmental Protection Agency (U.S. EPA)
2025 Criteria Air Pollutants, Particulate Matter (PM) Pollution. https://www.epa.gov/pm-pollution. Accessed March 26, 2025.

ATTACHMENTS

ATTACHMENT 1

CalEEMod Output – Project Emissions

South Santa Fe Townhomes Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

2.2. Construction Emissions by Year, Unmitigated

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

3. Construction Emissions Details

3.1. Site Preparation (2026) - Unmitigated

3.3. Grading (2026) - Unmitigated

3.5. Building Construction (2026) - Unmitigated

3.7. Paving (2026) - Unmitigated

3.9. Architectural Coating (2026) - Unmitigated

1227

3.11. Architectural Coating (2027) - Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

8.1. Justifications

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	South Santa Fe Townhomes
Construction Start Date	1/1/2026
Operational Year	2027
Lead Agency	City of San Marcos
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.2
Precipitation (days)	19
Location	2982 S Santa Fe Ave, San Marcos, CA 92069, USA
County	San Diego
City	San Marcos
Air District	San Diego County APCD
Air Basin	San Diego
TAZ	6276
EDFZ	12
Electric Utility	San Diego Gas & Electric
Gas Utility	San Diego Gas & Electric
App Version	2022.1.1.35

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Mid Rise	46	Dwelling Unit	2.7	100,000	38,759	—	128	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.6	1.3	10	13	0.02	0.36	0.31	0.67	0.33	0.07	0.41	—	2,630	2,630	0.11	0.05	1.4	2,647
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	63	63	23	18	0.07	0.72	4.8	5.5	0.62	1.9	2.5	—	9,911	9,911	0.47	1.2	0.41	10,283
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.6	1.4	8.0	9.4	0.02	0.28	0.51	0.79	0.25	0.17	0.42	—	2,290	2,290	0.10	0.11	0.81	2,325
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.30	0.26	1.5	1.7	< 0.005	0.05	0.09	0.14	0.05	0.03	0.08	—	379	379	0.02	0.02	0.13	385
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	250	250	550	250	—	—	100	—	—	67	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Threshold	—	250	250	550	250	—	—	100	—	—	67	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.6	1.3	10	13	0.02	0.36	0.31	0.67	0.33	0.07	0.41	—	2,630	2,630	0.11	0.05	1.4	2,647
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	63	63	23	18	0.07	0.72	4.8	5.5	0.62	1.9	2.5	—	9,911	9,911	0.47	1.2	0.41	10,283
2027	63	63	0.85	1.4	< 0.005	0.02	0.06	0.08	0.02	0.01	0.03	—	191	191	0.01	< 0.005	0.01	192
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.6	1.4	8.0	9.4	0.02	0.28	0.51	0.79	0.25	0.17	0.42	—	2,290	2,290	0.10	0.11	0.81	2,325
2027	0.98	0.98	0.01	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.0	3.0	< 0.005	< 0.005	< 0.005	3.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.30	0.26	1.5	1.7	< 0.005	0.05	0.09	0.14	0.05	0.03	0.08	—	379	379	0.02	0.02	0.13	385
2027	0.18	0.18	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	0.50

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.0	3.9	0.93	11	0.02	0.02	1.8	1.8	0.02	0.46	0.48	21	2,212	2,233	2.3	0.09	7.0	1235

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.8	3.6	0.99	8.3	0.02	0.02	1.8	1.8	0.02	0.46	0.48	21	2,113	2,135	2.3	0.10	0.88	2,221
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.8	3.7	0.94	9.2	0.02	0.02	1.7	1.7	0.02	0.43	0.45	21	2,032	2,054	2.3	0.09	3.3	2,141
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.69	0.67	0.17	1.7	< 0.005	< 0.005	0.31	0.31	< 0.005	0.08	0.08	3.5	336	340	0.38	0.02	0.55	355
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	250	250	550	250	—	—	100	—	—	67	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	250	250	550	250	—	—	100	—	—	67	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	500
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	No

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

1236

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.5	1.4	0.82	8.7	0.02	0.02	1.8	1.8	0.01	0.46	0.47	—	2,079	2,079	0.10	0.08	6.3	2,113
Area	2.6	2.5	0.02	2.6	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	7.0	7.0	< 0.005	< 0.005	—	7.0
Energy	0.01	< 0.005	0.08	0.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	124	124	0.02	< 0.005	—	125
Water	—	—	—	—	—	—	—	—	—	—	—	3.1	1.8	4.9	0.32	0.01	—	15
Waste	—	—	—	—	—	—	—	—	—	—	—	18	0.00	18	1.8	0.00	—	64
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.72	0.72
Total	4.0	3.9	0.93	11	0.02	0.02	1.8	1.8	0.02	0.46	0.48	21	2,212	2,233	2.3	0.09	7.0	2,324
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.4	1.3	0.91	8.3	0.02	0.02	1.8	1.8	0.01	0.46	0.47	—	1,988	1,988	0.11	0.09	0.16	2,017
Area	2.3	2.3	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	0.01	< 0.005	0.08	0.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	124	124	0.02	< 0.005	—	125
Water	—	—	—	—	—	—	—	—	—	—	—	3.1	1.8	4.9	0.32	0.01	—	15
Waste	—	—	—	—	—	—	—	—	—	—	—	18	0.00	18	1.8	0.00	—	64
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.72	0.72
Total	3.8	3.6	0.99	8.3	0.02	0.02	1.8	1.8	0.02	0.46	0.48	21	2,113	2,135	2.3	0.10	0.88	2,221
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.3	1.2	0.85	7.8	0.02	0.01	1.7	1.7	0.01	0.43	0.44	—	1,904	1,904	0.10	0.08	2.6	1,933
Area	2.4	2.4	0.01	1.3	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	3.4	3.4	< 0.005	< 0.005	—	3.5
Energy	0.01	< 0.005	0.08	0.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	124	124	0.02	< 0.005	—	125
Water	—	—	—	—	—	—	—	—	—	—	—	3.1	1.8	4.9	0.32	0.01	—	15
Waste	—	—	—	—	—	—	—	—	—	—	—	18	0.00	18	1.8	0.00	—	64
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.72	0.72
Total	3.8	3.7	0.94	9.2	0.02	0.02	1.7	1.7	0.02	0.43	0.45	21	2,032	2,054	2.3	0.09	3.3	2,141
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	0.25	0.23	0.15	1.4	< 0.005	< 0.005	0.31	0.31	< 0.005	0.08	0.08	—	315	315	0.02	0.01	0.43	320
Area	0.44	0.44	< 0.005	0.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	0.57	0.57	< 0.005	< 0.005	—	0.57
Energy	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	20	20	< 0.005	< 0.005	—	21
Water	—	—	—	—	—	—	—	—	—	—	—	0.51	0.30	0.81	0.05	< 0.005	—	2.5
Waste	—	—	—	—	—	—	—	—	—	—	—	3.0	0.00	3.0	0.30	0.00	—	11
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.12	0.12
Total	0.69	0.67	0.17	1.7	< 0.005	< 0.005	0.31	0.31	< 0.005	0.08	0.08	3.5	336	340	0.38	0.02	0.55	355

3. Construction Emissions Details

3.1. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.3	1.1	9.8	11	0.03	0.42	—	0.42	0.39	—	0.39	—	2,716	2,716	0.11	0.02	—	2,725
Dust From Material Movement	—	—	—	—	—	—	0.62	0.62	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.01	0.01	0.08	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22	22	< 0.005	< 0.005	—	22
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.7	3.7	< 0.005	< 0.005	—	3.7
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.29	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	66	66	< 0.005	< 0.005	0.01	67
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.55
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.7	1.4	13	14	0.02	0.58	—	0.58	0.53	—	0.53	—	2,455	2,455	0.10	0.02	—	2,463
Dust From Material Movement	—	—	—	—	—	—	2.8	2.8	—	1.3	1.3	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.85	0.92	< 0.005	0.04	—	0.04	0.04	—	0.04	—	161	161	0.01	< 0.005	—	162
Dust From Material Movement	—	—	—	—	—	—	0.18	0.18	—	0.09	0.09	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.15	0.17	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27	27	< 0.005	< 0.005	—	27
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.38	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	88	88	< 0.005	< 0.005	0.01	89
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.53	0.15	9.8	3.7	0.05	0.14	1.9	2.1	0.09	0.53	0.62	—	7,368	7,368	0.37	1.2	0.40	7,730
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.8	5.8	< 0.005	< 0.005	0.01	5.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.01	0.64	0.24	< 0.005	0.01	0.13	0.14	0.01	0.03	0.04	—	484	484	0.02	0.08	0.44	509
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.96	0.96	< 0.005	< 0.005	< 0.005	0.98
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.12	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	80	80	< 0.005	0.01	0.07	84

3.5. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.4	1.2	10	12	0.02	0.36	—	0.36	0.33	—	0.33	—	2,201	2,201	0.09	0.02	—	2,208
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.4	1.2	10	12	0.02	0.36	—	0.36	0.33	—	0.33	—	2,201	2,201	0.09	0.02	—	2,208
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	0.71	6.1	7.1	0.01	0.22	—	0.22	0.20	—	0.20	—	1,327	1,327	0.05	0.01	—	1,331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	1.1	1.3	< 0.005	0.04	—	0.04	0.04	—	0.04	—	220	220	0.01	< 0.005	—	220

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.12	0.09	1.4	0.00	0.00	0.28	0.28	0.00	0.07	0.07	—	308	308	0.01	0.01	1.1	313
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	121	121	< 0.005	0.02	0.29	126
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.10	1.3	0.00	0.00	0.28	0.28	0.00	0.07	0.07	—	291	291	0.02	0.01	0.03	295
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	121	121	< 0.005	0.02	0.01	126
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.06	0.77	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	177	177	0.01	0.01	0.28	179
Vendor	0.01	< 0.005	0.10	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	73	73	< 0.005	0.01	0.08	76
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29	29	< 0.005	< 0.005	0.05	30
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12	12	< 0.005	< 0.005	0.01	13
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.79	0.67	5.9	8.2	0.01	0.25	—	0.25	0.23	—	0.23	—	1,244	1,244	0.05	0.01	—	1,248
Paving	0.21	0.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.16	0.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	34	34	< 0.005	< 0.005	—	34
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.6	5.6	< 0.005	< 0.005	—	5.7
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

1244

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.57	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	132	132	0.01	0.01	0.01	133
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.6	3.6	< 0.005	< 0.005	0.01	3.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.60	0.60	< 0.005	< 0.005	< 0.005	0.61
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.1	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134

Architectural Coating	63	63	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.0	1.0	< 0.005	< 0.005	—	1.0
Architectural Coatings	0.49	0.49	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.17	0.17	< 0.005	< 0.005	—	0.17
Architectural Coatings	0.09	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.25	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58	58	< 0.005	< 0.005	0.01	59
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.47
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.1	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	63	63	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.1	2.1	< 0.005	< 0.005	—	2.1
Architectural Coatings	0.98	0.98	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.35	0.35	< 0.005	< 0.005	—	0.35
Architectural Coatings	0.18	0.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.24	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	57	57	< 0.005	< 0.005	0.01	58
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.90	0.90	< 0.005	< 0.005	< 0.005	0.92
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.15	0.15	< 0.005	< 0.005	< 0.005	0.15
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	1.5	1.4	0.82	8.7	0.02	0.02	1.8	1.8	0.01	0.46	0.47	—	2,079	2,079	0.10	0.08	6.3	2,113
Total	1.5	1.4	0.82	8.7	0.02	0.02	1.8	1.8	0.01	0.46	0.47	—	2,079	2,079	0.10	0.08	6.3	2,113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	1.4	1.3	0.91	8.3	0.02	0.02	1.8	1.8	0.01	0.46	0.47	—	1,988	1,988	0.11	0.09	0.16	2,017
Total	1.4	1.3	0.91	8.3	0.02	0.02	1.8	1.8	0.01	0.46	0.47	—	1,988	1,988	0.11	0.09	0.16	2,017
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.25	0.23	0.15	1.4	< 0.005	< 0.005	0.31	0.31	< 0.005	0.08	0.08	—	315	315	0.02	0.01	0.43	320
Total	0.25	0.23	0.15	1.4	< 0.005	< 0.005	0.31	0.31	< 0.005	0.08	0.08	—	315	315	0.02	0.01	0.43	320

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	19	19	0.01	< 0.005	—	20
Total	—	—	—	—	—	—	—	—	—	—	—	—	19	19	0.01	< 0.005	—	20
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	19	19	0.01	< 0.005	—	20
Total	—	—	—	—	—	—	—	—	—	—	—	—	19	19	0.01	< 0.005	—	20
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	3.2	3.2	< 0.005	< 0.005	—	3.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	3.2	3.2	< 0.005	< 0.005	—	3.3

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartme Mid Rise	0.01	< 0.005	0.08	0.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	104	104	0.01	< 0.005	—	105
Total	0.01	< 0.005	0.08	0.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	104	104	0.01	< 0.005	—	105
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.01	< 0.005	0.08	0.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	104	104	0.01	< 0.005	—	105
Total	0.01	< 0.005	0.08	0.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	104	104	0.01	< 0.005	—	105
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	17	17	< 0.005	< 0.005	—	17
Total	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	17	17	< 0.005	< 0.005	—	17

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	2.1	2.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape	0.24	0.23	0.02	2.6	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.0	7.0	< 0.005	< 0.005	—	7.0
Total	2.6	2.5	0.02	2.6	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	7.0	7.0	< 0.005	< 0.005	—	7.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	2.1	2.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	2.3	2.3	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	0.39	0.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02	0.02	< 0.005	0.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.57	0.57	< 0.005	< 0.005	—	0.57
Total	0.44	0.44	< 0.005	0.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	0.57	0.57	< 0.005	< 0.005	—	0.57

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

1252

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	3.1	1.8	4.9	0.32	0.01	—	15
Total	—	—	—	—	—	—	—	—	—	—	—	3.1	1.8	4.9	0.32	0.01	—	15
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	3.1	1.8	4.9	0.32	0.01	—	15
Total	—	—	—	—	—	—	—	—	—	—	—	3.1	1.8	4.9	0.32	0.01	—	15
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	0.51	0.30	0.81	0.05	< 0.005	—	2.5
Total	—	—	—	—	—	—	—	—	—	—	—	0.51	0.30	0.81	0.05	< 0.005	—	2.5

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	18	0.00	18	1.8	0.00	—	64
Total	—	—	—	—	—	—	—	—	—	—	—	18	0.00	18	1.8	0.00	—	64
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	18	0.00	18	1.8	0.00	—	64
Total	—	—	—	—	—	—	—	—	—	—	—	18	0.00	18	1.8	0.00	—	64
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	3.0	0.00	3.0	0.30	0.00	—	11
Total	—	—	—	—	—	—	—	—	—	—	—	3.0	0.00	3.0	0.30	0.00	—	11

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.72	0.72
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.72	0.72
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.72	0.72
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.72	0.72
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.12	0.12
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.12	0.12

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

1258

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/1/2026	1/5/2026	5.0	3.0	—
Grading	Grading	1/6/2026	2/6/2026	5.0	24	—
Building Construction	Building Construction	2/9/2026	12/11/2026	5.0	220	—
Paving	Paving	12/14/2026	12/25/2026	5.0	10.0	—
Architectural Coating	Architectural Coating	12/28/2026	1/8/2027	5.0	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Average	1.00	8.0	148	0.41
Site Preparation	Scrapers	Diesel	Average	1.00	8.0	423	0.48
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.0	84	0.37
Grading	Graders	Diesel	Average	1.00	8.0	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.0	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.0	7.0	84	0.37
Building Construction	Cranes	Diesel	Average	1.00	8.0	367	0.29
Building Construction	Forklifts	Diesel	Average	2.0	7.0	82	0.20

Building Construction	Generator Sets	Diesel	Average	1.00	8.0	14	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.0	84	0.37
Building Construction	Welders	Diesel	Average	3.0	8.0	46	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	8.0	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.0	81	0.42
Paving	Paving Equipment	Diesel	Average	1.00	8.0	89	0.36
Paving	Rollers	Diesel	Average	2.0	8.0	36	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.0	84	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.0	37	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	Worker	7.5	12	LDA,LDT1,LDT2
Site Preparation	Vendor	—	7.6	HHDT,MHDT
Site Preparation	Hauling	0.00	20	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	Worker	10.0	12	LDA,LDT1,LDT2
Grading	Vendor	—	7.6	HHDT,MHDT
Grading	Hauling	105	20	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	Worker	33	12	LDA,LDT1,LDT2
Building Construction	Vendor	4.9	7.6	HHDT,MHDT
Building Construction	Hauling	0.00	20	HHDT
Building Construction	Onsite truck	—	—	HHDT

Paving	Worker	15	12	LDA,LDT1,LDT2
Paving	Vendor	—	7.6	HHDT,MHDT
Paving	Hauling	0.00	20	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	Worker	6.6	12	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	7.6	HHDT,MHDT
Architectural Coating	Hauling	0.00	20	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	202,500	67,500	0.00	0.00	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	4.5	0.00	0.00
Grading	—	20,100	24	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.82

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction

Water Exposed Area	2	61%	61%

5.7. Construction Paving

Phase Name	Land Use	Area Paved (acres)	% Asphalt
Paving	Apartments Mid Rise	0.82	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	589	0.03	< 0.005
2027	0.00	589	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	368	332	278	127,748	2,548	2,300	1,924	884,547

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
Apartments Mid Rise	Wood Fireplaces	0	0
Apartments Mid Rise	Gas Fireplaces	0	0
Apartments Mid Rise	Propane Fireplaces	0	0
Apartments Mid Rise	Electric Fireplaces	0	0
Apartments Mid Rise	No Fireplaces	46	46

1262

Apartments Mid Rise	Conventional Wood Stoves	0	0
Apartments Mid Rise	Catalytic Wood Stoves	0	0
Apartments Mid Rise	Non-Catalytic Wood Stoves	0	0
Apartments Mid Rise	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

—	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
undefined	202,500	67,500	0.00	0.00	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	155,980	45	0.0330	0.0040	325,608

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	1,616,121	707,937

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	34	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.5	2.5	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	11	annual days of extreme heat
Extreme Precipitation	4.0	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	7.4	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	0	0	0	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	1	1	1	2
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	38
AQ-PM	28
AQ-DPM	62
Drinking Water	30
Lead Risk Housing	49
Pesticides	54
Toxic Releases	32
Traffic	41
Effect Indicators	—
CleanUp Sites	62
Groundwater	38
Haz Waste Facilities/Generators	64
Impaired Water Bodies	90
Solid Waste	85

Sensitive Population	—
Asthma	4.2
Cardio-vascular	13
Low Birth Weights	65
Socioeconomic Factor Indicators	—
Education	83
Housing	70
Linguistic	90
Poverty	92
Unemployment	5.6

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	23.27730014
Employed	43.12844861
Median HI	34.33850892
Education	—
Bachelor's or higher	15.47542666
High school enrollment	19.24804312
Preschool enrollment	29.86013089
Transportation	—
Auto Access	98.98626973
Active commuting	49.33915052
Social	—
2-parent households	34.54382138
Voting	48.659053

Neighborhood	—
Alcohol availability	44.5528038
Park access	10.72757603
Retail density	39.86911331
Supermarket access	47.37585012
Tree canopy	21.32683177
Housing	—
Homeownership	33.61991531
Housing habitability	43.23110484
Low-inc homeowner severe housing cost burden	29.79597074
Low-inc renter severe housing cost burden	63.30039779
Uncrowded housing	33.53009111
Health Outcomes	—
Insured adults	4.157577313
Arthritis	64.8
Asthma ER Admissions	96.3
High Blood Pressure	83.5
Cancer (excluding skin)	80.0
Asthma	25.7
Coronary Heart Disease	57.7
Chronic Obstructive Pulmonary Disease	27.0
Diagnosed Diabetes	38.1
Life Expectancy at Birth	31.7
Cognitively Disabled	44.8
Physically Disabled	80.2
Heart Attack ER Admissions	96.4
Mental Health Not Good	16.4
Chronic Kidney Disease	45.1

1269

Obesity	26.2
Pedestrian Injuries	42.6
Physical Health Not Good	25.9
Stroke	51.7
Health Risk Behaviors	—
Binge Drinking	22.7
Current Smoker	18.8
No Leisure Time for Physical Activity	21.7
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	16.3
Elderly	90.0
English Speaking	5.3
Foreign-born	72.2
Outdoor Workers	23.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	45.9
Traffic Density	80.5
Traffic Access	23.0
Other Indices	—
Hardship	65.3
Other Decision Support	—
2016 Voting	53.3

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	60

1270

Healthy Places Index Score for Project Location (b)	27
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Land Use	46 units 2.72 acres 38,759 sf landscaping
Construction: Construction Phases	No demo. Grading anticipated over one month period. All other default phasing modeled.
Construction: Paving	35,778 sf paved (0.82 acres)
Operations: Vehicle Data	8 weekday trips/unit Weekend trips adjusted proportionately
Operations: Hearths	No fireplaces or wood stoves.

ATTACHMENT 2

CalEEMod Output – Industrial, Commercial, and Convenience Market Project Emissions

South Santa Fe Townhomes - Existing Designations Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

8.1. Justifications

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	South Santa Fe Townhomes - Existing Designations
Operational Year	2027
Lead Agency	City of San Marcos
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.2
Precipitation (days)	19
Location	2982 S Santa Fe Ave, San Marcos, CA 92069, USA
County	San Diego
City	San Marcos
Air District	San Diego County APCD
Air Basin	San Diego
TAZ	6276
EDFZ	12
Electric Utility	San Diego Gas & Electric
Gas Utility	San Diego Gas & Electric
App Version	2022.1.1.35

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Light Industry	38	1000sqft	1.5	38,000	0.00	—	—	—
Strip Mall	24	1000sqft	0.80	24,000	0.00	—	—	—

Convenience Market (24 hour)	2.2	1000sqft	0.63	2,200	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	18	16	10	109	0.26	0.23	23	23	0.22	5.9	6.1	63	27,240	27,303	7.7	1.1	547	28,356
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	17	15	11	100	0.25	0.23	23	23	0.22	5.9	6.1	63	26,046	26,109	7.7	1.1	468	27,103
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	13	12	7.5	67	0.16	0.16	14	14	0.15	3.5	3.7	63	16,295	16,358	7.3	0.74	487	17,251
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.4	2.2	1.4	12	0.03	0.03	2.5	2.6	0.03	0.64	0.67	10	2,698	2,708	1.2	0.12	81	2,856
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	250	250	550	250	—	—	100	—	—	67	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	250	250	550	250	—	—	100	—	—	67	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Yes

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	16	14	9.9	106	0.26	0.20	23	23	0.18	5.9	6.1	—	26,605	26,605	1.2	0.99	81	27,012
Area	2.0	1.9	0.02	2.8	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11	11	< 0.005	< 0.005	—	12
Energy	0.05	0.02	0.45	0.38	< 0.005	0.03	—	0.03	0.03	—	0.03	—	614	614	0.10	0.01	—	619
Water	—	—	—	—	—	—	—	—	—	—	—	21	9.0	30	2.1	0.05	—	98
Waste	—	—	—	—	—	—	—	—	—	—	—	43	0.00	43	4.3	0.00	—	149
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	466	466
Total	18	16	10	109	0.26	0.23	23	23	0.22	5.9	6.1	63	27,240	27,303	7.7	1.1	547	28,356
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	15	14	11	99	0.25	0.20	23	23	0.18	5.9	6.1	—	25,423	25,423	1.3	1.1	2.1	25,771
Area	1.5	1.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.05	0.02	0.45	0.38	< 0.005	0.03	—	0.03	0.03	—	0.03	—	614	614	0.10	0.01	—	619

Water	—	—	—	—	—	—	—	—	—	—	—	21	9.0	30	2.1	0.05	—	98
Waste	—	—	—	—	—	—	—	—	—	—	—	43	0.00	43	4.3	0.00	—	149
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	466	466
Total	17	15	11	100	0.25	0.23	23	23	0.22	5.9	6.1	63	26,046	26,109	7.7	1.1	468	27,103
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	11	10	7.0	65	0.15	0.12	14	14	0.11	3.5	3.6	—	15,666	15,666	0.87	0.69	21	15,913
Area	1.7	1.7	0.01	1.4	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.7	5.7	< 0.005	< 0.005	—	5.7
Energy	0.05	0.02	0.45	0.38	< 0.005	0.03	—	0.03	0.03	—	0.03	—	614	614	0.10	0.01	—	619
Water	—	—	—	—	—	—	—	—	—	—	—	21	9.0	30	2.1	0.05	—	98
Waste	—	—	—	—	—	—	—	—	—	—	—	43	0.00	43	4.3	0.00	—	149
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	466	466
Total	13	12	7.5	67	0.16	0.16	14	14	0.15	3.5	3.7	63	16,295	16,358	7.3	0.74	487	17,251
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.1	1.9	1.3	12	0.03	0.02	2.5	2.6	0.02	0.64	0.66	—	2,594	2,594	0.14	0.11	3.5	2,635
Area	0.31	0.31	< 0.005	0.25	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.94	0.94	< 0.005	< 0.005	—	0.94
Energy	0.01	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	102	102	0.02	< 0.005	—	103
Water	—	—	—	—	—	—	—	—	—	—	—	3.4	1.5	4.9	0.35	0.01	—	16
Waste	—	—	—	—	—	—	—	—	—	—	—	7.0	0.00	7.0	0.70	0.00	—	25
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	77	77
Total	2.4	2.2	1.4	12	0.03	0.03	2.5	2.6	0.03	0.64	0.67	10	2,698	2,708	1.2	0.12	81	2,856

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.81	0.74	0.52	5.5	0.01	0.01	1.2	1.2	0.01	0.31	0.32	—	1,389	1,389	0.06	0.05	4.2	1,410
Strip Mall	4.5	4.2	2.9	31	0.08	0.06	6.8	6.8	0.05	1.7	1.8	—	7,777	7,777	0.35	0.29	24	7,896
Convenience Market (24 hour)	10	9.3	6.5	69	0.17	0.13	15	15	0.12	3.9	4.0	—	17,439	17,439	0.78	0.65	53	17,706
Total	16	14	9.9	106	0.26	0.20	23	23	0.18	5.9	6.1	—	26,605	26,605	1.2	0.99	81	27,012
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.80	0.73	0.57	5.2	0.01	0.01	1.2	1.2	0.01	0.31	0.32	—	1,327	1,327	0.07	0.06	0.11	1,346
Strip Mall	4.5	4.1	3.2	29	0.07	0.06	6.8	6.8	0.05	1.7	1.8	—	7,431	7,431	0.37	0.31	0.61	7,533
Convenience Market (24 hour)	10.0	9.1	7.1	65	0.16	0.13	15	15	0.12	3.9	4.0	—	16,664	16,664	0.83	0.69	1.4	16,892
Total	15	14	11	99	0.25	0.20	23	23	0.18	5.9	6.1	—	25,423	25,423	1.3	1.1	2.1	25,771
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.13	0.12	0.09	0.86	< 0.005	< 0.005	0.20	0.20	< 0.005	0.05	0.05	—	201	201	0.01	0.01	0.27	204
Strip Mall	0.74	0.67	0.52	4.8	0.01	0.01	1.1	1.1	0.01	0.28	0.29	—	1,134	1,134	0.06	0.05	1.5	1,151

Convenience Market (24 hour)	1.2	1.1	0.67	6.2	0.01	0.01	1.2	1.2	0.01	0.31	0.32	—	1,258	1,258	0.08	0.06	1.7	1,279
Total	2.1	1.9	1.3	12	0.03	0.02	2.5	2.6	0.02	0.64	0.66	—	2,594	2,594	0.14	0.11	3.5	2,635

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	42	42	0.03	< 0.005	—	44
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	26	26	0.02	< 0.005	—	27
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	8.3	8.3	0.01	< 0.005	—	8.7
Total	—	—	—	—	—	—	—	—	—	—	—	—	77	77	0.06	0.01	—	80
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	42	42	0.03	< 0.005	—	44
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	26	26	0.02	< 0.005	—	27

Convenience	—	—	—	—	—	—	—	—	—	—	—	—	8.3	8.3	0.01	< 0.005	—	8.7
Total	—	—	—	—	—	—	—	—	—	—	—	—	77	77	0.06	0.01	—	80
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	7.0	7.0	0.01	< 0.005	—	7.3
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	4.3	4.3	< 0.005	< 0.005	—	4.5
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	1.4	1.4	< 0.005	< 0.005	—	1.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	13	13	0.01	< 0.005	—	13

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.05	0.02	0.41	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	492	492	0.04	< 0.005	—	493
Strip Mall	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	33	33	< 0.005	< 0.005	—	33
Convenience Market (24 hour)	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13	13	< 0.005	< 0.005	—	13
Total	0.05	0.02	0.45	0.38	< 0.005	0.03	—	0.03	0.03	—	0.03	—	538	538	0.05	< 0.005	—	539
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	0.05	0.02	0.41	0.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	492	492	0.04	< 0.005	—	493
Strip Mall	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	33	33	< 0.005	< 0.005	—	33
Convenience Market (24 hour)	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13	13	< 0.005	< 0.005	—	13
Total	0.05	0.02	0.45	0.38	< 0.005	0.03	—	0.03	0.03	—	0.03	—	538	538	0.05	< 0.005	—	539
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.01	< 0.005	0.08	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	81	81	0.01	< 0.005	—	82
Strip Mall	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.5	5.5	< 0.005	< 0.005	—	5.5
Convenience Market (24 hour)	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.1	2.1	< 0.005	< 0.005	—	2.1
Total	0.01	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	89	89	0.01	< 0.005	—	89

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.4	1.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	0.08	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.50	0.46	0.02	2.8	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11	11	< 0.005	< 0.005	—	12
Total	2.0	1.9	0.02	2.8	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11	11	< 0.005	< 0.005	—	12
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.4	1.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.08	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.5	1.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.25	0.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	0.04	< 0.005	0.25	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.94	0.94	< 0.005	< 0.005	—	0.94
Total	0.31	0.31	< 0.005	0.25	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.94	0.94	< 0.005	< 0.005	—	0.94

4.4. Water Emissions by Land Use

1286

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	17	7.4	24	1.7	0.04	—	80
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	3.4	1.5	4.9	0.35	0.01	—	16
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.31	0.14	0.45	0.03	< 0.005	—	1.5
Total	—	—	—	—	—	—	—	—	—	—	—	21	9.0	30	2.1	0.05	—	98
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	17	7.4	24	1.7	0.04	—	80
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	3.4	1.5	4.9	0.35	0.01	—	16
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.31	0.14	0.45	0.03	< 0.005	—	1.5
Total	—	—	—	—	—	—	—	—	—	—	—	21	9.0	30	2.1	0.05	—	98
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	2.8	1.2	4.0	0.29	0.01	—	13

Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.56	0.25	0.81	0.06	< 0.005	—	2.7
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.05	0.02	0.07	0.01	< 0.005	—	0.25
Total	—	—	—	—	—	—	—	—	—	—	—	3.4	1.5	4.9	0.35	0.01	—	16

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	25	0.00	25	2.5	0.00	—	89
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	14	0.00	14	1.4	0.00	—	48
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	3.6	0.00	3.6	0.36	0.00	—	12
Total	—	—	—	—	—	—	—	—	—	—	—	43	0.00	43	4.3	0.00	—	149
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	25	0.00	25	2.5	0.00	—	89
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	14	0.00	14	1.4	0.00	—	48

Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	3.6	0.00	3.6	0.36	0.00	—	12
Total	—	—	—	—	—	—	—	—	—	—	—	43	0.00	43	4.3	0.00	—	149
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	4.2	0.00	4.2	0.42	0.00	—	15
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	2.2	0.00	2.2	0.22	0.00	—	7.9
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.59	0.00	0.59	0.06	0.00	—	2.1
Total	—	—	—	—	—	—	—	—	—	—	—	7.0	0.00	7.0	0.70	0.00	—	25

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.9	9.9
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.15	0.15
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	456	456
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	466	[illegible]

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.9	9.9
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.15	0.15
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	456	456
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	466	466
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.6	1.6
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	76	76
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	77	77

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

1293

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	188	76	190	62,990	1,700	682	1,714	568,287
Strip Mall	1,064	1,009	490	355,493	9,596	9,103	4,424	3,207,233

Convenience Market (24 hour)	1,677	2,385	1,983	664,969	5,533	21,519	17,887	3,497,146

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
General Light Industry	Wood Fireplaces	0	0
General Light Industry	Gas Fireplaces	0	0
General Light Industry	Propane Fireplaces	0	0
General Light Industry	Electric Fireplaces	0	0
General Light Industry	No Fireplaces	0	0
General Light Industry	Conventional Wood Stoves	0	0
General Light Industry	Catalytic Wood Stoves	0	0
General Light Industry	Non-Catalytic Wood Stoves	0	0
General Light Industry	Pellet Wood Stoves	0	0
Strip Mall	Wood Fireplaces	0	0
Strip Mall	Gas Fireplaces	0	0
Strip Mall	Propane Fireplaces	0	0
Strip Mall	Electric Fireplaces	0	0
Strip Mall	No Fireplaces	0	0
Strip Mall	Conventional Wood Stoves	0	0
Strip Mall	Catalytic Wood Stoves	0	0
Strip Mall	Non-Catalytic Wood Stoves	0	0
Strip Mall	Pellet Wood Stoves	0	0
Convenience Market (24 hour)	Wood Fireplaces	0	0
Convenience Market (24 hour)	Gas Fireplaces	0	0
Convenience Market (24 hour)	Propane Fireplaces	0	0
Convenience Market (24 hour)	Electric Fireplaces	0	0

Convenience Market (24 hour)	No Fireplaces	0	0
Convenience Market (24 hour)	Conventional Wood Stoves	0	0
Convenience Market (24 hour)	Catalytic Wood Stoves	0	0
Convenience Market (24 hour)	Non-Catalytic Wood Stoves	0	0
Convenience Market (24 hour)	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

—	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
undefined	0.00	0.00	96,300	32,100	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	340,990	45	0.0330	0.0040	1,533,842
Strip Mall	211,549	45	0.0330	0.0040	103,858
Convenience Market (24 hour)	67,509	45	0.0330	0.0040	40,066

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	8,787,500	0.00
Strip Mall	1,777,741	0.00
Convenience Market (24 hour)	162,960	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	47	0.00
Strip Mall	25	0.00
Convenience Market (24 hour)	6.6	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.0	4.0	18
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.0	4.0	18
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.5	7.5	20
Convenience Market (24 hour)	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.0	4.0	18
Convenience Market (24 hour)	Supermarket refrigeration and condensing units	R-404A	3,922	27	17	17	18

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	11	annual days of extreme heat
Extreme Precipitation	4.0	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	7.4	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	0	0	0	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

1299

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	1	1	1	2
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	38
AQ-PM	28

1300

AQ-DPM	62
Drinking Water	30
Lead Risk Housing	49
Pesticides	54
Toxic Releases	32
Traffic	41
Effect Indicators	—
CleanUp Sites	62
Groundwater	38
Haz Waste Facilities/Generators	64
Impaired Water Bodies	90
Solid Waste	85
Sensitive Population	—
Asthma	4.2
Cardio-vascular	13
Low Birth Weights	65
Socioeconomic Factor Indicators	—
Education	83
Housing	70
Linguistic	90
Poverty	92
Unemployment	5.6

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	23.27730014

1301

Employed	43.12844861
Median HI	34.33850892
Education	—
Bachelor's or higher	15.47542666
High school enrollment	19.24804312
Preschool enrollment	29.86013089
Transportation	—
Auto Access	98.98626973
Active commuting	49.33915052
Social	—
2-parent households	34.54382138
Voting	48.659053
Neighborhood	—
Alcohol availability	44.5528038
Park access	10.72757603
Retail density	39.86911331
Supermarket access	47.37585012
Tree canopy	21.32683177
Housing	—
Homeownership	33.61991531
Housing habitability	43.23110484
Low-inc homeowner severe housing cost burden	29.79597074
Low-inc renter severe housing cost burden	63.30039779
Uncrowded housing	33.53009111
Health Outcomes	—
Insured adults	4.157577313
Arthritis	64.8
Asthma ER Admissions	96.3

1302

High Blood Pressure	83.5
Cancer (excluding skin)	80.0
Asthma	25.7
Coronary Heart Disease	57.7
Chronic Obstructive Pulmonary Disease	27.0
Diagnosed Diabetes	38.1
Life Expectancy at Birth	31.7
Cognitively Disabled	44.8
Physically Disabled	80.2
Heart Attack ER Admissions	96.4
Mental Health Not Good	16.4
Chronic Kidney Disease	45.1
Obesity	26.2
Pedestrian Injuries	42.6
Physical Health Not Good	25.9
Stroke	51.7
Health Risk Behaviors	—
Binge Drinking	22.7
Current Smoker	18.8
No Leisure Time for Physical Activity	21.7
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	16.3
Elderly	90.0
English Speaking	5.3
Foreign-born	72.2
Outdoor Workers	23.3

1303

Climate Change Adaptive Capacity	—
Impervious Surface Cover	45.9
Traffic Density	80.5
Traffic Access	23.0
Other Indices	—
Hardship	65.3
Other Decision Support	—
2016 Voting	53.3

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	60
Healthy Places Index Score for Project Location (b)	27
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Land Use	Land uses assumed in the 2022 RAQS

ATTACHMENT D.3

LOCAL TRANSPORTATION ANALYSIS

LINSCOTT LAW & GREENSPAN engineers

LOCAL TRANSPORTATION ANALYSIS

SANTA FE FLORES TOWNHOMES PROJECT

San Marcos, California
February 2026

LLG Ref. 3-24-3940

Prepared by:
Amelia Giacalone
Senior Transportation Planner
&
Zahira Chayeb
Transportation Engineer II

Under the Supervision of:
John Boarman, P.E.
Principal

Linscott, Law & Greenspan, Engineers
4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers

EXECUTIVE SUMMARY

Linscott, Law & Greenspan, Engineers (LLG) has prepared the following Local Transportation Analysis (LTA) to determine and evaluate the potential effects to the local roadway system due to the proposed Santa Fe Flores Townhomes project (proposed Project). The Project is located in the city of San Marcos at 2966, 2972 and 2982 South Santa Fe Avenue adjacent to North Las Flores Drive on assessor parcel numbers 217-161-1800, 217-161-1900 and a portion of 217-161-1700. The 2.6-acre Project site is undeveloped and is currently designated Commercial and Light Industrial in the City General Plan and zoned as Commercial and Light Industrial. The Project would be located on a previously graded site and require a General Plan amendment and Rezone to Multifamily Residential to allow the development of 46 multi-family residential units.

The Project is calculated to generate a total of 368 ADT with 29 AM peak hour trips (6 inbound / 23 outbound) and 37 PM peak hour trips (26 inbound and 11 outbound).

While Level of Service (LOS) analysis is not used to determine CEQA significance, the intersection and segment analysis provided in this study shows that the Project will not have any substantial effects at the study area intersections and street segments. Additionally, The LTA shows that the Project will add a small amount of traffic to the intersection of S. Santa Fe Avenue / Smilax Road, which operates below City standards. However, the Project contributes only 0.58% (20 trips) of the total combined AM and PM peak hour traffic to this intersection under Near-Term conditions. The existing traffic conditions at this location are already substandard. The provision of a traffic signal would result in acceptable LOS D or better operations. A traffic signal is planned at the S. Santa Fe Avenue / Smilax Road intersection as part of the City's Capital Improvement Project (CIP) 88179 (IP 4750).

TABLE OF CONTENTS

SECTION		PAGE
1.0	**Introduction**	**1**
2.0	**Project Description**	**2**
3.0	**Existing Conditions**	**6**
3.1	Existing Street Network	6
3.2	Existing Traffic Volumes	7
4.0	**Local Transportation Analysis Approach and Methodology**	**10**
4.1	Study Scenarios	10
4.2	Methodology	10
4.2.1	Intersections	10
4.2.2	Street Segments	10
4.3	Level of Service Standards	10
5.0	**Analysis of Existing Conditions**	**12**
5.1	Peak Hour Intersection Levels of Service	12
5.2	Daily Street Segment Levels of Service	12
6.0	**Near-Term (Interim Year 2027) Conditions**	**15**
6.1	Network Conditions	15
6.2	Near-Term (Interim Year 2027) Traffic Volumes	15
7.0	**Trip Generation/Distribution/Assignment**	**17**
7.1	Trip Generation	17
7.1.1	Trip Rates	17
7.1.2	Project Trips	17
7.2	Trip Distribution and Assignment	17
8.0	**Analysis of Near-Term Scenarios**	**22**
8.1	Near-Term Without Project	22
8.1.1	Intersection Analysis	22
8.1.2	Segment Operations	22
8.2	Near-Term + Project	22
8.2.1	Intersection Analysis	22
8.2.2	Segment Operations	22
9.0	**Long-Term (Year 2050) Conditions**	**26**
9.1	Long-Term (Year 2050) Network Conditions	26
9.2	Long-Term (Year 2050) Traffic Volumes	26

9.3 Existing and Proposed Zoning 26

10.0 Analysis of Long-Term Scenarios 30

10.1 Long-Term Without Project 30
10.1.1 Intersection Analysis 30
10.1.2 Segment Operations 30
10.2 Long-Term + Project 30
10.2.1 Intersection Analysis 30
10.2.2 Segment Operations 30

11.0 Active Transportation Review 34

11.1 Bicycle Network 34
11.2 Pedestrian Conditions 34
11.3 Existing Transit Conditions 35

12.0 Access Assessment 36

13.0 Conclusions 39

APPENDICES

APPENDIX

A. Intersection and Segment Count Sheets
B. City of San Marcos Roadway Classification Table
C. Existing Analysis Worksheets
D. K&D Factors Definitions
E. Travel Route Maps
F. Near-Term Analysis Worksheets
G. Near-Term + Project Analysis Worksheets
H. Long-Term Analysis Worksheets
I. Long-Term + Project Analysis Worksheet
J. Sight Distance Exhibit

LIST OF FIGURES

SECTION—FIGURE #		PAGE
Figure 2–1	Vicinity Map	3
Figure 2–2	Project Area Map	4
Figure 2–3	Project Site Plan	5
Figure 3–1	Existing Conditions Diagram	8
Figure 3–2	Existing Traffic Volumes	9
Figure 6–1	Near-Term without Project Traffic Volumes	16
Figure 7–1	Project Traffic Distribution	19
Figure 7–2	Project Traffic Volumes	20
Figure 7–3	Near-Term + Project Traffic Volumes	21
Figure 9–1	Long-Term without Project Traffic Volumes	28
Figure 9–2	Long-Term + Project Traffic Volumes	29
Figure 12–1	Pre & Post Project Site Driveway Traffic Volumes	38

LIST OF TABLES

SECTION—TABLE #		PAGE
Table 5–1	Existing Intersection Operations	13
Table 5–2	Existing Street Segment Operations	14
Table 7-1	Project Trip Generation	18
Table 8–1	Near-Term Intersection Operations	24
Table 8–2	Near-Term Street Segment Operations	25
Table 9-1	Trip Generation Comparison	27
Table 10–1	Long-Term Intersection Operations	32
Table 10–2	Long-Term Street Segment Operations	33
Table 12-1	Santa Fe Las Flores Trip Generation	36
Table 12-2	Access Driveway Operations	37
Table 12-3	Gourmet Liquor Driveway Counts	37

LOCAL TRANSPORTATION ANALYSIS

SANTA FE FLORES TOWNHOMES PROJECT

San Marcos, California
December 2025

1.0 INTRODUCTION

Linscott, Law & Greenspan, Engineers (LLG) has prepared the following Local Transportation Analysis (LTA) for the proposed Santa Fe Flores Townhomes project (proposed Project) located at 2966, 2972 and 2982 S. Santa Fe Avenue on the northwest corner of the S. Santa Fe Avenue / N. Las Flores Drive intersection in the City of San Marcos.

Transportation impact analyses within the City of San Marcos includes two sets of requirements.

- **CEQA Analysis** primarily consisting of Vehicle Miles Traveled (VMT) analysis. Impacts to pedestrians, bicyclists, transit, hazards, and emergency access are also addressed. This is addressed under a separate cover.
- **Non-CEQA Local Transportation Analysis** to evaluate the effects of a development project on the circulation network. The analysis is used to determine consistency with the City's General Plan.

The following items are included in this transportation study:

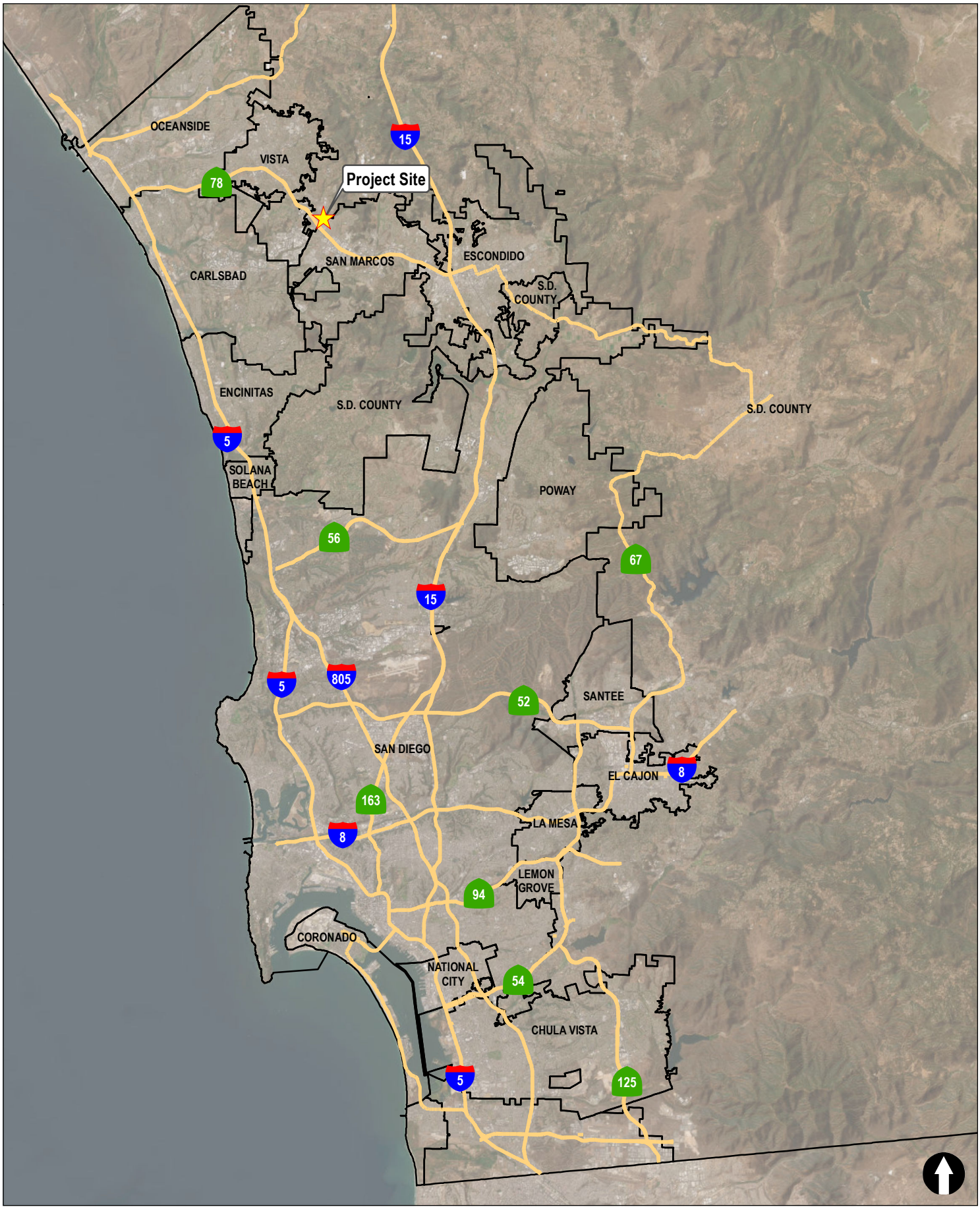
- Project Description
- Existing Conditions Discussion
- Local Transportation Analysis Approach and Methodology
- Analysis of Existing Conditions
- Near-Term Conditions Discussion
- Trip Generation, Distribution, and Assignment
- Analysis of Near-Term Scenarios
- Long-Term Conditions Discussion
- Analysis of Long-Term Scenarios
- Active Transportation Review
- Access Assessment
- Conclusions

2.0 PROJECT DESCRIPTION

The Project is located in the city of San Marcos at 2966, 2972 and 2982 South Santa Fe Avenue adjacent to North Las Flores Drive on assessor parcel numbers 217-161-1800, 217-161-1900 and 217-161-1700. The 2.6-acre Project site is undeveloped and is currently designated Commercial and Light Industrial in the City General Plan and zoned as Commercial and Light Industrial. The Project would be located on a previously graded site and require a General Plan amendment and Rezone to Multifamily Residential to allow the development of 46 multi-family residential units that would be 3 stories in height.

Access to the site will be provided via a single right-in/right-out only driveway on S. Santa Fe Avenue.

Figure 2–1 shows the vicinity map. ***Figure 2–2*** shows a more detailed project area map. ***Figure 2–3*** shows the conceptual site plan for the Project.



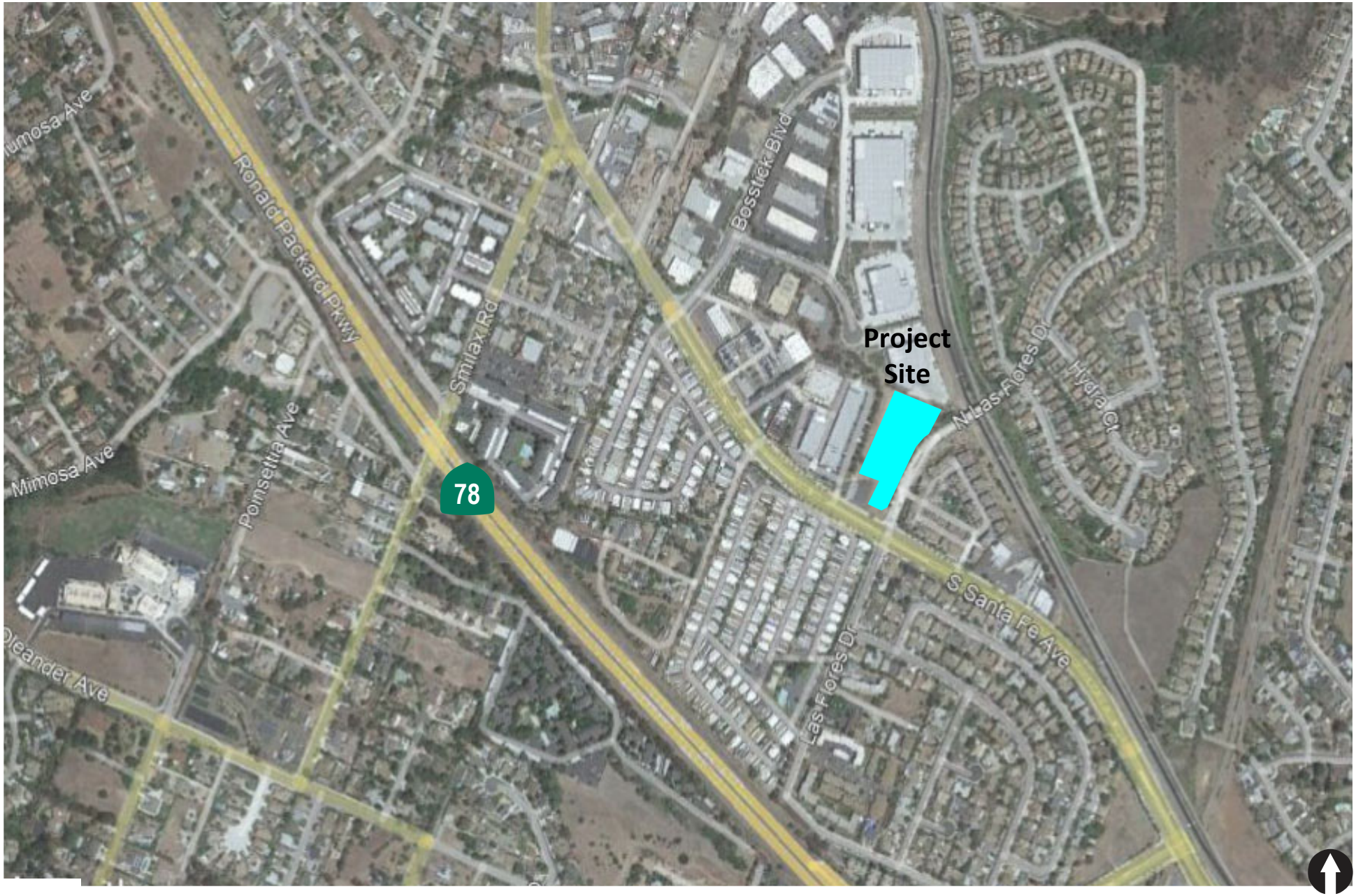
LLG

N:\3940\Figures
Date: 11/24/2025
Time: 1:59 PM

Figure 2-1

Vicinity Map

Santa Fe Flores Townh 1314



N:\3940\Figures
Date: 11/26/25

Figure 2-2

Project Area Map

SANTA FE FLORES TOWNHOMES

1315

LLG

N:\3940\Figures
Date: 11/26/25

Figure 2-3

Project Site Plan

SANTA FE FLORES TOWNHOMES

1316

3.0 EXISTING CONDITIONS

Effective evaluation of the traffic impacts associated with the proposed project requires an understanding of the existing transportation system within the project area. ***Figure 3–1*** shows an existing conditions diagram, including signalized intersections and lane configurations. The study area includes the following intersections and street segments based on the anticipated distribution of the project traffic:

Intersections:

1. S. Santa Fe Avenue / Smilax Road
2. S. Santa Fe Avenue / Bosstick Boulevard
3. S. Santa Fe Avenue / Community Drive
4. S. Santa Fe Avenue / N. Las Flores Drive
5. N. Las Flores Drive / Hollencrest Road
6. S. Santa Fe Avenue (W. Mission Road) / N. Rancho Santa Fe Road
7. Capalina Road / Hollencrest Road
8. N. Rancho Santa Fe Road / Capalina Road

Segments:

S. Santa Fe Avenue

1. Smilax Road to Bosstick Boulevard
2. Bosstick Boulevard to Community Drive
3. Community Drive to N. Las Flores Drive
4. N. Las Flores Drive to N. Rancho Santa Fe Road
5. N. Rancho Santa Fe Road to N. Pacific Street

Hollencrest Road

6. De Leone Road to Hollenbeck Road

N. Rancho Santa Fe Road

7. S. Santa Fe Avenue to Capalina Road

3.1 Existing Street Network

The principal roadways in the project study area are described briefly below. Roadway classification was determined from a review of the *City of San Marcos Mobility Element* and information gathered from field observations.

S. Santa Fe Avenue is currently constructed as a 2-lane undivided roadway north of Bosstick Boulevard, and as a 4-lane divided roadway south of Bosstick Boulevard. The posted speed limit is 45 mph. On-street parking is prohibited. Class II bike lanes are provided. S. Santa Fe Avenue is classified as a 4-Lane Arterial with Enhanced Bicycle/Pedestrian Facilities on the City's Mobility Element.

N. Las Flores Drive is constructed as a 2-lane undivided roadway. The posted speed limit is 25 mph. On-street parking is permitted on both sides of the roadway south of S. Santa Fe Avenue, and prohibited north of S. Santa Fe Avenue. No bicycle facilities are present. N. Las Flores Drive is unclassified on the City's Mobility Element.

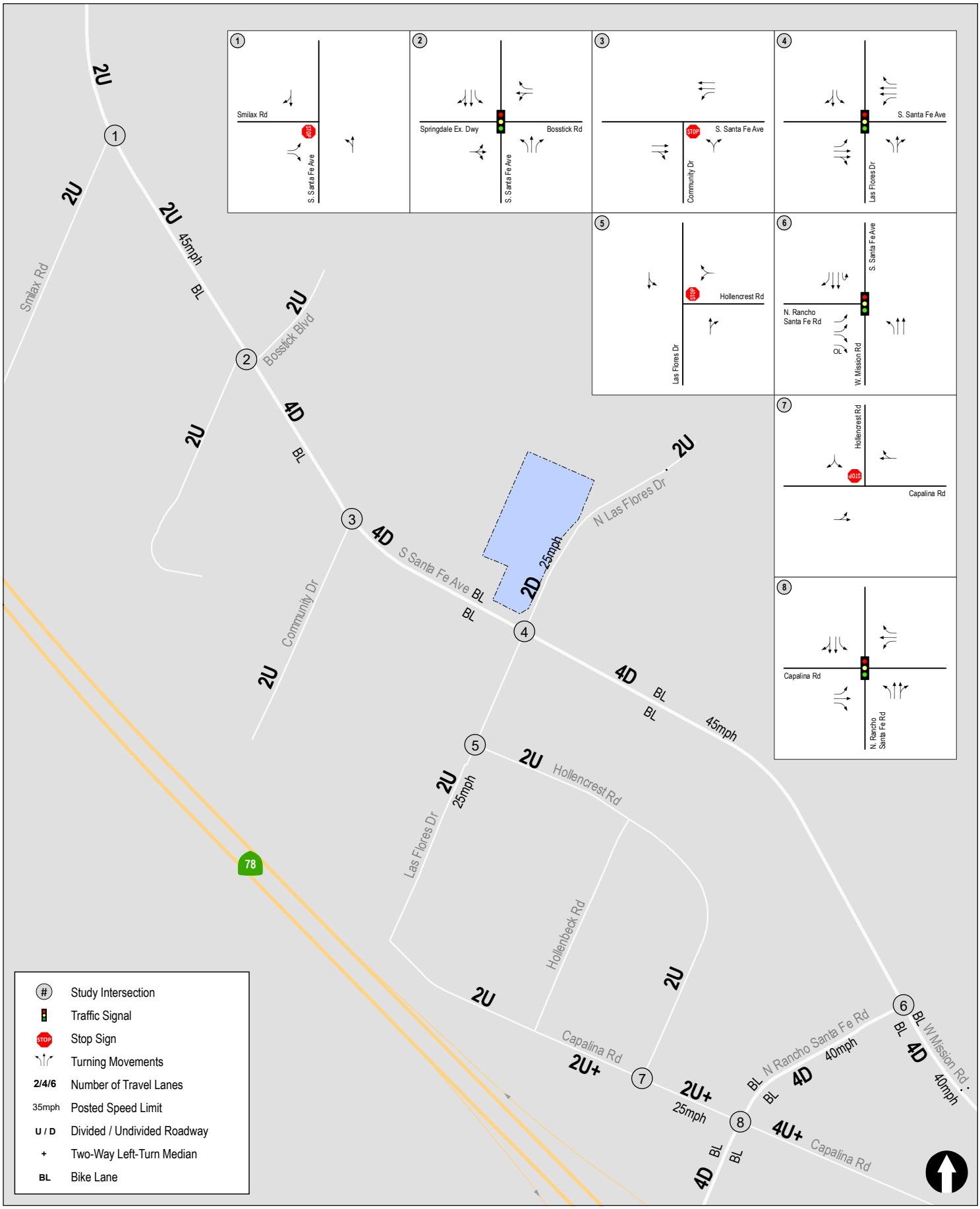
N. Rancho Santa Fe Road is constructed as a 4-lane divided roadway. The posted speed limit is 40 mph. On-street parking is prohibited. Class II bike lanes are provided. Within the Project study area, N. Rancho Santa Fe Road is classified as a 4-lane Arterial with Class II or III Bicycle Facilities and Sidewalks on the City's Mobility Element.

Capalina Road is constructed as a 2-lane undivided roadway west of Hollenbeck Road, and as a 2-lane undivided roadway with a two-way left-turn lane east of Hollenbeck Road. The posted speed limit is 25 mph. On-street parking is generally permitted on both sides of the roadway west of N. Rancho Santa Fe Road and prohibited on both sides of the roadway east of N. Rancho Santa Fe Road. Sidewalks are provided. There are no bicycle facilities present. Capalina Road is unclassified on the City's Mobility Element.

3.2 Existing Traffic Volumes

Average daily traffic (ADT) volumes and peak hour (7:00-9:00 AM and 4:00-6:00 PM) intersection turning movement counts, including bicycle and pedestrian counts, were conducted in February 2022 within the Project study area.

Figure 3–2 shows the Existing Traffic Volumes. ***Appendix A*** contains the manual count sheets.

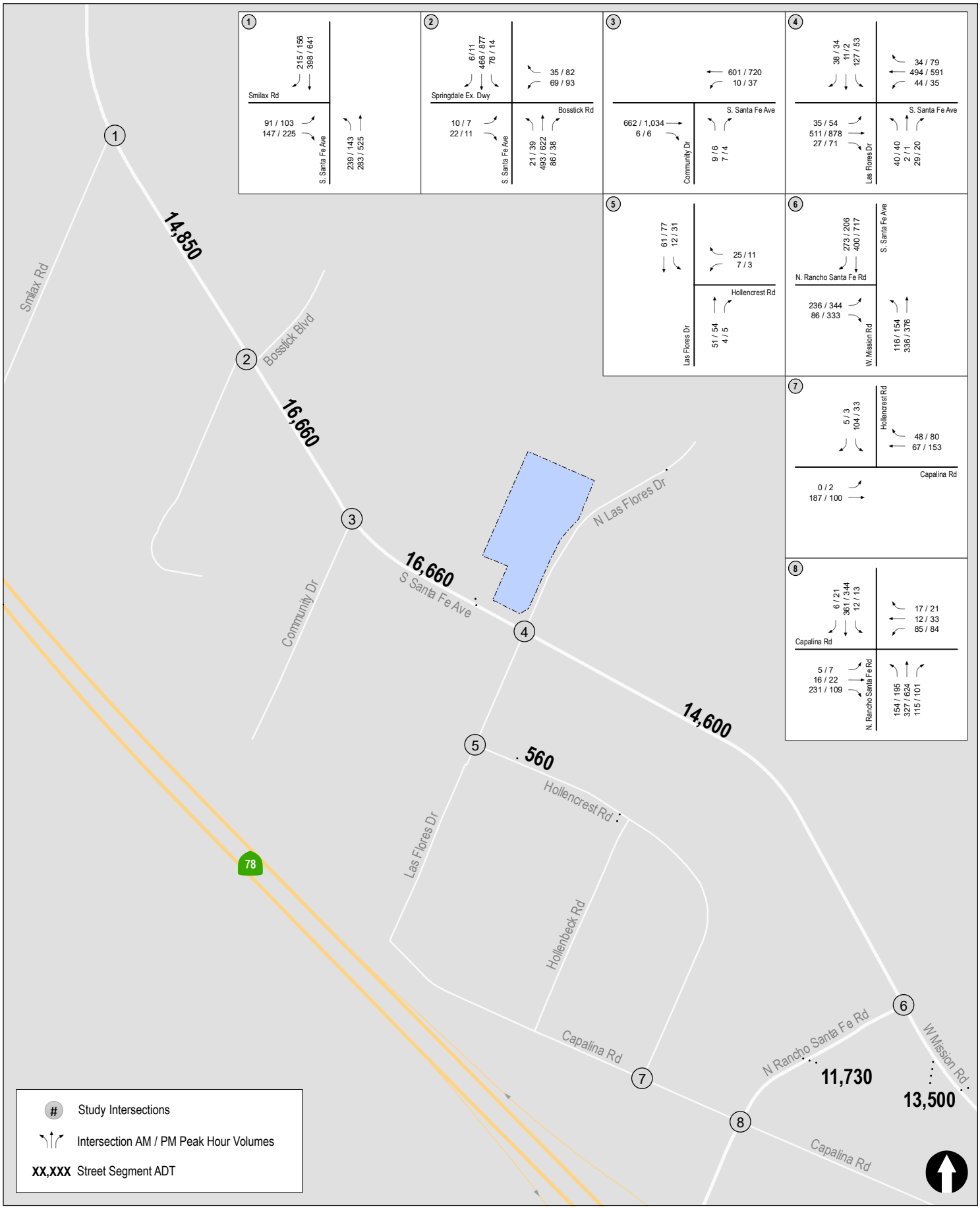


LLG

N:\3940\Figures
Date: 11/24/2025
Time: 1:11 PM

Figure 3-1

Existing Conditions Diagram



N:\3940\Figures
Date: 11/24/2025
Time: 1:12 PM

Figure 3-2

Existing Traffic Volumes

4.0 LOCAL TRANSPORTATION ANALYSIS APPROACH AND METHODOLOGY

4.1 Study Scenarios

The following scenarios were analyzed:

- Existing Conditions.
- Near-Term (Interim Year) Conditions are based on the SANDAG pre-established interim year scenario closest to the project's anticipated opening year.
- Near-Term (Interim Year) Plus Project Conditions include project-generated traffic added to interim year volumes.
- Long-Term (Year 2050) Conditions with the current zoning.
- Long-Term (Year 2050) Plus Project (with proposed zoning).

4.2 Methodology

Level of service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of service designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments.

4.2.1 *Intersections*

Signalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 19 of the *Highway Capacity Manual 6th Edition (HCM 6),* with the assistance of the *Synchro 10* computer software. The delay values (represented in seconds) were qualified with a corresponding intersection Level of Service (LOS).

Unsignalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay and Levels of Service (LOS) was determined based upon the procedures found in Chapter 20 and Chapter 21 of the *HCM 6* with the assistance of the *Synchro 10* computer software.

4.2.2 *Street Segments*

Street segment analysis is based upon the comparison of daily traffic volumes (ADTs) to the City of San Marcos's *Roadway Classification, Level of Service, and ADT Table*. This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics. The City of San Marcos's *Roadway Classification, Level of Service, and ADT Table* is attached in ***Appendix B***.

4.3 Level of Service Standards

The City of San Marcos strives to maintain intersection and roadway segment operations based on LOS standards outlined in the General Plan Mobility Element. If the addition of the traffic generated

from a proposed project results in any one of the following, improvements should be identified to increase performance to acceptable or pre-project conditions under each scenario:

- Triggers an intersection operating at acceptable LOS to operate at unacceptable LOS and increases the delay by more than 2.0 seconds.
- Increases the delay for a study intersection that is already operating at unacceptable LOS by more than 2.0 seconds.
- Triggers a roadway segment operating at acceptable LOS to operate at unacceptable LOS and increases the volume/capacity (V/C) ratio by more than 0.02.
- Increases the V/C ratio for a study roadway segment that is already operating at unacceptable LOS by more than 0.02.

5.0 ANALYSIS OF EXISTING CONDITIONS

5.1 Peak Hour Intersection Levels of Service

Table 5–1 summarizes the peak hour intersection operations under Existing conditions. As seen in *Table 5–1*, the study intersections are calculated to operate acceptably at LOS D or better, with the exception of S. Santa Fe Avenue / Smilax Road, where the minor-street left-turn movement is calculated to operate at LOS F.

Appendix C contains the Existing intersection analysis worksheets.

5.2 Daily Street Segment Levels of Service

Table 5–2 summarizes the street segment operations under Existing conditions. As seen in *Table 5–2*, the study street segments are calculated to operate acceptably at LOS D or better with the exception of S. Santa Fe Avenue between Smilax Road and Bosstick Boulevard, which is calculated to operate at LOS F.

TABLE 5–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing	
			Delay[a]	LOS[b]
1. S. Santa Fe Avenue / Smilax Road	MSSC[c]	AM	**>100**	**F**
		PM	**>100**	**F**
2. S. Santa Fe Avenue / Bosstick Boulevard	Signal	AM	16.7	B
		PM	17.3	B
3. S. Santa Fe Avenue / Community Drive	MSSC	AM	17.3	C
		PM	32.6	D
4. S. Santa Fe Avenue / N. Las Flores Drive	Signal	AM	18.6	B
		PM	19.9	B
5. N. Las Flores Drive / Hollencrest Road	MSSC	AM	8.9	A
		PM	8.9	A
6. S. Santa Fe Avenue (W. Mission Road) / N. Rancho Santa Fe Rd	Signal	AM	12.7	B
		PM	14.5	B
7. Capalina Road / Hollencrest Road	MSSC	AM	11.7	B
		PM	10.9	B
8. N. Rancho Santa Fe Rd / Capalina Road	Signal	AM	29.3	C
		PM	28.6	C

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. MSSC = Minor-Street Stop Controlled intersection. Worst-case movement level of service reported.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 5–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Classification	Capacity (LOS E) [a]	ADT [b]	LOS [c]	V/C [d]
S. Santa Fe Avenue					
1. Smilax Road to Bosstick Boulevard	2-Lane Collector	8,000	**14,850**	**F**	**1.856**
2. Bosstick Boulevard to Community Drive	4-Lane Arterial with Class II or Class III Bike Lanes	40,000	16,660	B	0.417
3. Community Drive to N. Las Flores Drive	4-Lane Arterial with Class II or Class III Bike Lanes	40,000	16,660	B	0.417
4. N. Las Flores Drive to N. Rancho Santa Fe Road	4-Lane Arterial with Class II or Class III Bike Lanes	40,000	14,600	A	0.365
5. N. Rancho Santa Fe Road to N. Pacific Street	4-Lane Arterial with Class II or Class III Bike Lanes	40,000	13,500	A	0.338
Hollencrest Road					
6. De Leone Road to Hollenbeck Road	2-Lane Sub-Collector	2,200[e]	560	+C	0.070
N. Rancho Santa Fe Road					
7. S. Santa Fe Avenue to Capalina Road	4-Lane Arterial with Class II or Class III Bike Lanes	40,000	11,730	A	0.293

Footnotes:

a. Capacities based on based on the City of San Marcos' *Roadway Classifications, Capacity, and LOS* (see *Appendix B*).

b. Average Daily Traffic Volumes.

c. Level of Service.

d. Volume to Capacity.

e. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Per the City of San Marcos' *Roadway Classifications, Capacity, and LOS*, the LOS C capacity of a Sub-Collector is 2,200 ADT.

6.0 NEAR-TERM (INTERIM YEAR 2027) CONDITIONS

This section describes Near-Term (Interim Year 2027) roadway network and traffic volume conditions. Year 2027 was selected as the closest to the opening year of the proposed Project, based on SANDAG's pre-established interim year scenarios.

6.1 Network Conditions

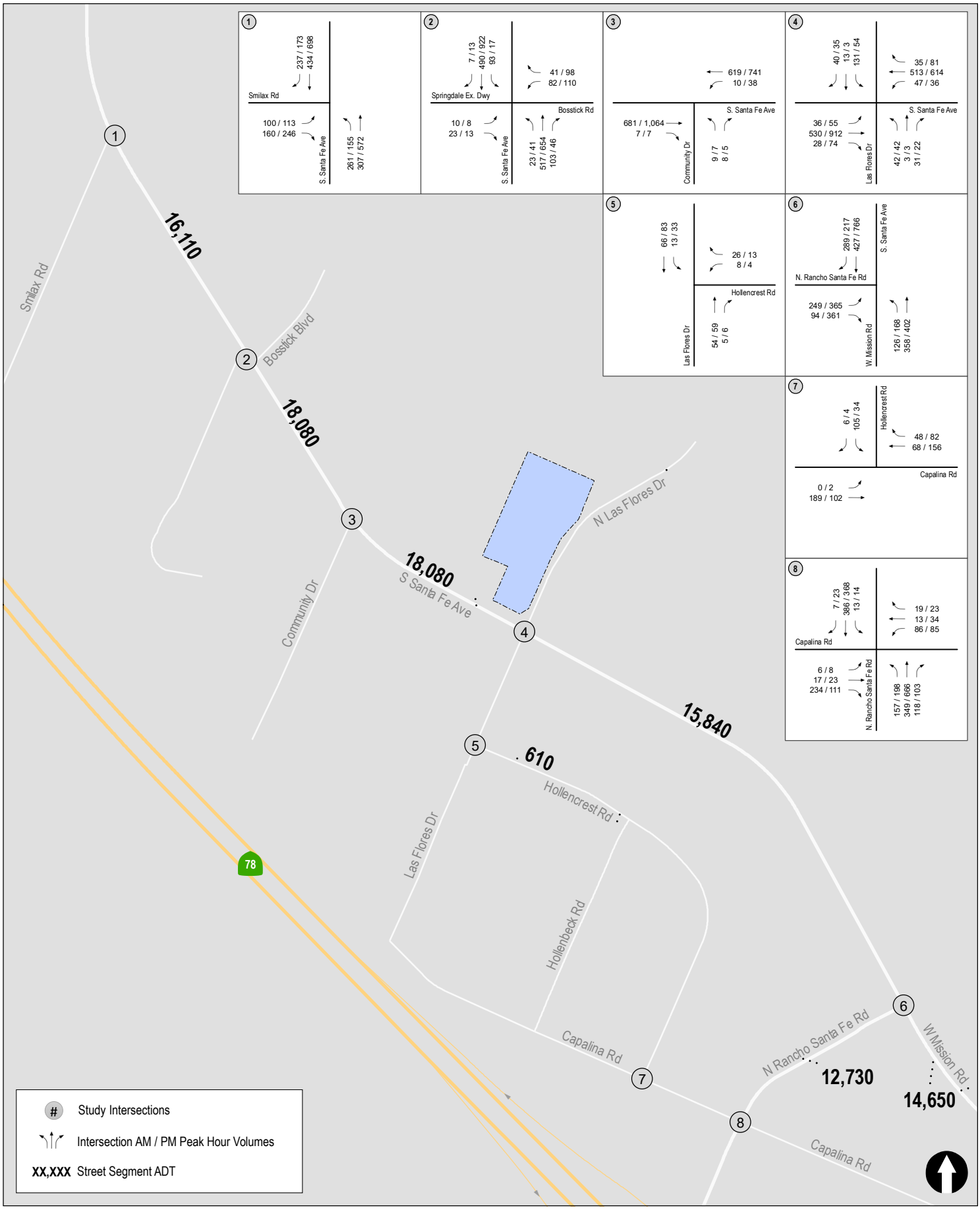
The existing street system as illustrated in *Figure 3–1* is assumed for Near-Term (Interim Year 2025) conditions with no assumed improvements within the study area.

6.2 Near-Term (Interim Year 2027) Traffic Volumes

To forecast future traffic volumes for Near-Term (Interim Year 2027) conditions, the SANDAG ABM2+ model was first utilized to forecast Year 2050 volumes. Year 2027 traffic volumes were then developed based on an interpolation between Existing and Year 2050 traffic volumes. The forecasted ADT volumes were then used to calculate peak hour volumes based partially on the existing relationship between ADT and peak hour volumes.

Several other traffic engineering principles and factors such as the K-factor (the proportion of daily volume that occurs during the peak period) and D-factor (the directional split of the traffic volumes) were also considered in the forecast analysis (see ***Appendix D*** for definitions). The forecast volumes were also checked for consistency between intersections, where no driveways or roadways exist between intersections, and were compared to existing volumes for accuracy.

Figure 6–1 illustrates the peak hour and ADT segment volumes under the Near-Term scenario.



N:\3940\Figures
Date: 11/24/2025
Time: 1:14 PM

Figure 6-1

Near-Term without Project Traffic Volumes

7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

As described in *Section 2*, the proposed Project would provide 46 multi-family dwelling units. The following is a discussion of the traffic expected to be generated by the Project.

7.1 Trip Generation

7.1.1 *Trip Rates*

Trip generation for the Project's multi-family housing was estimated using trip rates from SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002*. The trip generation rate for "Townhomes (or any multi-family 6 -20 DU/acre)" was used based on the proposed use.

7.1.2 *Project Trips*

Table 7–1 tabulates the total Project traffic generation. The Project is calculated to generate a total of 368 ADT with 29 AM peak hour trips (6 inbound / 23 outbound) and 37 PM peak hour trips (26 inbound and 11 outbound).

7.2 Trip Distribution and Assignment

The traffic generated by the Project was distributed and assigned based on anticipated traffic patterns to and from the site, suggested travel routes provided by Google Maps (additional information provided in ***Appendix E***), and the Project site's proximity to state highways and arterials.

Access to the site will be restricted to right-in/right-out movements via S. Santa Fe Avenue. Therefore, westbound to eastbound U-turns were assumed at the S. Santa Fe Avenue / Community Drive intersection for a portion of the Project's outbound trips and eastbound to westbound U-turns were assumed at the S. Santa Fe Avenue / N. Las Flores Drive intersection for a portion of the Project's inbound trips.

Residents traveling to/from the SR 78 / Rancho Santa Fe Road interchange have a few route options, including traveling along N. Las Flores Drive to/from Capalina Road and/or Hollencrest Road. Given the Project's proposed right-in/right-out access via S. Santa Fe Avenue and a review of the suggested travel routes provided by Google Maps, this "cut-thru" route is not expected to be a major attractor of Project trips. The potential for cut-thru traffic would be much greater if access to the Project were provided via N. Las Flores Drive and residents were able to travel straight thru the traffic signal at S. Santa Fe Avenue / N. Las Flores Drive on their way to/from the interchange. Nevertheless, to provide a conservative analysis of potential cut-thru traffic, 20% of the Project's trips were assumed along Capalina Road and/or Hollencrest Road. This equates to 40 additional ADT on Hollencrest Road, with three (3) trips during the AM peak hour and four (4) trips during the PM peak hour.

Figure 7–1 shows the Project traffic distribution. ***Figure 7–2*** shows the Project traffic volumes. ***Figure 7–3*** shows the Near-Term + Project traffic volumes.

TABLE 7-1
PROJECT TRIP GENERATION

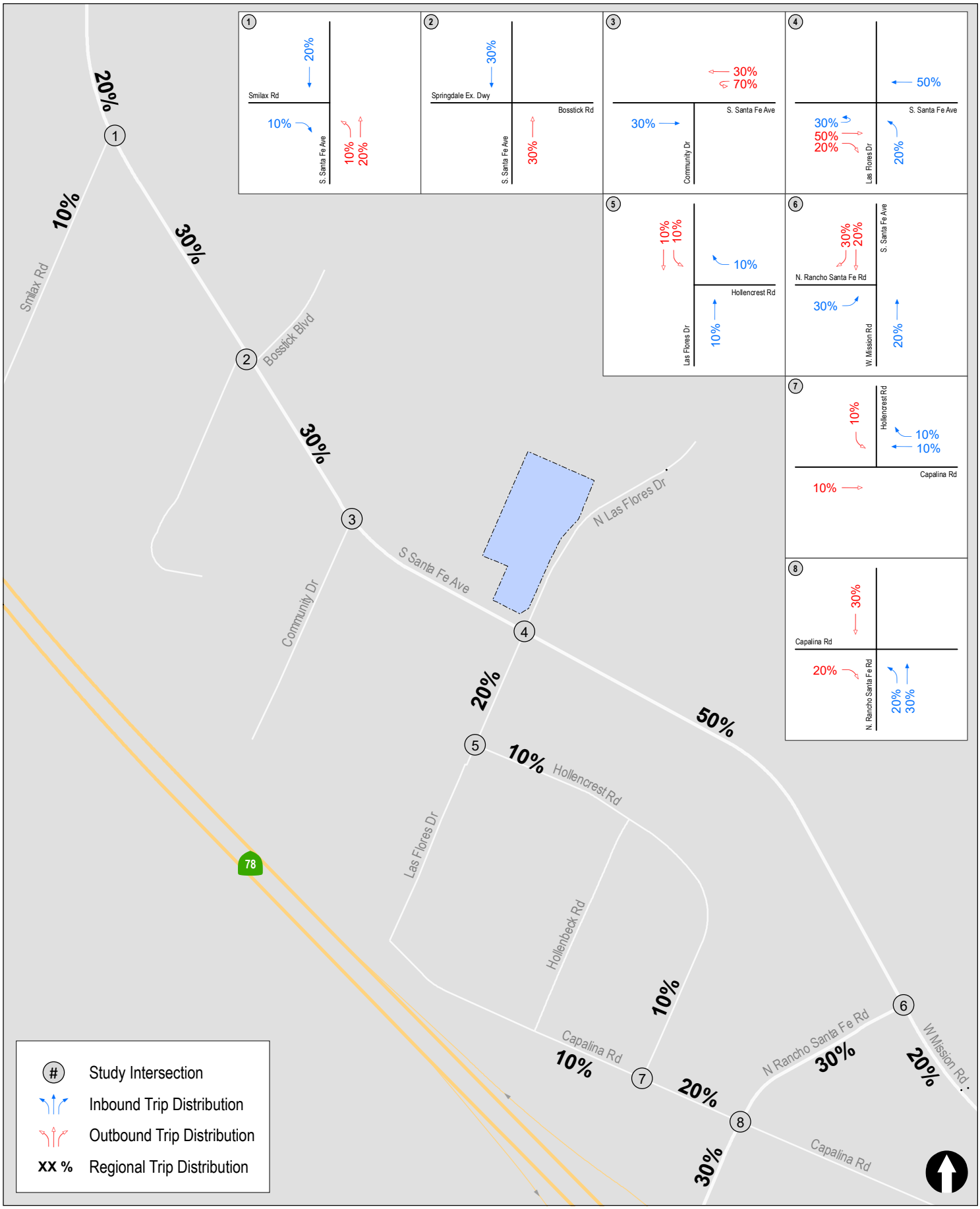
Land Use	Size	Daily Trip Ends (ADT)[b]		AM Peak Hour					PM Peak Hour				
		Rate [a]	Volume	% of ADT	In:Out Split	Volume			% of ADT	In:Out Split	Volume		
						In	Out	Total			In	Out	Total
Proposed Project													
Townhomes [c]	46 DU	8 /DU	368	8%	20 : 80	6	23	29	10%	70 : 30	26	11	37
Project Total			***368***			***6***	***23***	***29***			***26***	***11***	***37***

Footnotes:

a. Trip rates from *SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*

b. Average Daily Trips

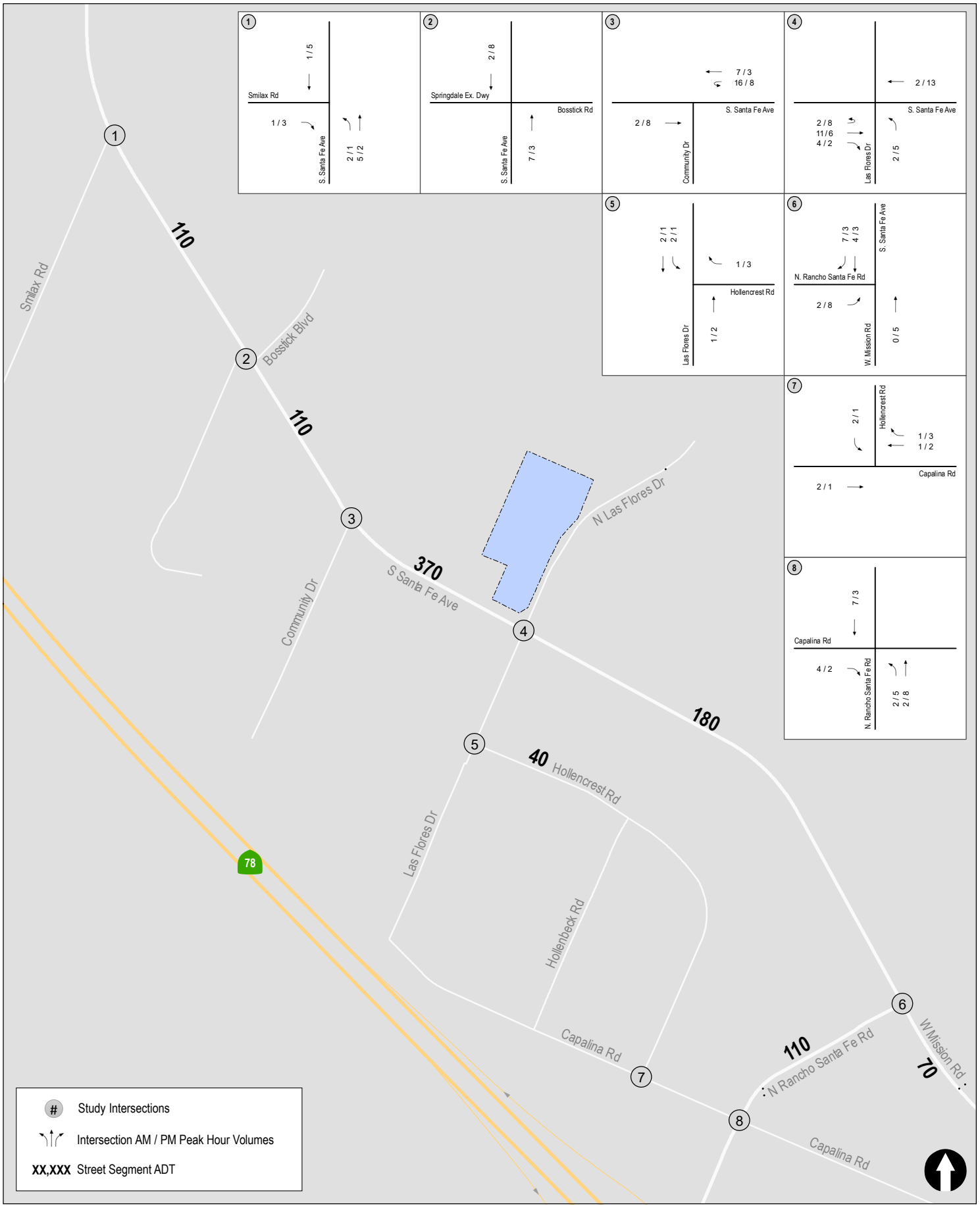
c. 46 DU proposed on 2.23 net-acres (about 20.1 DU/acre). Therefore, the 'Residential: Condominium (or any multi-family 6-20 DU/acre)' rate was used to calculate the Project's trip generation.



N:\3940\Figures
Date: 11/24/2025
Time: 1:16 PM

Figure 7-1

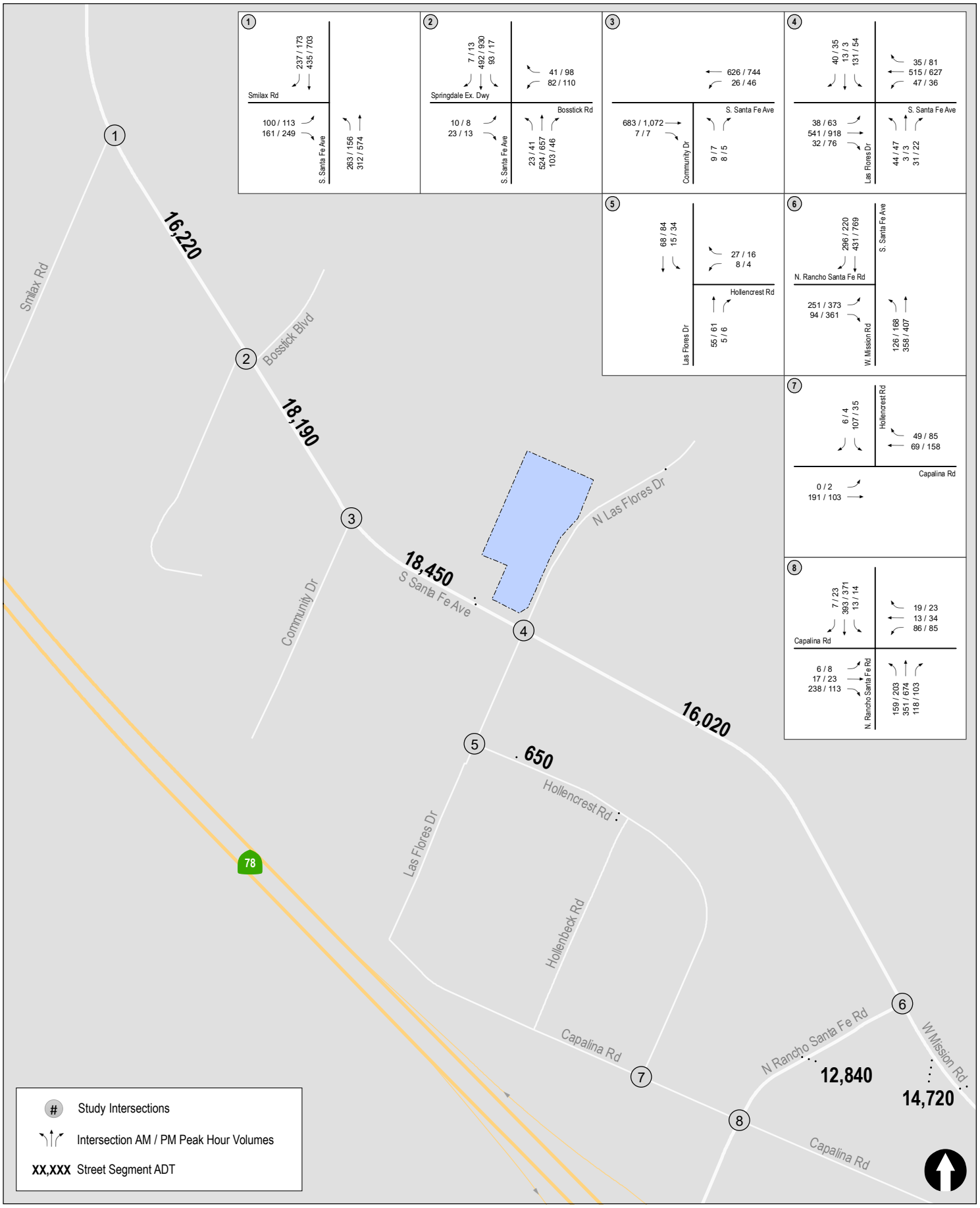
Project Traffic Distribution



N:\3940\Figures
Date: 11/24/2025
Time: 1:19 PM

Figure 7-2

Project Traffic Volumes



N:\3940\Figures
Date: 11/24/2025
Time: 1:21 PM

Figure 7-3

Near-Term + Project Traffic Volumes

8.0 ANALYSIS OF NEAR-TERM SCENARIOS

The following section presents the analysis of study area intersections and street segments under Near-Term conditions without and with the Project.

8.1 Near-Term Without Project

8.1.1 *Intersection Analysis*

Table 8–1 summarizes the intersection operations under Near-Term without Project conditions. As seen in *Table 8–1*, the study intersections are calculated to operate acceptably at LOS D or better with the exception of S. Santa Fe Avenue / Smilax Road, where the minor-street left-turn movement is calculated to continue to operate at LOS F.

Appendix F contains the Near-Term without Project intersection analysis calculation worksheets.

8.1.2 *Segment Operations*

Table 8–2 summarizes the street segment operations under Near-Term without Project conditions. As seen in *Table 8–2*, the study street segments are calculated to operate acceptably at LOS D or better with the exception of S. Santa Fe Avenue between Smilax Road and Bosstick Boulevard, which is calculated to continue to operate at LOS F.

8.2 Near-Term + Project

8.2.1 *Intersection Analysis*

Table 8–1 summarizes the intersection operations under Near-Term + Project conditions. As seen in *Table 8–1*, with the addition of Project traffic, the study intersections are calculated to continue to operate acceptably at LOS D or better with the exception of the following:

S. Santa Fe Avenue / Smilax Road, where the minor-street left-turn movement is calculated to continue to operate at LOS F, and S. Santa Fe Avenue / Community Drive, where the intersection is calculated to operate at LOS E in the PM peak hour.

Based on the established Level of Service Standards outlined in *Section 4.3*, the Project is calculated to result in a substantial effect to the S. Santa Fe Avenue / Smilax Road intersection. Roadway improvements to address this Level of Service deficiency are proposed in *Section 13.0*.

The Project is not calculated to result in a substantial effect to the S. Santa Fe Avenue / Community Drive intersection as the Project does not trigger the intersection to operate at unacceptable LOS **and** increase the delay by more than 2.0 seconds. The Project increases the delay by 1.8 seconds. Therefore, the Project is not calculated to result in a substantial effect to the S. Santa Fe Avenue / Community Drive intersection and no improvements are required.

Appendix G contains the Near-Term + Project intersection analysis calculation worksheets.

8.2.2 *Segment Operations*

Table 8–2 summarizes the street segment operations under Near-Term + Project conditions. As seen in *Table 8–2*, with the addition of Project traffic, the study street segments are calculated to continue

to operate acceptably at LOS D or better with the exception of S. Santa Fe Avenue between Smilax Road and Bosstick Boulevard, which is calculated to continue to operate at LOS F.

The Project-related increase in the V/C ratio for the above-listed street segment already operating at an unacceptable LOS is less than the threshold of 0.02. The Project is not calculated to result in a substantial effect to the study segment and no improvements are required.

TABLE 8–1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Near-Term Without Project		Near-Term + Project		Δ [c]	Substantial Effect?
			Delay [a]	LOS [b]	Delay	LOS		
1. S. Santa Fe Avenue / Smilax Road	MSSC[d]	AM	**>100**	**F**	**>100**	**F**	**>10**	**Yes**
		PM	**>100**	**F**	**>100**	**F**	**>10**	**Yes**
2. S. Santa Fe Avenue / Bosstick Bouleavard	Signal	AM	17.8	B	17.9	B	0.1	No
		PM	18.7	B	18.8	B	0.1	No
3. S. Santa Fe Avenue / Community Drive	MSSC	AM	17.5	C	18.3	C	0.8	No
		PM	34.7	D	**36.5**	**E**	**1.8**	**No**
4. S. Santa Fe Avenue / N. Las Flores Drive	Signal	AM	18.9	B	19.0	B	0.1	No
		PM	21.1	C	21.8	C	0.7	No
5. N. Las Flores Drive / Hollencrest Road	MSSC	AM	9.0	A	9.0	A	0.0	No
		PM	9.0	A	9.0	A	0.0	No
6. S. Santa Fe Avenue (W. Mission Road) / N. Rancho Santa Fe Rd	Signal	AM	12.9	B	12.9	B	0.1	No
		PM	15.3	B	15.3	B	0.0	No
7. Capalina Road / Hollencrest Road	MSSC	AM	11.7	B	11.8	B	0.1	No
		PM	11.0	B	11.0	B	0.0	No
8. N. Rancho Santa Fe Rd / Capalina Road	Signal	AM	30.1	C	30.7	C	0.6	No
		PM	30.4	C	31.8	C	1.4	No

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes the increase in delay due to Project.
d. MSSC = Minor-Street Stop Controlled intersection. Worst-case level of service reported.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 8–2
NEAR-TERM STREET SEGMENT OPERATIONS

Street Segment	Capacity (LOS E) [a]	Near-Term Without Project			Near-Term With Project			Δ[e]	Substantial Effect?
		ADT [b]	LOS [c]	V/C [d]	ADT	LOS	V/C		
S. Santa Fe Avenue									
1. Smilax Road to Bosstick Boulevard	8,000	**16,110**	**F**	**2.014**	**16,220**	**F**	**2.028**	**0.014**	**No**
2. Bosstick Boulevard to Community Drive	40,000	18,080	B	0.452	18,190	B	0.455	0.003	No
3. Community Drive to N. Las Flores Drive	40,000	18,080	B	0.452	18,450	B	0.461	0.009	No
4. N. Las Flores Drive to N. Rancho Santa Fe Road	40,000	15,840	B	0.396	16,020	B	0.401	0.005	No
5. N. Rancho Santa Fe Road to N. Pacific Street	40,000	14,650	A	0.366	14,720	A	0.368	0.002	No
Hollencrest Road									
6. De Leone Road to Hollenbeck Road	2,200[f]	610	+C	0.076	650	+C	0.081	0.005	No
N. Rancho Santa Fe Road									
7. S. Santa Fe Avenue to Capalina Road	40,000	12,730	A	0.318	12,840	A	0.321	0.003	No

Footnotes:

a. Capacities based on based on the City of San Marcos' *Roadway Classifications, Capacity, and LOS* (see *Appendix B*)
b. Average Daily Traffic Volumes.
c. Level of Service.
d. Volume to Capacity.
e. Δ denotes a Project-induced increase in the Volume to Capacity (V/C) ratio.
f. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Per the City of San Marcos' *Roadway Classifications, Capacity, and LOS*, the LOS C capacity of a Sub-Collector is 2,200 ADT.

9.0 LONG-TERM (YEAR 2050) CONDITIONS

9.1 Long-Term (Year 2050) Network Conditions

The Long-Term (Year 2050) street network in the SANDAG Series 14 forecast model includes changes to the roadway system in the vicinity of the study area including the planned widening of S. Santa Fe Avenue between Smilax Road and Bosstick Boulevard to 4-lane Arterial standards per the City of San Marcos' Mobility Element.

For the purposes of this traffic study, this network addition is assumed in the long-term traffic volumes forecast but no changes to the study area roadway geometry or intersection control as shown in *Figure 3–1*, were assumed.

9.2 Long-Term (Year 2050) Traffic Volumes

To forecast future traffic volumes for Long-Term (Year 2050) conditions, the SANDAG ABM2+ Model was utilized. The forecasted ADT volumes were then used to calculate peak hour volumes based partially on the existing relationship between ADT and peak hour volumes.

Several other traffic engineering principles and factors such as the K-factor (the proportion of daily volume that occurs during the peak period) and D-factor (the directional split of the traffic volumes) were also considered in the forecast analysis (see *Appendix D* for definitions). The forecast volumes were also checked for consistency between intersections, where no driveways or roadways exist between intersections, and were compared to existing volumes for accuracy.

Figure 9–1 shows the Long Term (Year 2050) without Project traffic volumes. ***Figure 9–2*** shows the Long Term (Year 2050) + Project traffic volumes.

9.3 Existing and Proposed Zoning

The Project site is currently designated Commercial and Light Industrial in the City General Plan and zoned as Commercial and Light Industrial. The Project requires a General Plan amendment and Rezone to Multifamily Residential. The Project will result in reduced traffic as compared to the current zoning. A comparison of the Project's trip generation calculations and trip generation calculations for a conceptual development plan based on the current zoning is shown below in ***Table 9-1***. As shown, the Project is calculated to generate approximately 180 fewer ADT as compared to the current zoning.

TABLE 9-1
TRIP GENERATION COMPARISON

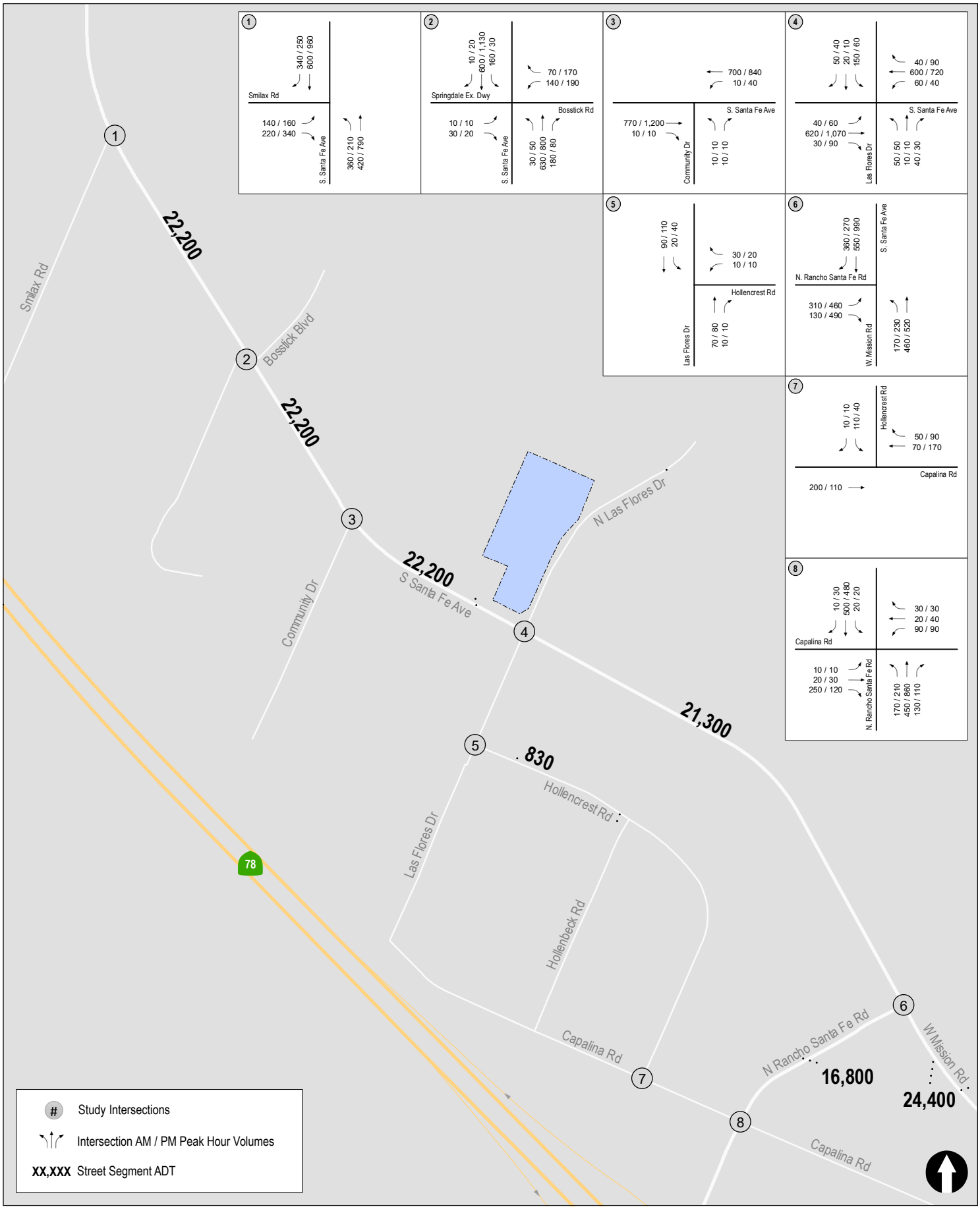
Land Use	Size	Daily Trip Ends (ADT)[b]		AM Peak Hour					PM Peak Hour				
		Rate[a]	Volume	% of ADT	In:Out Split	Volume			% of ADT	In:Out Split	Volume		
						In	Out	Total			In	Out	Total
Existing Zoning (Commercial and Light Industrial)													
Industrial / Business Park (commercial included)	2.5 Acres	200 /Acre	500	12%	80 : 20	48	12	60	12%	20 : 80	12	48	60
Proposed Project													
Townhomes [c]	46 DU	8 /DU	368	8%	20 : 80	6	23	29	10%	70 : 30	26	11	37
Net-New Trips			***-132***			***-42***	***11***	***-31***			***14***	***-37***	***-23***

Footnotes:

a. Trip rates from *SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*

b. Average Daily Trips

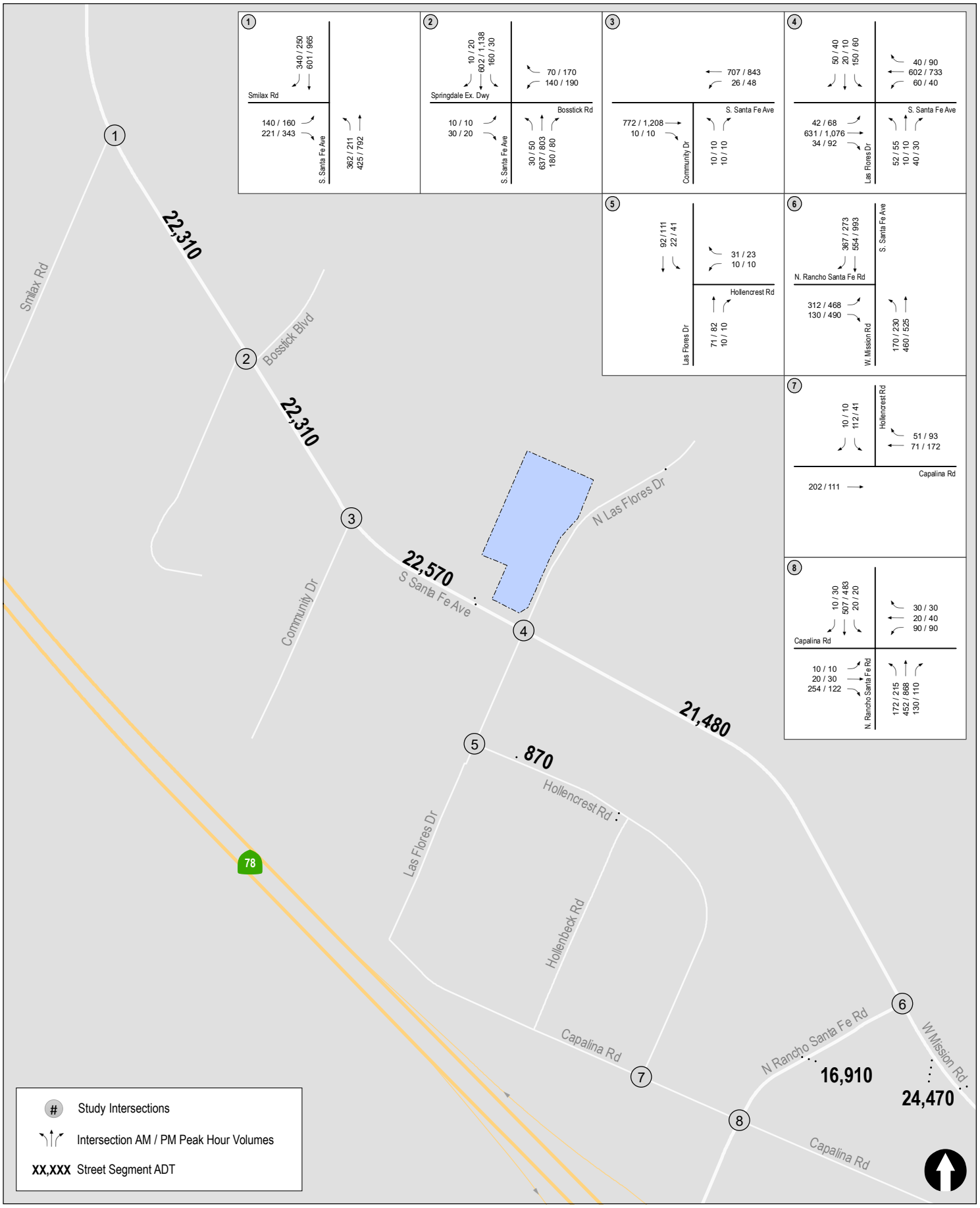
c. 46 DU proposed on 2.23 net-acres (about 20.1 DU/acre). Therefore, the 'Residential: Condominium (or any multi-family 6-20 DU/acre)' rate was used to calculate the Project's trip generation.



N:\3940\Figures
Date: 11/24/2025
Time: 1:21 PM

Figure 9-1

Long-Term without Project Traffic Volumes



N:\3940\Figures
Date: 11/24/2025
Time: 1:24 PM

Figure 9-2

Long-Term + Project Traffic Volumes

10.0 ANALYSIS OF LONG-TERM SCENARIOS

10.1 Long-Term Without Project

10.1.1 *Intersection Analysis*

Table 10–1 summarizes the intersection operations under Long-Term without Project conditions. As seen in *Table 10–1*, the study intersections are calculated to operate acceptably at LOS D or better with the exception of:

- Intersection #1. S. Santa Fe Avenue / Smilax Road (minor-street left-turn movement calculated to operate at LOS F during the AM and PM peak hours)
- Intersection #3. S. Santa Fe Avenue / Community Drive (LOS E during the PM peak hour)

Appendix H contains the Long-Term without Project intersection analyses calculation worksheets.

10.1.2 *Segment Operations*

Table 10–2 summarizes the street segment operations under Long-Term without Project conditions. As seen in *Table 10–2*, the study street segments are calculated to operate acceptably at LOS D or better with the exception of S. Santa Fe Avenue between Smilax Road and Bosstick Boulevard, which is calculated to continue to operate at LOS F:

10.2 Long-Term + Project

10.2.1 *Intersection Analysis*

Table 10–1 summarizes the intersection operations under Long-Term + Project conditions. As seen in *Table 10–1*, with the addition of Project traffic, the study intersections are calculated to continue to operate acceptably at LOS D or better with the exception of:

- **Intersection #1. S. Santa Fe Avenue / Smilax Road (minor-street left-turn movement calculated to operate at LOS F during the AM and PM peak hours)**
- Intersection #3. S. Santa Fe Avenue / Community Drive (LOS E during the PM peak hour):

Based on the established Level of Service Standards outlined in *Section 4.3*, the Project is calculated to result in a substantial effect to the intersection of S. Santa Fe Avenue / Smilax Road. Roadway improvements to address this Level of Service deficiency are proposed in *Section 13.0*.

The Project-related increase in delay at the intersection of S. Santa Fe Avenue / Community Drive is less than the threshold of 2.0 seconds. The Project is not calculated to result in a substantial effect to this study intersection and no improvements are required.

Appendix I contains the Long-Term + Project intersection analyses calculation worksheets.

10.2.2 *Segment Operations*

Table 10–2 summarizes the segment operations under Long-Term + Project conditions. As seen in *Table 10–2*, with the addition of Project traffic, the study street segments are calculated to continue to operate acceptably at LOS D or better with the exception of S. Santa Fe Avenue between Smilax Road and Bosstick Boulevard, which is calculated to continue to operate at LOS F.

The Project-related increase in the V/C ratio for the above-listed street segment already operating at an unacceptable LOS is less than the threshold of 0.02. The Project is not calculated to result in a substantial effect to the study segment and no improvements are required.

TABLE 10–1
LONG-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Long-Term Without Project		Long-Term With Project		Δ[c]	Substantial Effect?
			Delay[a]	LOS[b]	Delay	LOS		
1. S. Santa Fe Avenue / Smilax Road	MSSC[d]	AM	**>100**	**F**	**>100**	**F**	**>10**	**Yes**
		PM	**>100**	**F**	**>100**	**F**	**>10**	**Yes**
2. S. Santa Fe Avenue / Bosstick Boulevard	Signal	AM	26.7	C	27.1	C	0.4	No
		PM	40.4	D	40.7	D	0.3	No
3. S. Santa Fe Avenue / Community Drive	MSSC	AM	19.8	C	20.9	C	1.1	No
		PM	**45.9**	**E**	**47.3**	**E**	**1.4**	**No**
4. S. Santa Fe Avenue / N. Las Flores Drive	Signal	AM	20.0	B	20.2	C	0.2	No
		PM	31.1	C	32.7	C	1.6	No
5. N. Las Flores Drive / Hollencrest Road	MSSC	AM	9.2	A	9.3	A	0.1	No
		PM	9.6	A	9.6	A	0.0	No
6. S. Santa Fe Avenue (W. Mission Road) / N. Rancho Santa Fe Rd	Signal	AM	13.9	B	14.0	B	0.1	No
		PM	22.1	C	22.2	C	0.1	No
7. Capalina Road / Hollencrest Road	MSSC	AM	12.0	B	12.1	B	0.1	No
		PM	11.2	B	11.3	B	0.1	No
8. N. Rancho Santa Fe Rd / Capalina Road	Signal	AM	36.5	D	37.4	D	0.9	No
		PM	41.8	D	43.7	D	1.9	No

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes the increase in delay due to Project.
d. MSSC = Minor-Street Stop Controlled intersection. Worst-case level of service reported.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 10–2
LONG-TERM STREET SEGMENT OPERATIONS

Street Segment	Capacity (LOS E) [a]	Long-Term Without Project			Long-Term With Project			Δ[e]	Substantial Effect?
		ADT[b]	LOS[c]	V/C[d]	ADT	LOS	V/C		
S. Santa Fe Avenue									
1. Smilax Road to Bosstick Boulevard	8,000	**22,200**	**F**	**2.775**	**22,310**	**F**	**2.789**	**0.014**	**No**
2. Bosstick Boulevard to Community Drive	40,000	22,200	C	0.555	22,310	C	0.558	0.003	No
3. Community Drive to N. Las Flores Drive	40,000	22,200	C	0.555	22,570	C	0.564	0.009	No
4. N. Las Flores Drive to N. Rancho Santa Fe Road	40,000	21,300	C	0.533	21,480	C	0.537	0.004	No
5. N. Rancho Santa Fe Road to N. Pacific Street	40,000	24,400	C	0.610	24,470	C	0.612	0.002	No
Hollencrest Road									
6. De Leone Road to Hollenbeck Road	2,200	830	+C	0.104	870	+C	0.109	0.005	No
N. Rancho Santa Fe Road									
7. S. Santa Fe Avenue to Capalina Road	40,000	16,800	B	0.420	16,910	B	0.423	0.003	No

Footnotes:

a. Capacities based on based on the City of San Marcos' *Roadway Classifications, Capacity, and LOS* (see *Appendix B*)
b. Average Daily Traffic Volumes.
c. Level of Service.
d. Volume to Capacity.
e. Δ denotes a Project-induced increase in the Volume to Capacity (V/C) ratio.
f. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Per the City of San Marcos' *Roadway Classifications, Capacity, and LOS*, the LOS C capacity of a Sub-Collector is 2,200 ADT.

11.0 ACTIVE TRANSPORTATION REVIEW

11.1 Bicycle Network

Currently, Class II bike lanes are provided on the following study street segments:

- S. Santa Fe Avenue, from Bosstick Boulevard to slightly south of N. Rancho Santa Fe Road (both sides); and
- N. Rancho Santa Fe Road, along its entire length (both sides)

In the City of San Marcos *Active Transportation Plan*, a Class IV bikeway (one-way) is planned to be constructed as the ultimate bicycle network condition on Mission Road / S. Santa Fe east of N. Rancho Santa Fe Road. The Project will provide an 8-foot-wide irrevocable offer of dedication (IOD) along the Project frontage to support the future bicycle facilities.

11.2 Pedestrian Conditions

Pedestrian sidewalks are generally provided throughout the study area, except for:

- S. Santa Fe Avenue, north of Bosstick Boulevard (both sides)
- N. Las Flores Drive, north of S. Santa Fe Avenue (east side)

The City of San Marcos Bicycle and Pedestrian Master Plan notes the same missing sidewalks in the study area on S. Santa Fe Avenue and N. Las Flores Drive.

Pedestrian crossings are provided in all directions at the intersections of S. Rancho Santa Fe Avenue / N. Las Flores Drive and Capalina Road / N. Rancho Santa Fe Road. Formalized pedestrian crossings are not provided at the following locations:

- S. Santa Fe Avenue / Smilax Road (across all legs)
- S. Santa Fe Avenue / Bosstick Boulevard (crossing prohibited across the north leg)
- S. Santa Fe Avenue / Community Drive (across all legs)
- N. Las Flores Drive / Hollencrest Road (across all legs)
- S. Santa Fe Avenue / N. Rancho Santa Fe Road (crossing prohibited across the north leg)
- Capalina Road / Hollencrest Road (across all legs)

N. Las Flores Drive is considered a "Collector" route on the *Bicycle and Pedestrian Master Plan*. Collector sidewalks are typically along roads that support institutional, industrial, open space, agricultural, or low density residential with limited lateral access and low pedestrian levels. According to the *Bicycle and Pedestrian Master Plan*, Collector sidewalks typically warrant the "basic level" sidewalk treatment adequate to provide the minimum level of safety, connectivity, access, and walkability, though special circumstances may warrant enhanced treatments.

S. Santa Fe Avenue is considered an "Arterial" route in the *Bicycle and Pedestrian Master Plan*. Arterial sidewalks are typically along roads that support moderate density business and shopping districts with moderate pedestrian levels. Arterial sidewalks typically warrant the "enhanced" walkway treatment level according to the *Bicycle and Pedestrian Master Plan*, which may include features such as street trees or other buffer between the sidewalk and vehicle lanes, among other treatments.

The Project will provide an 8-foot-wide IOD along the Project frontage to support the future pedestrian facilities.

11.3 Existing Transit Conditions

Transit service is provided to the project area via North County Transit District (NCTD) bus routes 304 and 305.

Route 304 provides bus service between Encinitas and San Marcos, with stops within the study area along N. Rancho Santa Fe Road and S. Santa Fe Avenue. This route provides a direct connection to Palomar College Station with transfers to SPRINTER Route 305 bus service. The route operates hourly between the hours of 5:00AM and 8:00PM, Monday through Friday, and between 7:30AM and 7:30PM on Saturday.

Route 305 provides bus service between Escondido and Vista, with stops within the study area along S. Santa Fe Avenue. This route provides a direct connection to Palomar College Station with transfers to SPRINTER, Route 304 bus service. The route operates hourly between the hours of 4:30AM and 11:00PM, Monday through Friday, and between 5:30AM and 11:00PM on Saturday & Sundays.

The project site is located within 1/2 mile walking distance, depending on ultimate pedestrian site access, from stop pairs serving both Route 304 and Route 305 located along S. Santa Fe Avenue. The closest bus stops to the project site are located near the intersection of S. Santa Fe Avenue / N. Las Flores Drive and the intersection of S. Santa Fe Avenue (Mission Rd) & Rancho Santa Fe Rd on both sides of the street. The project site is also approximately 1.25-mile walking or biking distance from Palomar College Station.

At the intersection of S. Santa Fe Avenue (Mission Rd) & Rancho Santa Fe Rd, the bus stop in the northbound direction provides route signage, seating with shade, and a trash receptacle and in the southbound direction the stop provides only route signage, seating, and a trash receptacle. At the intersection of S. Santa Fe Avenue / N. Las Flores Drive, the bus stop in the northbound direction provides route signage, seating, and a trash receptacle and in the southbound direction it provides route signage, seating with shade, and a trash receptacle.

12.0 ACCESS ASSESSMENT

Access is proposed via the existing driveway to S. Santa Fe Avenue which the Gourmet Liquor store currently utilizes. This driveway is limited to right turns in and out only, by the raised median within S. Santa Fe Avenue.

LLG conducted AM (7-9 AM) peak hour and PM (4-6 PM) peak hour counts on Wednesday June 8, 2022, at the subject driveway to obtain existing volumes. The AM/PM peak hour inbound counts were 11 and 30. These weekday counts were used in the analysis since weekday commute peak periods are what is analyzed based on City Guidelines. A traffic count was also conducted on Saturday, July 23, 2022, and Friday, August 5, 2022, from 5:00 PM to 6:30 PM. The inbound and outbound peak hour count was 27/27 on Saturday, and 33/37 on Friday. Project weekday volumes were added to existing volumes to conduct a peak hour analysis for the following scenarios. ***Table 12-1*** shows the project trip generation table. ***Figure 12-1*** shows the existing and existing + project traffic volumes.

- Existing Peak Hour
- Existing + Project Peak Hour

Table 12-2 shows the results of the peak hour analysis for the subject driveway. As shown on *Table 12-2*, the driveway is calculated to operate at a very good LOS B under both the existing and existing + project scenarios. LOS B is calculated using Friday and Saturday counts as well. The driveway can accommodate both existing and project traffic. ***Table 12-3*** shows a summary of the counts collected by LLG at the Gourmet Liquor driveway.

TABLE 12-1
SANTA FE LAS FLORES TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADT)[b]		AM Peak Hour			PM Peak Hour		
		Rate[a]	Volume	Volume			Volume		
				In	Out	Total	In	Out	Total
Proposed Project									
Townhomes[c]	46 DU	8 /DU	368	6	23	29	26	11	37
Project Total			***368***	***6***	***23***	***29***	***26***	***11***	***37***

Footnotes:

a. Trip rates from *SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*

b. Average Daily Trips

c. 46 DU proposed on 2.23 net-acres (about 20.1 DU/acre). Therefore, the 'Residential: Condominium (or any multi-family 6-20 DU/acre)' rate was used to calculate the Project's trip generation.

TABLE 12-2
ACCESS DRIVEWAY OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project	
			Delay [a]	LOS [b]	Delay	LOS
1. S. Santa Fe Ave / Project Access Dwy.	MSSC [c]	AM	10.4	B	10.6	B
		PM	11.1	B	11.4	B

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. MSSC = Minor-Street Stop Controlled intersection. Worst-case level of service reported.

TABLE 12-3
GOURMET LIQUOR DRIVEWAY COUNTS

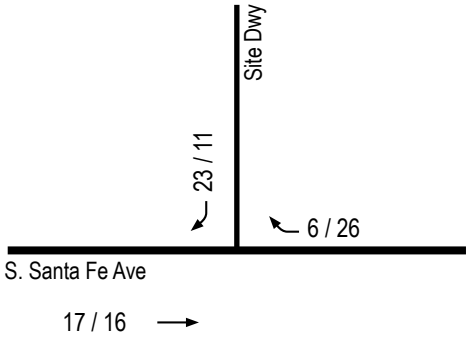
	Wednesday, June 8th, 2022		Friday, August 5th, 2022		Saturday, July 23, 2022	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
AM Peak	11	11	- [a]	-	-	-
PM Peak	30	31	33	37	27	27

Footnotes:

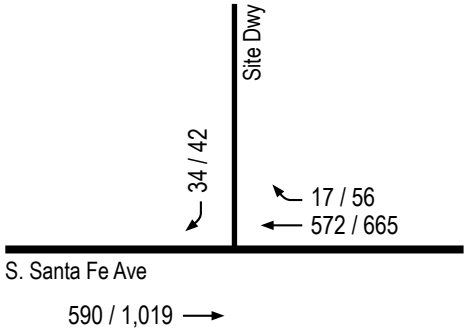
a. - = Counts not conducted during the AM peak hour.

Existing
Traffic Volumes
(Liquor Store Traffic)

Project
Traffic Volumes
(Santa Fe / Las Flores 46-Unit Project Traffic)



Existing + Project
Traffic Volumes



AM / PM — AM / PM Intersection Peak Hour Volumes

LLG

N:\3940\Figures
Date: 11/26/25

Figure 12-1

Pre & Post Project Site Driveway Traffic Volumes

Santa Fe Flores Townhomes

1349

13.0 CONCLUSIONS

The preceding Local Transportation Analysis (LTA) was prepared to determine and evaluate the potential impacts and effects to the local roadway system due to the proposed Project.

The LTA shows that the Project will add a small amount of traffic to the intersection of S. Santa Fe Avenue / Smilax Road, which operates below City standards. However, the Project contributes only 0.58% (20 trips) of the total combined AM and PM peak hour traffic to this intersection under Near-Term conditions. The existing traffic conditions at this location are already substandard. The provision of a traffic signal would result in acceptable LOS D or better operations. A traffic signal is planned at the S. Santa Fe Avenue / Smilax Road intersection as part of the City's Capital Improvement Project (CIP) 88179 (IP 4750).

The Project should be conditioned to provide adequate corner sight distance at the Project driveway. This analysis was previously prepared by a project civil engineer for a similar project on the same site. See ***Appendix J*** for the Sight Distance Exhibit.

4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
www.llgengineers.com

Pasadena
Irvine
San Diego

TECHNICAL APPENDICES

SANTA FE FLORES TOWNHOMES PROJECT

San Marcos, California
December 4, 2025

LLG Ref. 3-24-3940

APPENDICES

APPENDIX	
A.	Intersection and Segment Manual Count Sheets
B.	City of San Marcos Roadway Classification Table
C.	Analysis Worksheets – Existing
D.	K&D Factors Definitions
E.	Travel Route Maps
F.	Analysis Worksheets – Near-Term
G.	Analysis Worksheets – Near-Term + Project
H.	Analysis Worksheets – Long-Term
I.	Analysis Worksheets – Long- Term + Project
J.	Sight Distance Exhibit

APPENDIX A

INTERSECTION AND SEGMENT MANUAL COUNT SHEETS

Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#01	File Name:	ITM-22-009-01
Intersection:	South Santa Fe Avenue & Smilax Road	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	South Santa Fe Avenue Southbound			Smilax Road Westbound			South Santa Fe Avenue Northbound			Smilax Road Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	89	31	0	0	1	33	42	1	21	0	33	251
7:15	0	98	47	0	0	0	50	45	2	17	0	46	305
7:30	1	90	38	0	0	0	59	77	0	23	0	48	336
7:45	0	124	70	0	0	0	69	74	2	18	0	34	391
8:00	0	83	55	0	0	0	60	76	0	23	0	23	320
8:15	0	101	52	0	0	0	51	56	0	27	0	42	329
8:30	1	96	46	0	0	0	35	77	0	19	0	28	302
8:45	0	82	35	0	0	0	18	93	0	15	0	16	259
Total	2	763	374	0	0	1	375	540	5	163	0	270	2493
Approach%	0.2	67.0	32.8	-	-	100.0	40.8	58.7	0.5	37.6	-	62.4	
Total%	0.1	30.6	15.0	-	-	0.0	15.0	21.7	0.2	6.5	-	10.8	

AM Intersection Peak Hour: **07:30 to 08:30**

Volume	1	398	215	-	-	-	239	283	2	91	-	147	1,376
Approach%	0.2	64.8	35.0	-	-	-	45.6	54.0	0.4	38.2	-	61.8	
Total%	0.1	28.9	15.6	-	-	-	17.4	20.6	0.1	6.6	-	10.7	
PHF			0.79			#DIV/0!			0.90			0.84	0.88

PM	South Santa Fe Avenue Southbound			Smilax Road Westbound			South Santa Fe Avenue Northbound			Smilax Road Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	0	147	39	0	0	1	40	122	0	15	0	51	415
16:15	0	153	28	0	0	0	22	130	0	21	0	57	411
16:30	0	170	42	0	0	0	26	140	0	31	0	60	469
16:45	10	157	39	0	0	0	41	130	0	19	0	57	453
17:00	0	159	38	0	0	3	35	150	0	23	0	56	464
17:15	0	155	37	0	0	0	41	105	1	30	0	52	421
17:30	0	143	32	0	0	0	26	129	0	24	0	68	422
17:45	0	105	37	0	0	0	41	141	0	25	0	54	403
Total	10	1189	292	0	0	4	272	1047	1	188	0	455	3458
Approach%	0.7	79.7	19.6	-	-	100.0	20.6	79.3	0.1	29.2	-	70.8	
Total%	0.3	34.4	8.4	-	-	0.1	7.9	30.3	0.0	5.4	-	13.2	

PM Intersection Peak Hour: **16:30 to 17:30**

Volume	10	641	156	-	-	3	143	525	1	103	-	225	1,807
Approach%	1.2	79.4	19.3	-	-	100.0	21.4	78.5	0.1	31.4	-	68.6	
Total%	0.6	35.5	8.6	-	-	0.2	7.9	29.1	0.1	5.7	-	12.5	
PHF			0.95			0.25			0.90			0.90	0.96

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

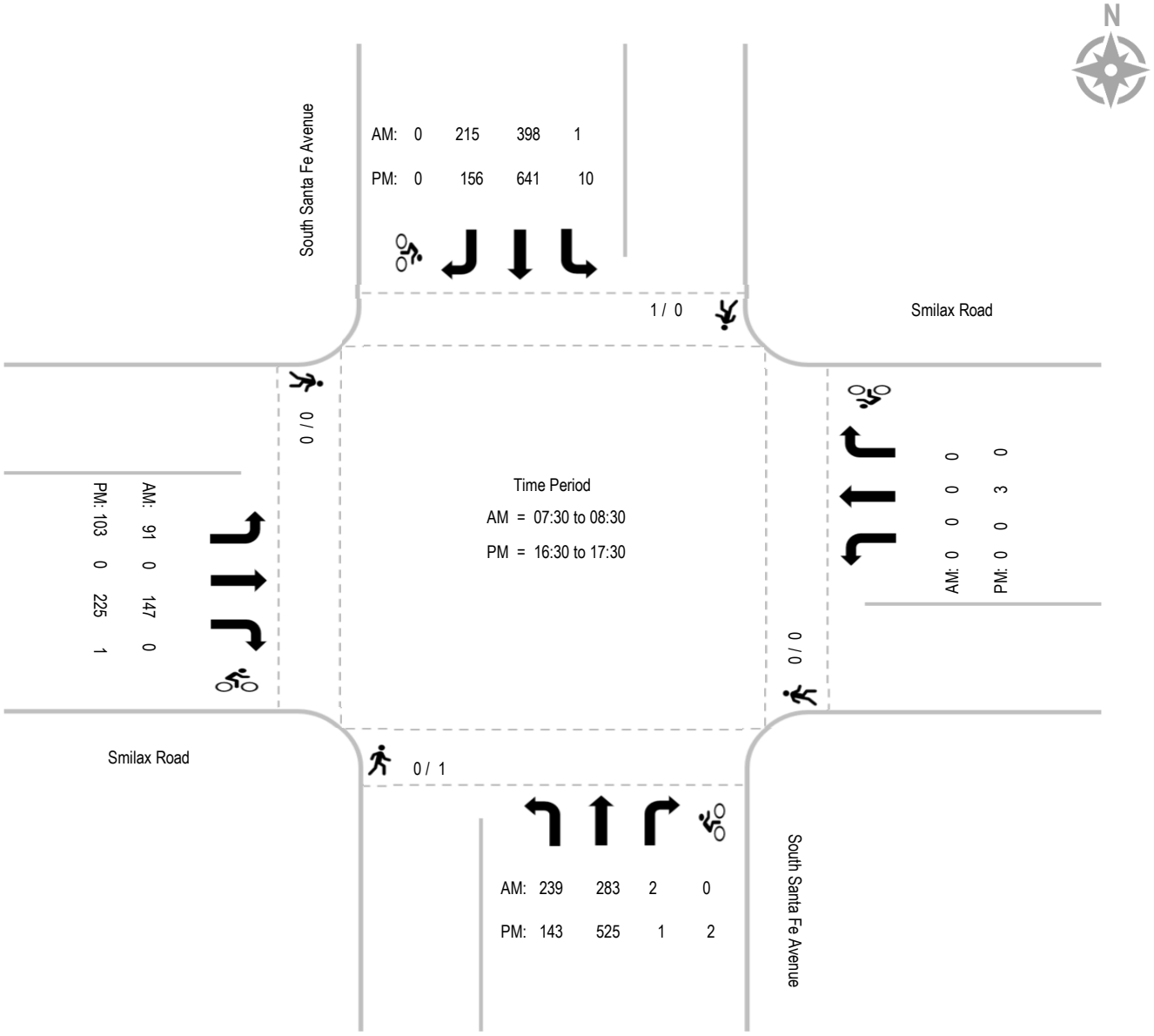
Location:	#01	File Name:	ITM-22-009-01
Intersection:	South Santa Fe Avenue & Smilax Road	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	South Santa Fe Avenue Southbound				Smilax Road Westbound				South Santa Fe Avenue Northbound				Smilax Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	1				0				0				0				1	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	South Santa Fe Avenue Southbound				Smilax Road Westbound				South Santa Fe Avenue Northbound				Smilax Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
17:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				1				0				1	
Bike Total		0	0	0		0	0	0		0	2	0		1	0	0		3

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location: #01	File Name:	ITM-22-009-01
	Intersection: South Santa Fe Avenue & Smilax Road	Project:	LLG Ref. 3-22-3523
	Date of Count: Thursday, February 17, 2022		Santa Fe Las Flores



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#02	File Name:	ITM-22-009-02
Intersection:	South Santa Fe Avenue & Bosstick Boulevard	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	Santa Santa Fe Avenue Southbound			Bosstick Boulevard Westbound			Santa Santa Fe Avenue Northbound			Bosstick Boulevard Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	23	96	1	6	0	2	2	72	28	1	2	9	242
7:15	22	127	1	13	0	6	6	91	16	2	0	3	287
7:30	16	113	3	23	0	13	2	120	19	2	0	9	320
7:45	23	127	1	21	0	11	4	151	20	0	0	6	364
8:00	17	99	1	12	0	5	9	131	31	6	0	4	315
8:15	15	120	2	11	0	3	6	93	21	2	0	6	279
8:30	4	125	1	16	0	2	4	107	19	0	0	4	282
8:45	8	90	2	5	0	6	3	100	15	4	0	6	239
Total	128	897	12	107	0	48	36	865	169	17	2	47	2328
Approach%	12.3	86.5	1.2	69.0	-	31.0	3.4	80.8	15.8	25.8	3.0	71.2	
Total%	5.5	38.5	0.5	4.6	-	2.1	1.5	37.2	7.3	0.7	0.1	2.0	

AM Intersection Peak Hour: **07:15 to 08:15**

Volume	78	466	6	69	-	35	21	493	86	10	-	22	1,286
Approach%	14.2	84.7	1.1	66.3	-	33.7	3.5	82.2	14.3	31.3	-	68.8	
Total%	6.1	36.2	0.5	5.4	-	2.7	1.6	38.3	6.7	0.8	-	1.7	
PHF			0.91			0.72			0.86			0.73	0.88

PM	Santa Santa Fe Avenue Southbound			Bosstick Boulevard Westbound			Santa Santa Fe Avenue Northbound			Bosstick Boulevard Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	6	190	4	26	0	12	19	150	12	1	0	4	424
16:15	4	219	2	27	0	18	8	139	7	1	0	4	429
16:30	4	226	2	24	0	30	10	139	9	2	0	2	448
16:45	2	224	2	11	1	17	11	167	9	3	0	4	451
17:00	4	208	5	31	0	17	10	177	13	1	0	1	467
17:15	6	196	4	16	1	11	13	138	8	1	0	3	397
17:30	6	207	4	18	0	14	7	141	10	5	0	1	413
17:45	1	155	1	11	0	11	6	158	9	2	0	2	356
Total	33	1625	24	164	2	130	84	1209	77	16	0	21	3385
Approach%	2.0	96.6	1.4	55.4	0.7	43.9	6.1	88.2	5.6	43.2	-	56.8	
Total%	1.0	48.0	0.7	4.8	0.1	3.8	2.5	35.7	2.3	0.5	-	0.6	

PM Intersection Peak Hour: **16:15 to 17:15**

Volume	14	877	11	93	1	82	39	622	38	7	-	11	1,795
Approach%	1.6	97.2	1.2	52.8	0.6	46.6	5.6	89.0	5.4	38.9	-	61.1	
Total%	0.8	48.9	0.6	5.2	0.1	4.6	2.2	34.7	2.1	0.4	-	0.6	
PHF			0.97			0.81			0.87			0.64	0.96

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

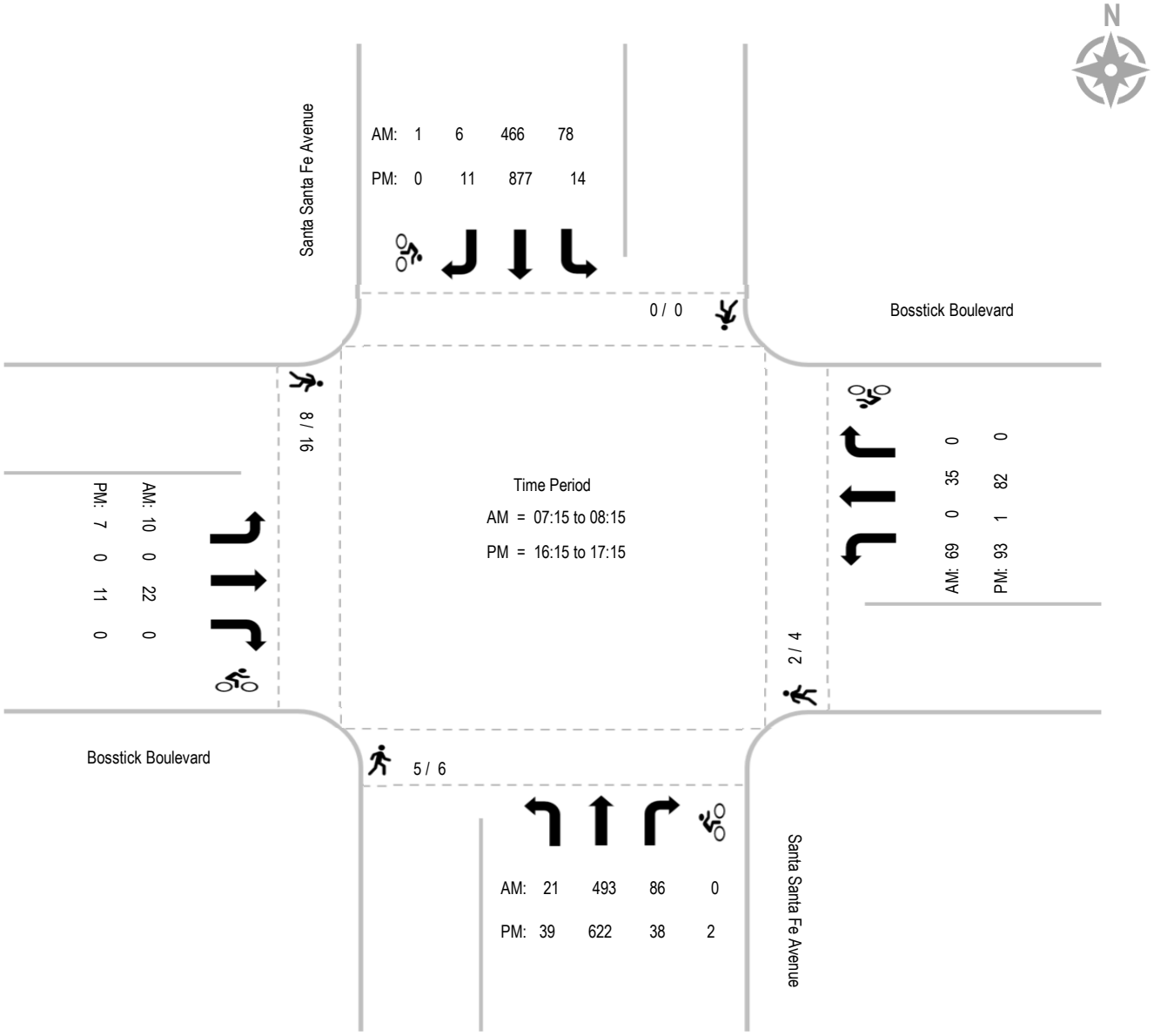
Location:	#02	File Name:	ITM-22-009-02
Intersection:	South Santa Fe Avenue & Bosstick Boulevard	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	Santa Santa Fe Avenue Southbound				Bosstick Boulevard Westbound				Santa Santa Fe Avenue Northbound				Bosstick Boulevard Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0
7:15	0	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	3	1
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	1	0	0	0	3	0	0	0	3	0	0	0	7	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				2				5				8				15	
Bike Total		0	1	0		0	0	0		0	0	0		0	0	0		1

PM	Santa Santa Fe Avenue Southbound				Bosstick Boulevard Westbound				Santa Santa Fe Avenue Northbound				Bosstick Boulevard Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	1	0	1	0	3	0	0	0	4	1
16:15	0	0	0	0	1	0	0	0	2	0	0	0	8	0	0	0	11	0
16:30	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	3	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	3	0
17:15	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	2	1
17:30	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0
17:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Ped Total	0				4				6				16				26	
Bike Total		0	0	0		0	0	0		0	2	0		0	0	0		2

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location: #02	File Name:	ITM-22-009-02
	Intersection: South Santa Fe Avenue & Bosstick Boulevard	Project:	LLG Ref. 3-22-3523
	Date of Count: Thursday, February 17, 2022		Santa Fe Las Flores



Report Generated by Bearcat Enterprises LLC, DBA "Count Data" | 619-987-5136 |

Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#03	File Name:	ITM-22-009-08
Intersection:	South Santa Fe Avenue & Community Drive	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	South Santa Fe Avenue Southbound			- Westbound			South Santa Fe Avenue Northbound			Community Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	126	3	0	0	0	2	120	0	2	0	0	253
7:15	0	138	2	0	0	0	2	99	0	0	0	4	245
7:30	0	194	1	0	0	0	3	140	0	4	0	2	344
7:45	0	168	1	0	0	0	2	142	0	1	0	2	316
8:00	0	145	3	0	0	0	3	181	0	1	0	3	336
8:15	0	155	1	0	0	0	2	138	0	3	0	0	299
8:30	0	150	1	0	0	0	3	128	0	2	0	1	285
8:45	0	113	2	0	0	0	3	81	0	1	0	0	200
Total	0	1189	14	0	0	0	20	1029	0	14	0	12	2278
Approach%	-	98.8	1.2	-	-	-	1.9	98.1	-	53.8	-	46.2	
Total%	-	52.2	0.6	-	-	-	0.9	45.2	-	0.6	-	0.5	

AM Intersection Peak Hour: **07:30 to 08:30**

Volume	-	662	6	-	-	-	10	601	-	9	-	7	1,295
Approach%	-	99.1	0.9	-	-	-	1.6	98.4	-	56.3	-	43.8	
Total%	-	51.1	0.5	-	-	-	0.8	46.4	-	0.7	-	0.5	
PHF			0.86			#DIV/0!			0.83			0.67	0.94

PM	South Santa Fe Avenue Southbound			- Westbound			South Santa Fe Avenue Northbound			Community Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	0	296	0	0	0	0	8	173	0	1	0	2	480
16:15	0	297	1	0	0	0	3	172	0	0	0	1	474
16:30	0	254	0	0	0	0	3	167	0	0	0	1	425
16:45	0	248	2	0	0	0	6	156	0	1	0	1	414
17:00	0	264	0	0	0	0	17	174	0	3	0	1	459
17:15	0	269	2	0	0	0	6	202	0	0	0	1	480
17:30	0	253	2	0	0	0	8	188	0	2	0	1	454
17:45	0	226	0	0	0	0	3	159	0	0	0	1	389
Total	0	2107	7	0	0	0	54	1391	0	7	0	9	3575
Approach%	-	99.7	0.3	-	-	-	3.7	96.3	-	43.8	-	56.3	
Total%	-	58.9	0.2	-	-	-	1.5	38.9	-	0.2	-	0.3	

PM Intersection Peak Hour: **16:45 to 17:45**

Volume	-	1,034	6	-	-	-	37	720	-	6	-	4	1,807
Approach%	-	99.4	0.6	-	-	-	4.9	95.1	-	60.0	-	40.0	
Total%	-	57.2	0.3	-	-	-	2.0	39.8	-	0.3	-	0.2	
PHF			0.96			#DIV/0!			0.91			0.63	0.94

Report Generated by Bearcat Enterprises LLC, DBA "Count Data" | 619-987-5136 |

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#03	File Name:	ITM-22-009-08
Intersection:	South Santa Fe Avenue & Community Drive	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

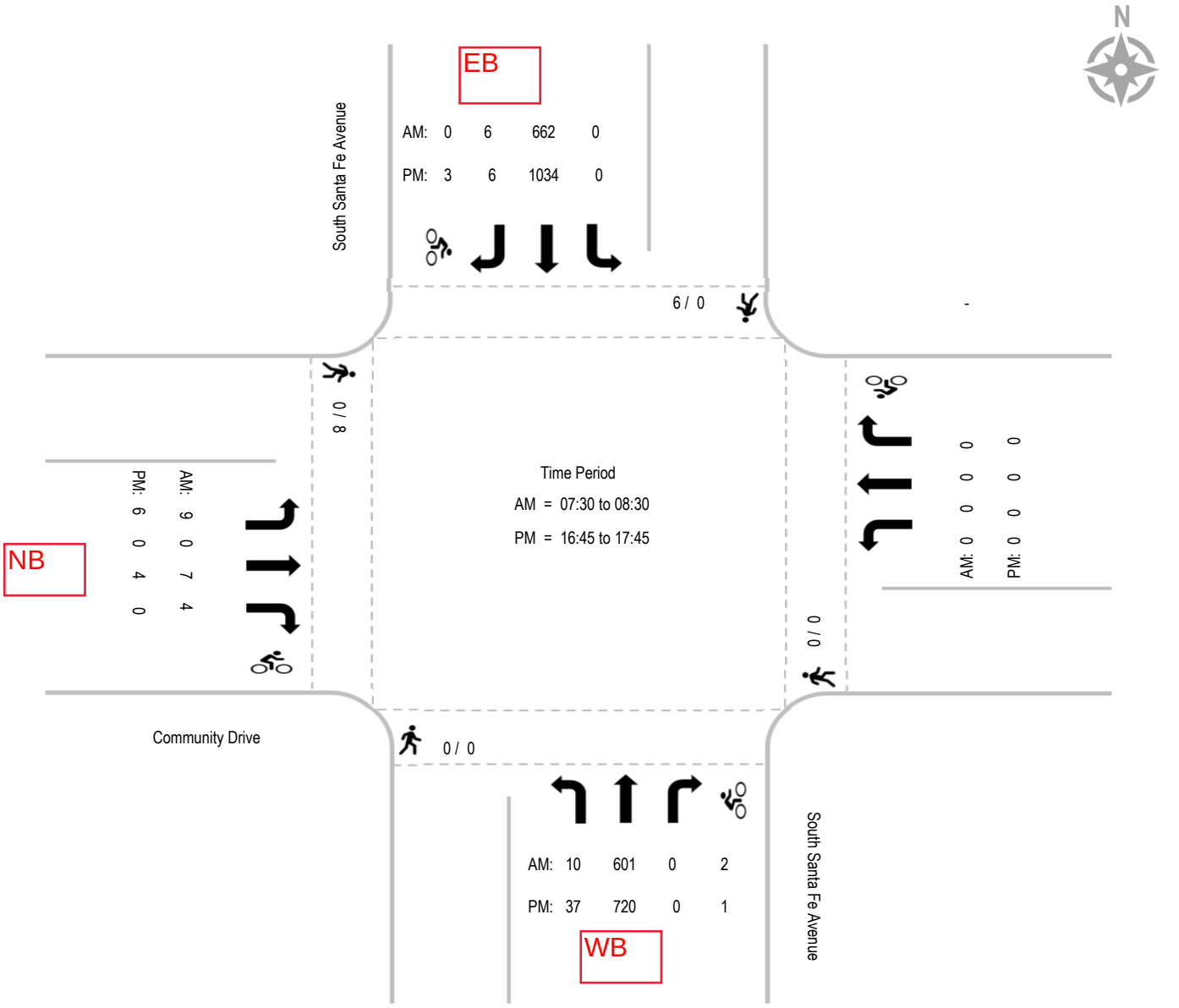
AM	South Santa Fe Avenue Southbound				- Westbound				South Santa Fe Avenue Northbound				Community Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
7:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:00	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
8:15	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
8:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:45	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Ped Total	6				0				0				0				6	
Bike Total		0	0	0		0	0	0		0	2	0		4	0	0		6

PM	South Santa Fe Avenue Southbound				- Westbound				South Santa Fe Avenue Northbound				Community Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
16:30	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
16:45	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0
17:15	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
17:30	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	2	1
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				8				8	
Bike Total		0	3	0		0	0	0		0	1	0		0	0	0		4

Report Generated by Bearcat Enterprises LLC, DBA "Count Data" | 619-987-5136 |

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#03	File Name: ITM-22-009-08
	Intersection:	South Santa Fe Avenue & Smilax Road	Project: LLG Ref. 3-22-3523
	Date of Count:	Thursday, February 17, 2022	Santa Fe Las Flores



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#04	File Name:	ITM-22-009-03
Intersection:	South Santa Fe Avenue & Las Flores Drive	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	Santa Santa Fe Avenue Southbound			Las Flores Drive Westbound			Santa Santa Fe Avenue Northbound			Las Flores Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	7	95	5	26	0	6	0	102	9	6	0	4	260
7:15	5	127	9	29	1	7	13	104	10	7	1	5	318
7:30	12	129	5	43	2	6	10	118	5	9	0	9	348
7:45	8	149	8	33	6	16	14	125	6	15	0	8	388
8:00	10	106	5	22	2	9	7	147	13	9	1	7	338
8:15	11	112	10	22	5	20	4	105	13	8	1	6	317
8:30	15	119	15	15	0	13	3	124	13	9	0	6	332
8:45	9	93	6	11	0	6	4	103	14	6	0	4	256
Total	77	930	63	201	16	83	55	928	83	69	3	49	2557
Approach%	7.2	86.9	5.9	67.0	5.3	27.7	5.2	87.1	7.8	57.0	2.5	40.5	
Total%	3.0	36.4	2.5	7.9	0.6	3.2	2.2	36.3	3.2	2.7	0.1	1.9	

AM Intersection Peak Hour: **07:15 to 08:15**

Volume	35	511	27	127	11	38	44	494	34	40	2	29	1,392
Approach%	6.1	89.2	4.7	72.2	6.3	21.6	7.7	86.4	5.9	56.3	2.8	40.8	
Total%	2.5	36.7	1.9	9.1	0.8	2.7	3.2	35.5	2.4	2.9	0.1	2.1	
PHF			0.87			0.80			0.86			0.77	0.90

PM	Santa Santa Fe Avenue Southbound			Las Flores Drive Westbound			Santa Santa Fe Avenue Northbound			Las Flores Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	15	206	20	17	1	9	9	154	24	7	1	4	467
16:15	18	218	14	13	1	4	9	148	12	10	0	3	450
16:30	10	246	19	9	0	6	9	141	13	7	0	10	470
16:45	13	202	19	18	1	9	10	156	22	11	1	2	464
17:00	13	212	19	13	0	15	7	146	32	12	0	5	474
17:15	12	210	15	9	0	8	5	137	20	15	0	3	434
17:30	17	16	22	24	2	7	7	136	19	9	0	4	263
17:45	16	164	22	13	1	2	4	149	25	11	0	4	411
Total	114	1474	150	116	6	60	60	1167	167	82	2	35	3433
Approach%	6.6	84.8	8.6	63.7	3.3	33.0	4.3	83.7	12.0	68.9	1.7	29.4	
Total%	3.3	42.9	4.4	3.4	0.2	1.7	1.7	34.0	4.9	2.4	0.1	1.0	

PM Intersection Peak Hour: **16:15 to 17:15**

Volume	54	878	71	53	2	34	35	591	79	40	1	20	1,858
Approach%	5.4	87.5	7.1	59.6	2.2	38.2	5.0	83.8	11.2	65.6	1.6	32.8	
Total%	2.9	47.3	3.8	2.9	0.1	1.8	1.9	31.8	4.3	2.2	0.1	1.1	
PHF			0.91			0.79			0.94			0.90	0.98

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

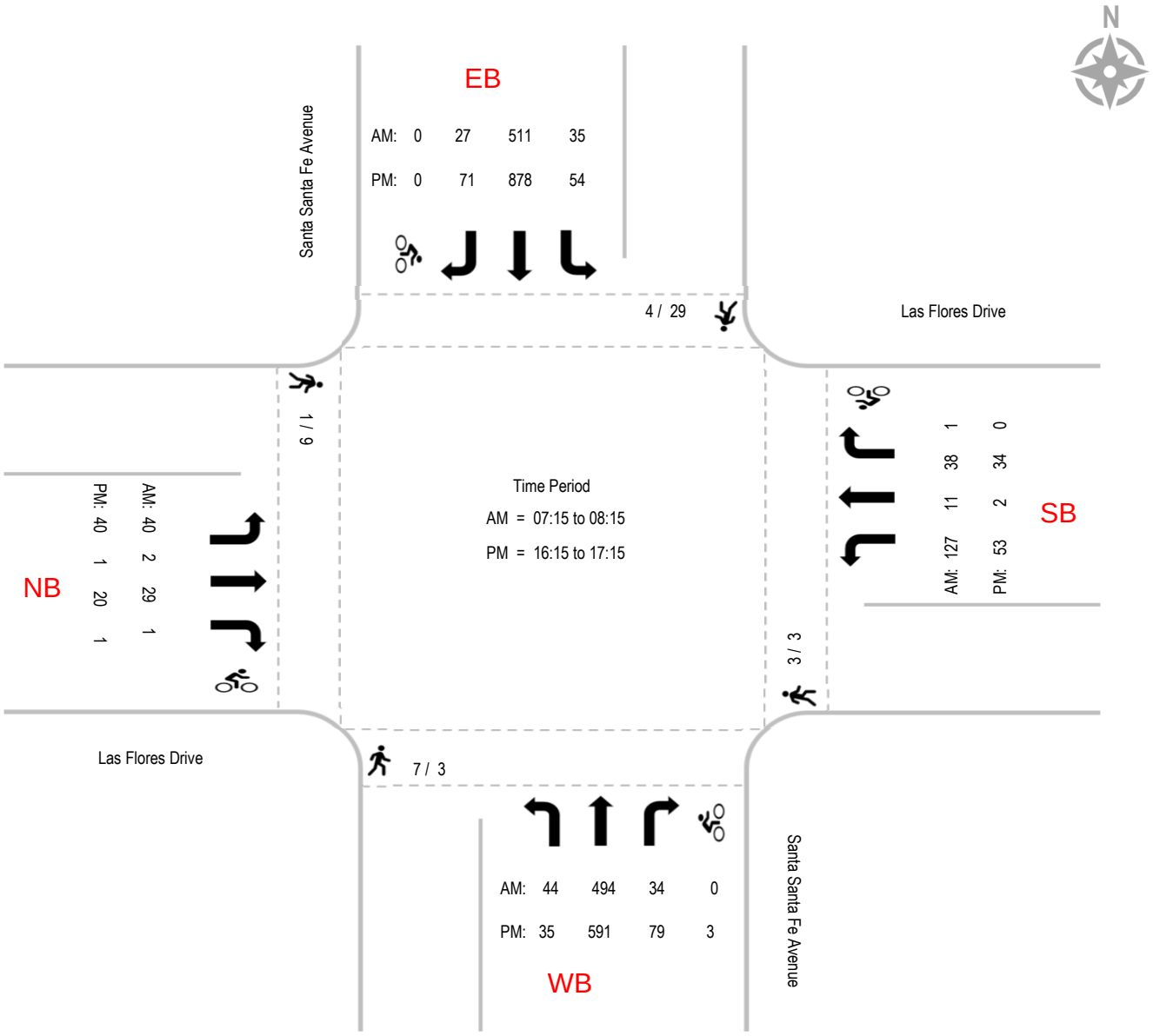
Location:	#04	File Name:	ITM-22-009-03
Intersection:	South Santa Fe Avenue & Las Flores Drive	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	Santa Santa Fe Avenue Southbound				Las Flores Drive Westbound				Santa Santa Fe Avenue Northbound				Las Flores Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
7:15	1	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	3	1
7:30	2	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	4	1
7:45	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0
8:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0
8:45	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0
Ped Total	4				3				7				1				15	
Bike Total		0	0	0		1	0	0		0	0	0		1	0	0		2

PM	Santa Santa Fe Avenue Southbound				Las Flores Drive Westbound				Santa Santa Fe Avenue Northbound				Las Flores Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	2	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	5	1
16:15	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	1
16:30	1	0	0	0	0	0	0	0	1	0	0	0	4	0	0	0	6	0
16:45	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0
17:00	3	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	5	0
17:15	2	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	3	1
17:30	5	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	7	1
17:45	11	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	12	0
Ped Total	29				3				3				9				44	
Bike Total		0	0	0		0	0	0		0	3	0		1	0	0		4

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#04	File Name: ITM-22-009-03
	Intersection:	South Santa Fe Avenue & Las Flores Drive	Project: LLG Ref. 3-22-3523
	Date of Count:	Thursday, February 17, 2022	Santa Fe Las Flores



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#05	File Name:	ITM-22-009-04
Intersection:	Hollencrest Road & Las Flores Drive	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	- Southbound			Las Flores Drive Westbound			Hollencrest Road Northbound			Las Flores Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	0	0	3	4	0	3	0	2	0	8	1	21
7:15	0	0	0	1	15	0	1	0	2	0	11	1	31
7:30	0	0	0	3	15	0	1	0	6	0	14	1	40
7:45	0	0	0	2	16	0	1	0	12	0	13	0	44
8:00	0	0	0	0	14	0	0	0	4	0	9	2	29
8:15	0	0	0	7	16	0	5	0	3	0	15	1	47
8:30	0	0	0	1	12	0	1	0	3	0	4	1	22
8:45	0	0	0	0	10	0	0	0	4	0	5	1	20
Total	0	0	0	17	102	0	12	0	36	0	79	8	254
Approach%	-	-	-	14.3	85.7	-	25.0	-	75.0	-	90.8	9.2	
Total%	-	-	-	6.7	40.2	-	4.7	-	14.2	-	31.1	3.1	

AM Intersection Peak Hour: **07:30 to 08:30**

Volume	-	-	-	12	61	-	7	-	25	-	51	4	160
Approach%	-	-	-	16.4	83.6	-	21.9	-	78.1	-	92.7	7.3	
Total%	-	-	-	7.5	38.1	-	4.4	-	15.6	-	31.9	2.5	
PHF			#DIV/0!			0.79			0.62			0.86	0.85

PM	- Southbound			Las Flores Drive Westbound			Hollencrest Road Northbound			Las Flores Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	0	0	0	6	23	0	2	0	5	0	7	4	47
16:15	0	0	0	5	13	0	2	0	6	2	8	1	37
16:30	0	0	0	5	20	0	0	0	3	1	9	0	38
16:45	0	0	0	10	22	0	1	0	4	0	12	2	51
17:00	0	0	0	9	17	0	0	0	3	0	16	2	47
17:15	0	0	0	6	15	0	0	0	3	0	16	0	40
17:30	0	0	0	6	23	0	2	0	1	0	10	1	43
17:45	0	0	0	10	15	0	0	0	1	0	12	0	38
Total	0	0	0	57	148	0	7	0	26	3	90	10	341
Approach%	-	-	-	27.8	72.2	-	21.2	-	78.8	2.9	87.4	9.7	
Total%	-	-	-	16.7	43.4	-	2.1	-	7.6	0.9	26.4	2.9	

PM Intersection Peak Hour: **16:45 to 17:45**

Volume	-	-	-	31	77	-	3	-	11	-	54	5	181
Approach%	-	-	-	28.7	71.3	-	21.4	-	78.6	-	91.5	8.5	
Total%	-	-	-	17.1	42.5	-	1.7	-	6.1	-	29.8	2.8	
PHF			#DIV/0!			0.84			0.70			0.82	0.89

Report Generated by Bearcat Enterprises LLC, DBA "Count Data" | 619-987-5136 |

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

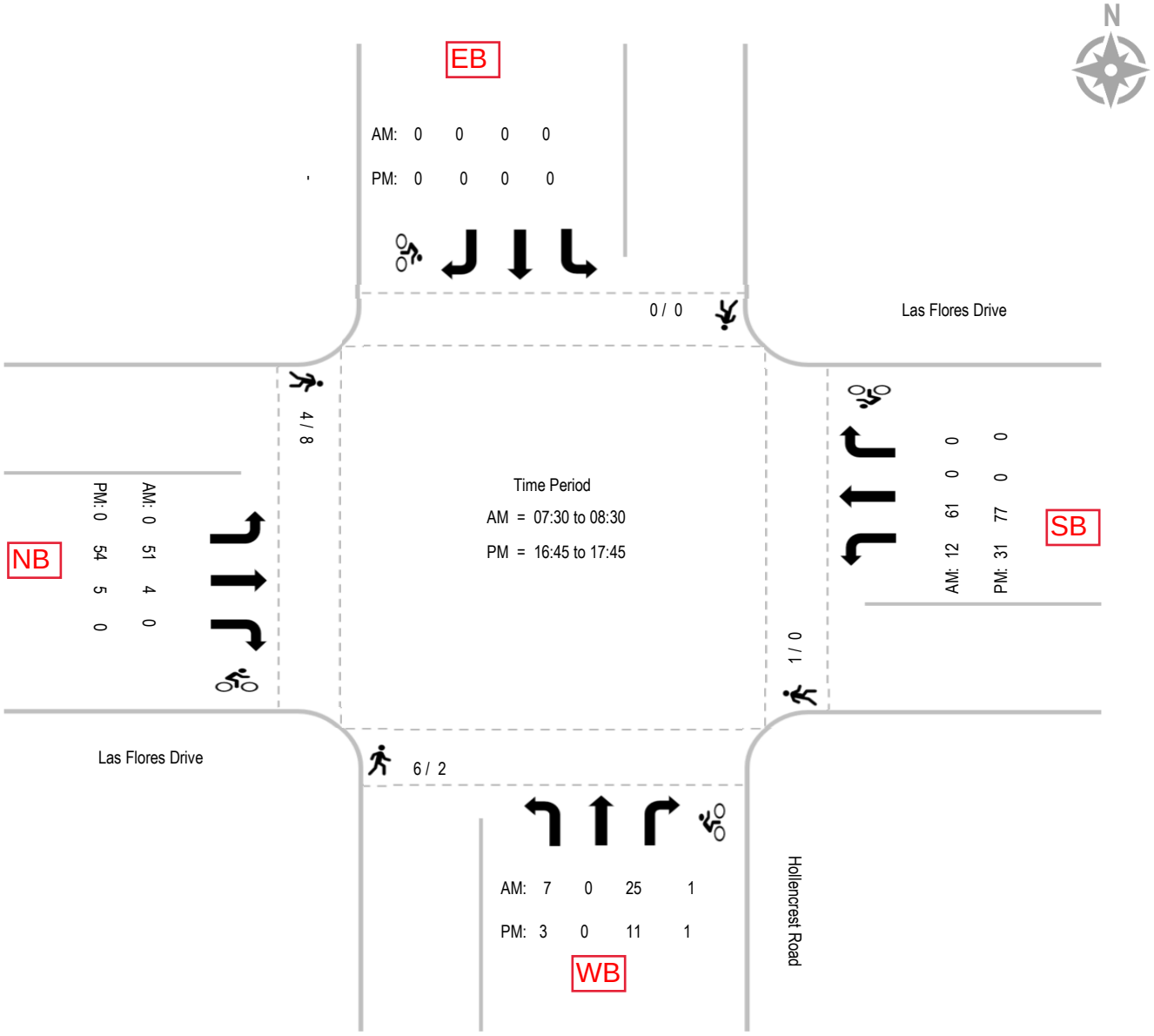
Location:	#05	File Name:	ITM-22-009-04
Intersection:	Hollencrest Road & Las Flores Drive	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	- Southbound				Las Flores Drive Westbound				Hollencrest Road Northbound				Las Flores Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2	0
7:15	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	2	1
7:30	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	0	4	0
7:45	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				1				6				4				11	
Bike Total		0	0	0		0	0	0		0	0	1		0	0	0		1

PM	- Southbound				Las Flores Drive Westbound				Hollencrest Road Northbound				Las Flores Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	1
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0
Ped Total	0				0				2				8				10	
Bike Total		0	0	0		0	0	0		1	0	0		0	0	0		1

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#05	File Name: ITM-22-009-04
	Intersection:	Hollencrest Road & Las Flores Drive	Project: LLG Ref. 3-22-3523
	Date of Count:	Thursday, February 17, 2022	Santa Fe Las Flores



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#06	File Name:	ITM-22-009-05
Intersection:	West Mission Road & N. Rancho Santa Fe Rd	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	West Mission Road Southbound			- Westbound			West Mission Road Northbound			N. Rancho Santa Fe Rd Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	74	52	0	0	0	32	45	0	68	0	11	282
7:15	0	94	70	0	0	0	30	81	0	42	0	19	336
7:30	0	107	74	0	0	0	27	73	0	60	0	23	364
7:45	0	121	69	0	0	0	33	92	0	53	0	23	391
8:00	0	78	60	0	0	0	26	90	0	81	0	21	356
8:15	1	64	55	0	0	0	35	57	0	74	0	23	309
8:30	0	79	60	0	0	0	32	66	0	69	0	27	333
8:45	0	62	47	0	0	0	27	56	0	74	0	21	287
Total	1	679	487	0	0	0	242	560	0	521	0	168	2658
Approach%	0.1	58.2	41.7	-	-	-	30.2	69.8	-	75.6	-	24.4	
Total%	0.0	25.5	18.3	-	-	-	9.1	21.1	-	19.6	-	6.3	

AM Intersection Peak Hour: **07:15 to 08:15**

Volume	-	400	273	-	-	-	116	336	-	236	-	86	1,447
Approach%	-	59.4	40.6	-	-	-	25.7	74.3	-	73.3	-	26.7	
Total%	-	27.6	18.9	-	-	-	8.0	23.2	-	16.3	-	5.9	
PHF			0.89			#DIV/0!			0.90			0.79	0.93

PM	West Mission Road Southbound			- Westbound			West Mission Road Northbound			N. Rancho Santa Fe Rd Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	1	168	59	0	0	0	45	93	0	95	0	76	537
16:15	0	184	38	0	0	0	34	81	0	66	0	75	478
16:30	1	181	58	0	0	0	33	67	0	98	0	108	546
16:45	1	187	46	0	0	0	44	123	0	83	0	72	556
17:00	0	194	56	0	0	0	35	95	0	87	0	74	541
17:15	1	155	46	0	0	0	42	91	0	76	0	79	490
17:30	0	156	51	0	0	0	37	93	0	77	0	74	488
17:45	2	144	42	0	0	0	37	94	0	69	0	57	445
Total	6	1369	396	0	0	0	307	737	0	651	0	615	4081
Approach%	0.3	77.3	22.4	-	-	-	29.4	70.6	-	51.4	-	48.6	
Total%	0.1	33.5	9.7	-	-	-	7.5	18.1	-	16.0	-	15.1	

PM Intersection Peak Hour: **16:30 to 17:30**

Volume	3	717	206	-	-	-	154	376	-	344	-	333	2,133
Approach%	0.3	77.4	22.2	-	-	-	29.1	70.9	-	50.8	-	49.2	
Total%	0.1	33.6	9.7	-	-	-	7.2	17.6	-	16.1	-	15.6	
PHF			0.93			#DIV/0!			0.79			0.82	0.96

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

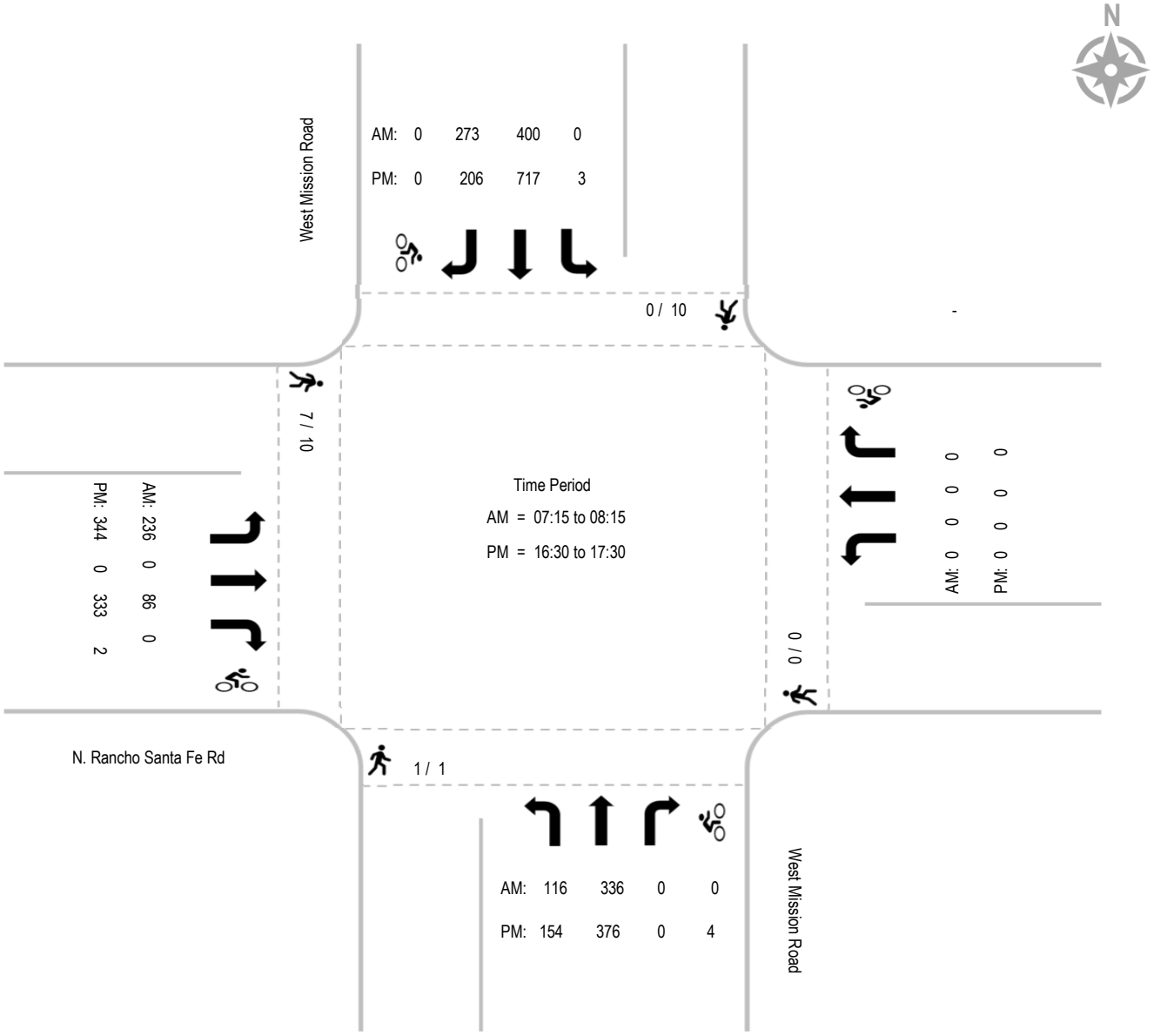
Location:	#06	File Name:	ITM-22-009-05
Intersection:	West Mission Road & N. Rancho Santa Fe Rd	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	West Mission Road Southbound				- Westbound				West Mission Road Northbound				N. Rancho Santa Fe Rd Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
Ped Total	0				0				1				7				8	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	West Mission Road Southbound				- Westbound				West Mission Road Northbound				N. Rancho Santa Fe Rd Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	10	0	0	0	0	0	0	0	0	1	0	0	3	1	0	0	13	2
16:15	0	0	0	0	0	0	0	0	0	2	0	0	3	1	0	0	3	3
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	1
17:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0
Ped Total	10				0				1				10				21	
Bike Total		0	0	0		0	0	0		3	1	0		2	0	0		6

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#06	File Name: ITM-22-009-05
	Intersection:	West Mission Road & N. Rancho Santa Fe Rd	Project: LLG Ref. 3-22-3523
	Date of Count:	Thursday, February 17, 2022	Santa Fe Las Flores



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#07	File Name:	ITM-22-009-06
Intersection:	Capalina Road & Hollencrest Road	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	Capalina Road Southbound			Hollencrest Road Westbound			Capalina Road Northbound			- Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	37	0	15	0	0	0	8	3	0	0	0	63
7:15	0	35	0	23	0	1	0	15	13	0	0	0	87
7:30	0	61	0	31	0	2	0	10	7	0	0	0	111
7:45	0	55	0	28	0	1	0	28	12	0	0	0	124
8:00	0	36	0	22	0	1	0	14	16	0	0	0	89
8:15	1	20	0	20	0	0	0	24	14	0	0	0	79
8:30	0	32	0	9	0	0	0	18	6	0	0	0	65
8:45	0	13	0	8	0	0	0	17	4	0	0	0	42
Total	1	289	0	156	0	5	0	134	75	0	0	0	660
Approach%	0.3	99.7	-	96.9	-	3.1	-	64.1	35.9	-	-	-	
Total%	0.2	43.8	-	23.6	-	0.8	-	20.3	11.4	-	-	-	

AM Intersection Peak Hour: **07:15 to 08:15**

Volume	-	187	-	104	-	5	-	67	48	-	-	-	411
Approach%	-	100.0	-	95.4	-	4.6	-	58.3	41.7	-	-	-	
Total%	-	45.5	-	25.3	-	1.2	-	16.3	11.7	-	-	-	
PHF			0.77			0.83			0.72			#DIV/0!	0.83

PM	Capalina Road Southbound			Hollencrest Road Westbound			Capalina Road Northbound			- Eastbound			
	Left	Thru	Right	Left	Thru	Right	U-Turn	Thru	Right	Left	Thru	Right	Total
16:00	1	21	0	9	0	2	0	37	29	0	0	0	99
16:15	0	23	0	7	0	0	0	47	14	0	0	0	91
16:30	0	25	0	4	0	0	0	26	18	0	0	0	73
16:45	1	31	0	13	0	1	0	43	19	0	0	0	108
17:00	0	18	0	11	0	2	0	24	18	0	0	0	73
17:15	0	31	0	12	0	1	0	35	21	0	0	0	100
17:30	2	33	0	10	0	1	0	28	15	0	0	0	89
17:45	2	26	0	11	0	2	0	47	16	0	0	0	104
Total	6	208	0	77	0	9	0	287	150	0	0	0	737
Approach%	2.8	97.2	-	89.5	-	10.5	-	65.7	34.3	-	-	-	
Total%	0.8	28.2	-	10.4	-	1.2	-	38.9	20.4	-	-	-	

PM Intersection Peak Hour: **16:00 to 17:00**

Volume	2	100	-	33	-	3	-	153	80	-	-	-	371
Approach%	2.0	98.0	-	91.7	-	8.3	-	65.7	34.3	-	-	-	
Total%	0.5	27.0	-	8.9	-	0.8	-	41.2	21.6	-	-	-	
PHF			0.80			0.64			0.88			#DIV/0!	0.86

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

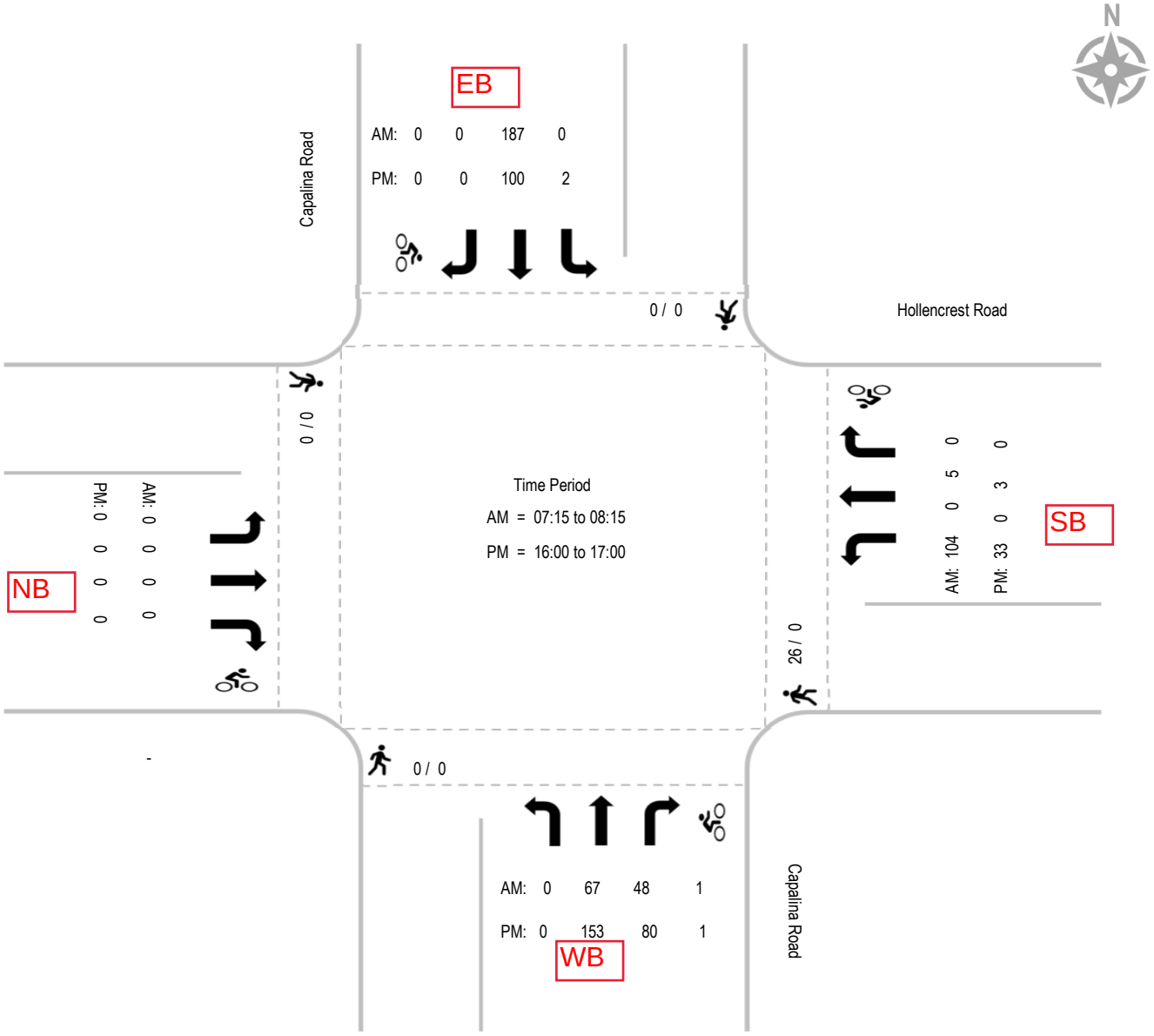
Location:	#07	File Name:	ITM-22-009-06
Intersection:	Capalina Road & Hollencrest Road	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	Capalina Road Southbound				Hollencrest Road Westbound				Capalina Road Northbound				- Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4	0
7:15	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	10	0
7:30	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	2	1
7:45	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	9	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Ped Total	0				26				0				0				26	
Bike Total		0	0	0		0	0	0		0	1	0		0	0	0		1

PM	Capalina Road Southbound				Hollencrest Road Westbound				Capalina Road Northbound				- Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				0				0	
Bike Total		0	0	0		0	0	0		0	0	1		0	0	0		1

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#07	File Name: ITM-22-009-06
	Intersection:	Capalina Road & Hollencrest Road	Project: LLG Ref. 3-22-3523
	Date of Count:	Thursday, February 17, 2022	Santa Fe Las Flores



Report Generated by Bearcat Enterprises LLC, DBA "Count Data" | 619-987-5136 |

Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#08	File Name:	ITM-22-009-07
Intersection:	Capalina Road & N. Rancho Santa Fe Road	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	Capalina Road Southbound			N. Rancho Santa Fe Road Westbound			Capalina Road Northbound			N. Rancho Santa Fe Road Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	70	1	18	2	5	20	78	23	0	9	43	269
7:15	1	102	0	30	5	4	32	46	32	1	7	51	311
7:30	3	91	0	18	1	5	29	76	31	2	8	78	342
7:45	6	97	0	22	5	4	49	76	32	0	5	77	373
8:00	3	82	2	19	4	2	35	94	24	3	1	40	309
8:15	0	91	4	26	2	6	41	81	28	0	2	36	317
8:30	5	85	4	13	2	3	33	90	24	2	7	33	301
8:45	1	68	4	18	5	5	30	84	33	2	3	17	270
Total	19	686	15	164	26	34	269	625	227	10	42	375	2492
Approach%	2.6	95.3	2.1	73.2	11.6	15.2	24.0	55.8	20.2	2.3	9.8	87.8	
Total%	0.8	27.5	0.6	6.6	1.0	1.4	10.8	25.1	9.1	0.4	1.7	15.0	

AM Intersection Peak Hour: **07:30 to 08:30**

Volume	12	361	6	85	12	17	154	327	115	5	16	231	1,341
Approach%	3.2	95.3	1.6	74.6	10.5	14.9	25.8	54.9	19.3	2.0	6.3	91.7	
Total%	0.9	26.9	0.4	6.3	0.9	1.3	11.5	24.4	8.6	0.4	1.2	17.2	
PHF			0.92			0.84			0.95			0.72	0.90

PM	Capalina Road Southbound			N. Rancho Santa Fe Road Westbound			Capalina Road Northbound			N. Rancho Santa Fe Road Eastbound			
	Left	Thru	Right	Left	Thru	Right	U-Turn	Thru	Right	Left	Thru	Right	Total
16:00	6	91	6	16	3	13	63	163	25	3	8	22	419
16:15	5	68	0	16	5	9	48	145	27	3	3	23	352
16:30	3	86	7	26	9	9	39	173	30	2	7	24	415
16:45	4	75	4	13	11	5	60	139	30	0	11	33	385
17:00	3	100	5	26	5	5	42	160	18	2	0	19	385
17:15	3	83	5	19	8	2	54	152	23	3	4	33	389
17:30	2	78	1	17	9	9	42	123	22	4	10	33	350
17:45	5	75	7	20	11	4	56	122	36	0	10	29	375
Total	31	656	35	153	61	56	404	1177	211	17	53	216	3070
Approach%	4.3	90.9	4.8	56.7	22.6	20.7	22.5	65.7	11.8	5.9	18.5	75.5	
Total%	1.0	21.4	1.1	5.0	2.0	1.8	13.2	38.3	6.9	0.6	1.7	7.0	

PM Intersection Peak Hour: **16:30 to 17:30**

Volume	13	344	21	84	33	21	195	624	101	7	22	109	1,574
Approach%	3.4	91.0	5.6	60.9	23.9	15.2	21.2	67.8	11.0	5.1	15.9	79.0	
Total%	0.8	21.9	1.3	5.3	2.1	1.3	12.4	39.6	6.4	0.4	1.4	6.9	
PHF			0.88			0.78			0.95			0.78	0.95

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

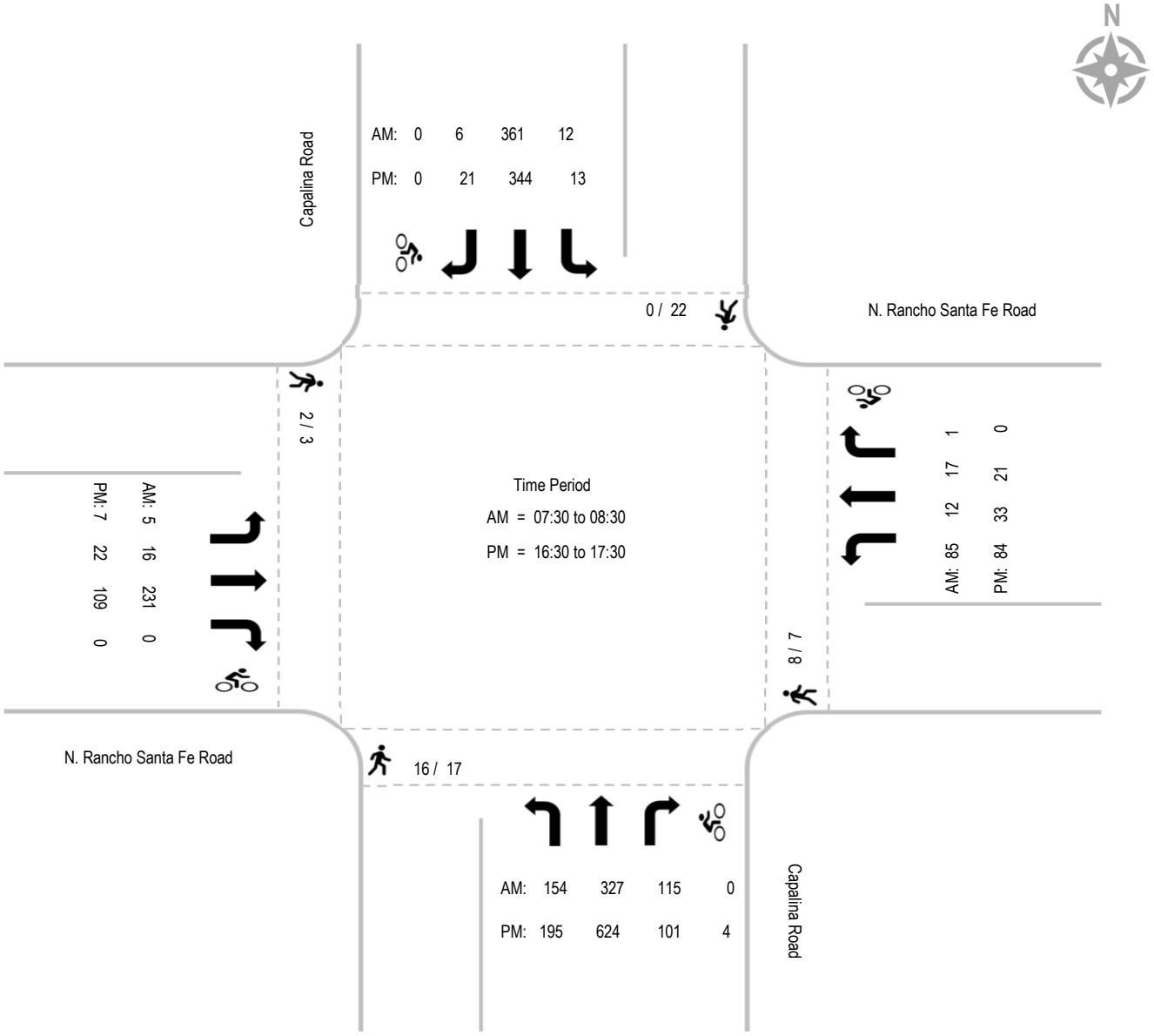
Location:	#08	File Name:	ITM-22-009-07
Intersection:	Capalina Road & N. Rancho Santa Fe Road	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	Capalina Road Southbound				N. Rancho Santa Fe Road Westbound				Capalina Road Northbound				N. Rancho Santa Fe Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
8:00	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2	0
8:15	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
8:30	0	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	11	0
8:45	0	0	0	0	1	0	0	0	9	0	0	0	0	0	0	0	10	0
Ped Total	0				8				16				2				26	
Bike Total		0	0	0		1	0	0		0	0	0		0	0	0		1

PM	Capalina Road Southbound				N. Rancho Santa Fe Road Westbound				Capalina Road Northbound				N. Rancho Santa Fe Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	3	0	0	0	0	0	0	0	9	1	0	0	0	0	0	0	12	1
16:15	0	0	0	0	2	0	0	0	4	0	0	0	0	0	0	0	6	0
16:30	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16:45	5	0	0	0	3	0	0	0	3	1	0	0	0	0	0	0	11	1
17:00	6	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	8	0
17:15	4	0	0	0	1	0	0	0	1	0	0	2	1	0	0	0	7	2
17:30	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	22				7				17				3				49	
Bike Total		0	0	0		0	0	0		2	0	2		0	0	0		4

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location: #08	File Name:	ITM-22-009-07
	Intersection: Capalina Road & N. Rancho Santa Fe Road	Project:	LLG Ref. 3-22-3523
	Date of Count: Thursday, February 17, 2022		Santa Fe Las Flores



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#07 Revised	File Name:	ITM-22-009-07
Intersection:	N. Rancho Santa Fe Road & Capalina Road	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

AM	N. Rancho Santa Fe Rd Southbound			Capalina Road Westbound			N. Rancho Santa Fe Rd Northbound			Capalina Road Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	70	1	18	2	5	20	78	23	0	9	43	269
7:15	1	102	0	30	5	4	32	46	32	1	7	51	311
7:30	3	91	0	18	1	5	29	76	31	2	8	78	342
7:45	6	97	0	22	5	4	49	76	32	0	5	77	373
8:00	3	82	2	19	4	2	35	94	24	3	1	40	309
8:15	0	91	4	26	2	6	41	81	28	0	2	36	317
8:30	5	85	4	13	2	3	33	90	24	2	7	33	301
8:45	1	68	4	18	5	5	30	84	33	2	3	17	270
Total	19	686	15	164	26	34	269	625	227	10	42	375	2492
Approach%	2.6	95.3	2.1	73.2	11.6	15.2	24.0	55.8	20.2	2.3	9.8	87.8	
Total%	0.8	27.5	0.6	6.6	1.0	1.4	10.8	25.1	9.1	0.4	1.7	15.0	

AM Intersection Peak Hour: **07:30 to 08:30**

Volume	12	361	6	85	12	17	154	327	115	5	16	231	1,341
Approach%	3.2	95.3	1.6	74.6	10.5	14.9	25.8	54.9	19.3	2.0	6.3	91.7	
Total%	0.9	26.9	0.4	6.3	0.9	1.3	11.5	24.4	8.6	0.4	1.2	17.2	
PHF			0.92			0.84			0.95			0.72	0.90

PM	N. Rancho Santa Fe Rd Southbound			Capalina Road Westbound			N. Rancho Santa Fe Rd Northbound			Capalina Road Eastbound			
	Left	Thru	Right	Left	Thru	Right	U-Turn	Thru	Right	Left	Thru	Right	Total
16:00	6	91	6	16	3	13	63	163	25	3	8	22	419
16:15	5	68	0	16	5	9	48	145	27	3	3	23	352
16:30	3	86	7	26	9	9	39	173	30	2	7	24	415
16:45	4	75	4	13	11	5	60	139	30	0	11	33	385
17:00	3	100	5	26	5	5	42	160	18	2	0	19	385
17:15	3	83	5	19	8	2	54	152	23	3	4	33	389
17:30	2	78	1	17	9	9	42	123	22	4	10	33	350
17:45	5	75	7	20	11	4	56	122	36	0	10	29	375
Total	31	656	35	153	61	56	404	1177	211	17	53	216	3070
Approach%	4.3	90.9	4.8	56.7	22.6	20.7	22.5	65.7	11.8	5.9	18.5	75.5	
Total%	1.0	21.4	1.1	5.0	2.0	1.8	13.2	38.3	6.9	0.6	1.7	7.0	

PM Intersection Peak Hour: **16:30 to 17:30**

Volume	13	344	21	84	33	21	195	624	101	7	22	109	1,574
Approach%	3.4	91.0	5.6	60.9	23.9	15.2	21.2	67.8	11.0	5.1	15.9	79.0	
Total%	0.8	21.9	1.3	5.3	2.1	1.3	12.4	39.6	6.4	0.4	1.4	6.9	
PHF			0.88			0.78			0.95			0.78	0.95

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#07 Revised	File Name:	ITM-22-009-07
Intersection:	N. Rancho Santa Fe Road & Capalina Road	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores

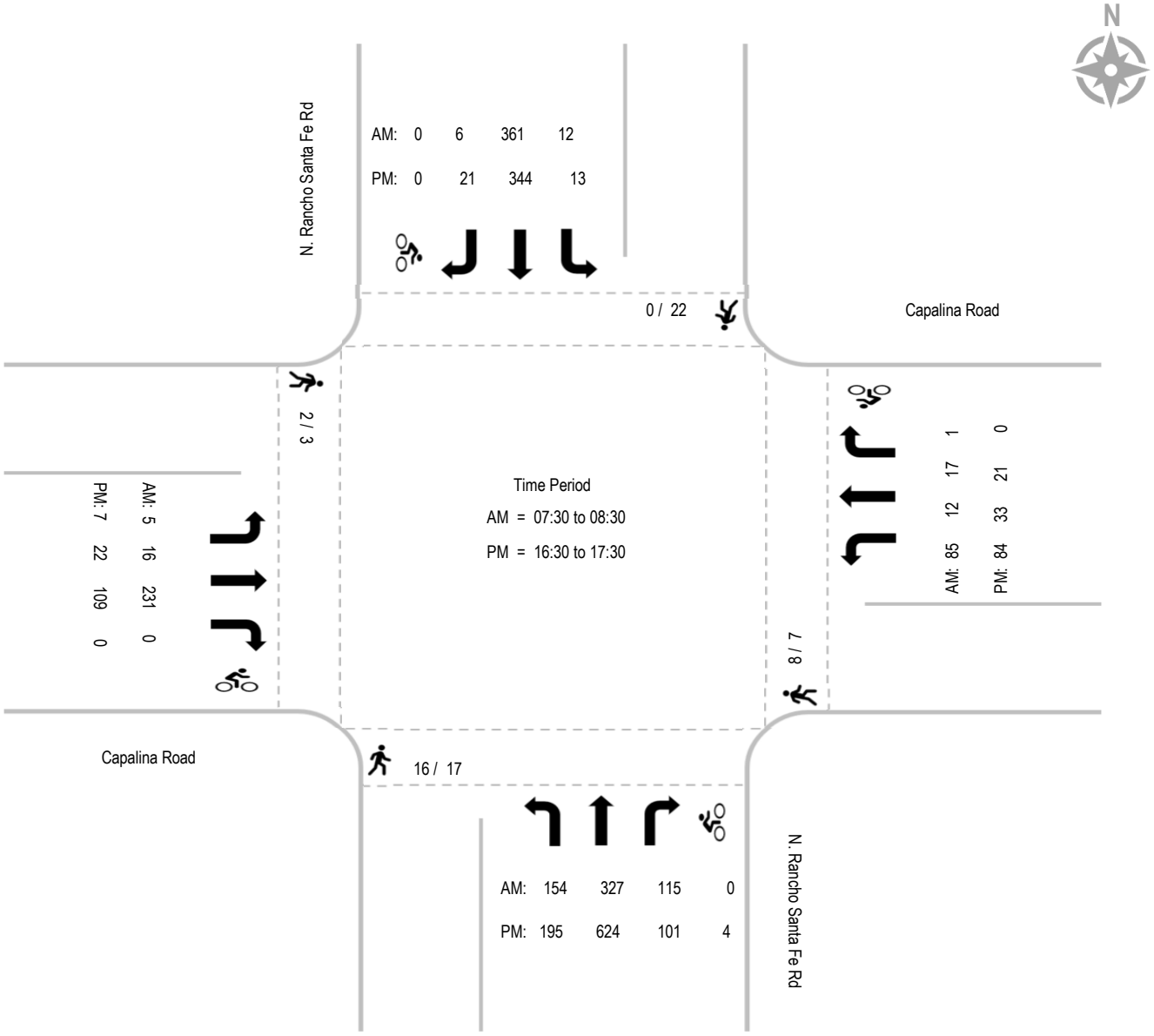
AM	N. Rancho Santa Fe Rd Southbound				Capalina Road Westbound				N. Rancho Santa Fe Rd Northbound				Capalina Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
8:00	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2	0
8:15	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
8:30	0	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	11	0
8:45	0	0	0	0	1	0	0	0	9	0	0	0	0	0	0	0	10	0
Ped Total	0				8				16				2				26	
Bike Total		0	0	0		1	0	0		0	0	0		0	0	0		1

PM	N. Rancho Santa Fe Rd Southbound				Capalina Road Westbound				N. Rancho Santa Fe Rd Northbound				Capalina Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	3	0	0	0	0	0	0	0	9	1	0	0	0	0	0	0	12	1
16:15	0	0	0	0	2	0	0	0	4	0	0	0	0	0	0	0	6	0
16:30	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16:45	5	0	0	0	3	0	0	0	3	1	0	0	0	0	0	0	11	1
17:00	6	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	8	0
17:15	4	0	0	0	1	0	0	0	1	0	0	2	1	0	0	0	7	2
17:30	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	22				7				17				3				49	
Bike Total		0	0	0		0	0	0		2	0	2		0	0	0		4

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers

Location:	#07 Revised	File Name:	ITM-22-009-07
Intersection:	N. Rancho Santa Fe Road & Capalina Road	Project:	LLG Ref. 3-22-3523
Date of Count:	Thursday, February 17, 2022		Santa Fe Las Flores



Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 22-009 Loc #A S. Santa Fe Ave, between Smilax Rd and Bosstick Blvd**

Date: **Tuesday, March 1, 2022** Total Daily Volume: **14854** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
54	36	18	37	105	351	593	989	906	682	683	767	827	771	1081	1294	1755	1519	866	587	377	283	169	104
20	11	4	6	11	45	110	200	262	161	177	192	185	153	221	286	426	444	266	174	96	81	57	31
20	8	4	11	12	75	126	259	238	181	168	189	198	210	248	310	438	400	240	173	90	84	38	22
9	9	5	9	33	114	148	265	218	148	169	191	212	197	312	347	450	378	195	127	96	55	40	26
5	8	5	11	49	117	209	265	188	192	169	195	232	211	300	351	441	297	165	113	95	63	34	25

Date: **Tuesday, March 1, 2022** Total Daily Volume: **7083** Description: **Northbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
32	18	9	22	58	152	229	451	425	329	325	376	404	397	543	560	813	751	397	307	191	149	87	58
11	6	2	1	3	23	56	86	131	87	75	104	90	83	107	128	169	199	124	88	58	43	25	15
11	3	3	6	7	25	52	114	117	84	65	91	93	105	128	133	183	197	100	89	35	41	21	14
7	5	1	8	18	60	45	115	93	69	90	81	106	100	152	135	245	192	91	77	50	24	23	19
3	4	3	7	30	44	76	136	84	89	95	100	115	109	156	164	216	163	82	53	48	41	18	10

Date: **Tuesday, March 1, 2022** Total Daily Volume: **7771** Description: **Southbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
22	18	9	15	47	199	364	538	481	353	358	391	423	374	538	734	942	768	469	280	186	134	82	46
9	5	2	5	8	22	54	114	131	74	102	88	95	70	114	158	257	245	142	86	38	38	32	16
9	5	1	5	5	50	74	145	121	97	103	98	105	105	120	177	255	203	140	84	55	43	17	8
2	4	4	1	15	54	103	150	125	79	79	110	106	97	160	212	205	186	104	50	46	31	17	7
2	4	2	4	19	73	133	129	104	103	74	95	117	102	144	187	225	134	83	60	47	22	16	15

Report Generated by "Count Data" all rights reserved

Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 22-009 Loc #B S. Santa Fe Ave, between Bosstick Blvd and Las Flores Dr**

Date: **Tuesday, March 1, 2022** Total Daily Volume: **16657** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
55	37	28	44	120	410	769	1112	1009	796	818	857	923	932	1220	1413	1830	1658	948	641	441	304	188	104
18	12	5	10	11	54	158	226	285	182	209	203	217	186	257	314	425	496	308	196	121	85	55	30
19	7	7	12	17	84	160	279	277	202	202	213	242	250	283	327	467	441	261	187	94	86	42	19
11	8	6	10	40	131	180	288	250	197	205	217	215	238	370	375	481	407	200	122	115	64	53	32
7	10	10	12	52	141	271	319	197	215	202	224	249	258	310	397	457	314	179	136	111	69	38	23

Date: **Tuesday, March 1, 2022** Total Daily Volume: **7926** Description: **Northbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
31	17	13	25	78	236	394	539	483	396	400	421	447	478	555	593	779	760	430	330	213	156	95	57
11	6	3	4	3	32	92	117	155	98	94	106	100	102	126	138	158	215	135	97	66	41	28	14
7	3	4	5	12	44	84	130	136	100	90	98	120	119	130	140	190	201	123	100	37	39	23	12
8	3	1	8	28	76	78	129	110	96	107	102	108	122	159	134	208	183	86	66	54	32	28	21
5	5	5	8	35	84	140	163	82	102	109	115	119	135	140	181	223	161	86	67	56	44	16	10

Date: **Tuesday, March 1, 2022** Total Daily Volume: **8731** Description: **Southbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
24	20	15	19	42	174	375	573	526	400	418	436	476	454	665	820	1051	898	518	311	228	148	93	47
7	6	2	6	8	22	66	109	130	84	115	97	117	84	131	176	267	281	173	99	55	44	27	16
12	4	3	7	5	40	76	149	141	102	112	115	122	131	153	187	277	240	138	87	57	47	19	7
3	5	5	2	12	55	102	159	140	101	98	115	107	116	211	241	273	224	114	56	61	32	25	11
2	5	5	4	17	57	131	156	115	113	93	109	130	123	170	216	234	153	93	69	55	25	22	13

Report Generated by "Count Data" all rights reserved

Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 22-009 Loc #C S. Santa Fe Ave, between Las Flores Dr and N. Rancho Santa Fe Rd**

Date: **Tuesday, March 1, 2022** Total Daily Volume: **14595** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
18	23	18	20	119	396	774	1202	1093	802	861	880	936	951	1262	1439	1664	848	508	273	226	143	96	43
5	6	3	5	7	47	157	236	307	197	222	205	213	204	257	330	447	257	169	85	60	42	27	14
9	6	3	7	18	82	157	305	282	203	209	219	253	255	292	312	480	230	138	78	55	51	20	6
3	6	6	3	37	129	184	330	273	200	211	231	218	244	385	393	444	216	118	49	60	29	24	10
1	5	6	5	57	138	276	331	231	202	219	225	252	248	328	404	293	145	83	61	51	21	25	13

Date: **Tuesday, March 1, 2022** Total Daily Volume: **5755** Description: **Northbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
0	0	0	0	63	208	360	518	517	390	413	431	464	501	587	643	659	0	1	0	0	0	0	0
0	0	0	0	0	28	76	98	149	105	99	103	107	111	125	151	186	0	0	0	0	0	0	0
0	0	0	0	8	42	71	132	142	96	96	101	123	139	130	144	219	0	0	0	0	0	0	0
0	0	0	0	21	67	78	127	113	92	103	111	110	126	183	159	192	0	0	0	0	0	0	0
0	0	0	0	34	71	135	161	113	97	115	116	124	125	149	189	62	0	1	0	0	0	0	0

Date: **Tuesday, March 1, 2022** Total Daily Volume: **8840** Description: **Southbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
18	23	18	20	56	188	414	684	576	412	448	449	472	450	675	796	1005	848	507	273	226	143	96	43
5	6	3	5	7	19	81	138	158	92	123	102	106	93	132	179	261	257	169	85	60	42	27	14
9	6	3	7	10	40	86	173	140	107	113	118	130	116	162	168	261	230	138	78	55	51	20	6
3	6	6	3	16	62	106	203	160	108	108	120	108	118	202	234	252	216	118	49	60	29	24	10
1	5	6	5	23	67	141	170	118	105	104	109	128	123	179	215	231	145	82	61	51	21	25	13

Report Generated by "Count Data" all rights reserved

Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 22-009 Loc #D S. Santa Fe Ave-Mission Rd, between N. Rancho Santa Fe Rd and N. Pacific St**

Date: **Tuesday, March 1, 2022** Total Daily Volume: **13500** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
38	32	21	36	68	267	468	983	836	534	516	576	643	651	1000	1298	1772	1650	821	491	337	243	162	57
13	10	7	9	12	27	80	162	233	136	119	140	135	141	177	272	438	472	290	138	88	74	49	13
15	7	2	9	10	49	95	244	220	161	133	148	179	159	246	346	483	427	233	142	86	77	43	12
6	6	4	6	24	99	112	310	200	124	124	131	140	164	298	329	413	435	165	112	74	38	40	19
4	9	8	12	22	92	181	267	183	113	140	157	189	187	279	351	438	316	133	99	89	54	30	13

Date: **Tuesday, March 1, 2022** Total Daily Volume: **5893** Description: **Northbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
13	18	8	20	36	146	216	452	418	268	226	270	306	317	460	442	627	691	333	258	159	113	74	22
5	6	1	4	7	18	38	70	128	75	52	77	66	77	83	82	150	189	107	72	44	33	22	2
3	3	0	6	3	25	42	120	109	85	59	72	82	82	105	131	151	188	101	75	40	34	21	6
2	3	1	4	13	52	52	133	89	58	55	56	72	75	154	105	155	178	63	65	28	17	18	9
3	6	6	6	13	51	84	129	92	50	60	65	86	83	118	124	171	136	62	46	47	29	13	5

Date: **Tuesday, March 1, 2022** Total Daily Volume: **7607** Description: **Southbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
25	14	13	16	32	121	252	531	418	266	290	306	337	334	540	856	1145	959	488	233	178	130	88	35
8	4	6	5	5	9	42	92	105	61	67	63	69	64	94	190	288	283	183	66	44	41	27	11
12	4	2	3	7	24	53	124	111	76	74	76	97	77	141	215	332	239	132	67	46	43	22	6
4	3	3	2	11	47	60	177	111	66	69	75	68	89	144	224	258	257	102	47	46	21	22	10
1	3	2	6	9	41	97	138	91	63	80	92	103	104	161	227	267	180	71	53	42	25	17	8

Report Generated by "Count Data" all rights reserved

Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 22-009 Loc #E Hollencrest Rd, between De Leone Rd and Hollenbeck Rd**

Date: **Tuesday, March 1, 2022** Total Daily Volume: **562** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
9	2	1	4	3	11	28	32	41	19	15	16	21	31	36	34	61	53	52	34	20	29	5	5
2	1	0	1	1	0	10	9	16	4	5	3	6	12	5	13	14	13	15	9	3	6	5	2
5	1	0	3	0	1	1	5	7	4	3	5	2	4	6	3	17	6	13	10	8	9	0	2
0	0	0	0	1	4	6	9	13	7	3	3	9	7	10	10	14	19	17	5	5	8	0	1
2	0	1	0	1	6	11	9	5	4	4	5	4	8	15	8	16	15	7	10	4	6	0	0

Date: **Tuesday, March 1, 2022** Total Daily Volume: **245** Description: **Northbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
5	1	1	1	2	4	14	12	13	10	8	8	4	11	15	16	27	22	28	10	11	16	1	5
1	1	0	0	1	0	5	5	7	2	3	2	3	5	3	10	5	5	9	4	1	2	1	2
3	0	0	1	0	1	1	0	1	2	1	3	0	1	2	2	7	2	6	4	4	4	0	2
0	0	0	0	1	2	2	5	5	5	3	2	1	3	4	2	5	10	8	0	3	6	0	1
1	0	1	0	0	1	6	2	0	1	1	1	0	2	6	2	10	5	5	2	3	4	0	0

Date: **Tuesday, March 1, 2022** Total Daily Volume: **317** Description: **Southbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
4	1	0	3	1	7	14	20	28	9	7	8	17	20	21	18	34	31	24	24	9	13	4	0
1	0	0	1	0	0	5	4	9	2	2	1	3	7	2	3	9	8	6	5	2	4	4	0
2	1	0	2	0	0	0	5	6	2	2	2	2	3	4	1	10	4	7	6	4	5	0	0
0	0	0	0	0	2	4	4	8	2	0	1	8	4	6	8	9	9	9	5	2	2	0	0
1	0	0	0	1	5	5	7	5	3	3	4	4	6	9	6	6	10	2	8	1	2	0	0

Report Generated by "Count Data" all rights reserved

Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 22-009 Loc #F N. Rancho Santa Fe Rd, between S. Santa Fe Ave and Capalina Rd**

Date: **Tuesday, March 1, 2022** Total Daily Volume: **11728** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
38	30	21	25	100	290	538	706	772	625	682	692	679	690	783	1007	1069	1019	726	419	355	234	144	84
10	6	5	6	9	35	108	159	216	171	183	171	162	149	175	235	261	286	206	129	91	61	40	27
17	7	6	11	16	64	112	177	199	144	167	193	184	183	191	220	277	250	192	109	81	65	33	14
7	8	4	5	35	92	137	179	186	160	166	165	151	188	219	268	269	269	169	97	89	58	37	25
4	9	6	3	40	99	181	191	171	150	166	163	182	170	198	284	262	214	159	84	94	50	34	18

Date: **Tuesday, March 1, 2022** Total Daily Volume: **6469** Description: **Eastbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
30	13	9	11	55	142	259	301	340	306	352	356	359	386	399	628	720	639	433	236	203	146	88	58
10	3	4	3	3	18	52	61	88	91	87	82	87	81	91	148	171	173	122	70	56	40	29	18
12	4	4	4	9	32	56	73	95	61	78	93	98	103	101	145	196	144	118	68	44	34	21	10
6	2	1	3	22	46	59	69	80	74	93	89	79	106	99	162	168	172	99	51	47	36	21	20
2	4	0	1	21	46	92	98	77	80	94	92	95	96	108	173	185	150	94	47	56	36	17	10

Date: **Tuesday, March 1, 2022** Total Daily Volume: **5259** Description: **Westbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
8	17	12	14	45	148	279	405	432	319	330	336	320	304	384	379	349	380	293	183	152	88	56	26
0	3	1	3	6	17	56	98	128	80	96	89	75	68	84	87	90	113	84	59	35	21	11	9
5	3	2	7	7	32	56	104	104	83	89	100	86	80	90	75	81	106	74	41	37	31	12	4
1	6	3	2	13	46	78	110	106	86	73	76	72	82	120	106	101	97	70	46	42	22	16	5
2	5	6	2	19	53	89	93	94	70	72	71	87	74	90	111	77	64	65	37	38	14	17	8

Report Generated by "Count Data" all rights reserved

APPENDIX B

CITY OF SAN MARCOS ROADWAY CLASSIFICATION TABLE

Table 3: Roadway Classifications, Capacity, and LOS

Street Classification	Lanes	LOS A	LOS B	LOS C	LOS D	LOS E (Capacity)
Expressway	6	30,000	42,000	60,000	70,000	80,000
Prime Arterial	6	25,000	35,000	50,000	55,000	60,000
Major Arterial	6	20,000	28,000	40,000	45,000	50,000
Major Arterial	4	15,000	21,000	30,000	35,000	40,000
Major Arterial (One-Way)	3	12,500	16,500	22,500	25,000	27,500
Major Arterial (One-Way)	2	10,000	13,000	17,500	20,000	22,500
Secondary Arterial/Collector	4	10,000	14,000	20,000	25,000	30,000
Collector (no center lane)	4	5,000	7,000	10,000	13,000	15,000
Collector (continuous left-turn lane)	2	5,000	7,000	10,000	13,000	15,000
Collector (no fronting property)	2	4,000	5,500	7,500	9,000	10,000
Collector (commercial-industrial fronting)	2	2,500	3,500	5,000	6,500	8,000
Collector (multi-family)	2	2,500	3,500	5,000	6,500	8,000
Collector (one-way)	3	11,000	14,000	19,000	22,500	26,000
Collector (one-way)	2	7,500	9,500	12,500	15,000	17,500
Collector (one-way)	1	2,500	3,500	5,000	6,500	7,500
Sub-Collector (single-family)	2	--	--	2,200	--	--

Source: *Guidelines for Transportation Impact Studies in the San Diego Region* (May 2019)
Notes: 1. The volumes and the average daily level of service listed above are only intended as a general planning outline.
2. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

3.7. LEVEL OF SERVICE STANDARDS

The City of San Marcos strives to maintain intersection and roadway segment operations based on LOS standards outlined in the General Plan Mobility Element. The local transportation analysis should note intersections and roadway segments that perform unacceptably (based on standards in the current General Plan Mobility Element) under no project and/or plus project conditions, and improvements that can be applied to increase performance to acceptable levels.

For study intersections, the study should identify if the addition of the traffic generated from the proposed project results in any one of the following, and improvements should be identified to increase performance to acceptable or pre-project conditions under each scenario:

- Triggers an intersection operating at acceptable LOS to operate at unacceptable LOS and increases the average delay per vehicle by more than 2.0 seconds.
- Increases the average delay per vehicle for a study intersection that is already operating at unacceptable LOS by more than 2.0 seconds.

APPENDIX C

ANALYSIS WORKSHEETS – EXISTING

Intersection	
Int Delay, s/veh	17.8

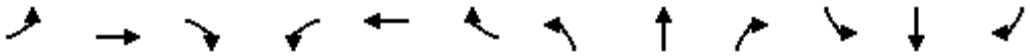
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	91	147	239	283	398	215
Future Vol, veh/h	91	147	239	283	398	215
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	103	167	272	322	452	244

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1440	574	696	0	-	0
Stage 1	574	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	146	518	900	-	-	-
Stage 1	563	-	-	-	-	-
Stage 2	412	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 92	518	900	-	-	-
Mov Cap-2 Maneuver	~ 92	-	-	-	-	-
Stage 1	356	-	-	-	-	-
Stage 2	412	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	91.8	4.9	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	900	-	92	518	-	-
HCM Lane V/C Ratio	0.302	-	1.124	0.322	-	-
HCM Control Delay (s)	10.7	0	215.5	15.2	-	-
HCM Lane LOS	B	A	F	C	-	-
HCM 95th %tile Q(veh)	1.3	-	7	1.4	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	22	69	0	35	21	493	86	78	466	6
Future Volume (veh/h)	10	0	22	69	0	35	21	493	86	78	466	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	25	78	0	40	24	560	98	89	530	7
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	31	0	70	212	0	188	69	684	579	189	1555	21
Arrive On Green	0.06	0.00	0.06	0.12	0.00	0.12	0.04	0.37	0.37	0.11	0.43	0.43
Sat Flow, veh/h	501	0	1139	1781	0	1585	1781	1870	1585	1781	3591	47
Grp Volume(v), veh/h	36	0	0	78	0	40	24	560	98	89	262	275
Grp Sat Flow(s),veh/h/ln	1640	0	0	1781	0	1585	1781	1870	1585	1781	1777	1862
Q Serve(g_s), s	1.2	0.0	0.0	2.3	0.0	1.3	0.7	15.4	2.4	2.7	5.6	5.6
Cycle Q Clear(g_c), s	1.2	0.0	0.0	2.3	0.0	1.3	0.7	15.4	2.4	2.7	5.6	5.6
Prop In Lane	0.31		0.69	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	100	0	0	212	0	188	69	684	579	189	769	806
V/C Ratio(X)	0.36	0.00	0.00	0.37	0.00	0.21	0.35	0.82	0.17	0.47	0.34	0.34
Avail Cap(c_a), veh/h	837	0	0	251	0	223	260	1148	973	260	1091	1143
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.6	0.0	0.0	23.1	0.0	22.6	26.6	16.3	12.2	23.9	10.7	10.7
Incr Delay (d2), s/veh	2.2	0.0	0.0	1.1	0.0	0.6	3.0	2.5	0.1	1.8	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	1.0	0.0	0.5	0.3	5.6	0.7	1.1	1.7	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	0.0	0.0	24.1	0.0	23.2	29.6	18.8	12.3	25.7	11.0	11.0
LnGrp LOS	C	A	A	C	A	C	C	B	B	C	B	B
Approach Vol, veh/h		36			118			682			626	
Approach Delay, s/veh		27.8			23.8			18.3			13.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	26.2		9.0	6.4	30.0		11.5				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	4.7	17.4		3.2	2.7	7.6		4.3				
Green Ext Time (p_c), s	0.1	3.4		0.1	0.0	2.9		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		16.7	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

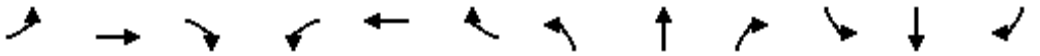
Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	662	6	10	601	9	7
Future Vol, veh/h	662	6	10	601	9	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	704	6	11	639	10	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	710	0	1049	355
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	342	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	885	-	223	641
Stage 1	-	-	-	-	450	-
Stage 2	-	-	-	-	691	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	885	-	220	641
Mov Cap-2 Maneuver	-	-	-	-	220	-
Stage 1	-	-	-	-	450	-
Stage 2	-	-	-	-	683	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	17.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	309	-	-	885	-
HCM Lane V/C Ratio	0.055	-	-	0.012	-
HCM Control Delay (s)	17.3	-	-	9.1	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	511	27	44	494	34	40	2	29	127	11	38
Future Volume (veh/h)	35	511	27	44	494	34	40	2	29	127	11	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	568	30	49	549	38	44	2	32	141	12	42
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	105	839	44	106	879	392	131	11	179	279	68	237
Arrive On Green	0.06	0.24	0.24	0.06	0.25	0.25	0.07	0.12	0.12	0.16	0.19	0.19
Sat Flow, veh/h	1781	3433	181	1781	3554	1585	1781	94	1505	1781	365	1276
Grp Volume(v), veh/h	39	294	304	49	549	38	44	0	34	141	0	54
Grp Sat Flow(s),veh/h/ln	1781	1777	1838	1781	1777	1585	1781	0	1599	1781	0	1641
Q Serve(g_s), s	1.0	7.3	7.4	1.3	6.7	0.9	1.2	0.0	0.9	3.6	0.0	1.4
Cycle Q Clear(g_c), s	1.0	7.3	7.4	1.3	6.7	0.9	1.2	0.0	0.9	3.6	0.0	1.4
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.94	1.00		0.78
Lane Grp Cap(c), veh/h	105	434	449	106	879	392	131	0	191	279	0	305
V/C Ratio(X)	0.37	0.68	0.68	0.46	0.62	0.10	0.34	0.00	0.18	0.51	0.00	0.18
Avail Cap(c_a), veh/h	258	797	825	222	1529	682	291	0	1142	411	0	1255
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.2	16.8	16.8	22.3	16.4	14.2	21.6	0.0	19.4	18.9	0.0	16.8
Incr Delay (d2), s/veh	2.2	1.8	1.8	3.1	0.7	0.1	1.5	0.0	0.4	1.4	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.6	2.7	0.6	2.3	0.3	0.5	0.0	0.3	1.5	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.4	18.6	18.6	25.4	17.2	14.3	23.1	0.0	19.9	20.3	0.0	17.1
LnGrp LOS	C	B	B	C	B	B	C	A	B	C	A	B
Approach Vol, veh/h		637			636			78			195	
Approach Delay, s/veh		18.9			17.6			21.7			19.4	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	17.4	9.1	15.1	7.3	17.5	12.4	11.8
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	3.3	9.4	3.2	3.4	3.0	8.7	5.6	2.9
Green Ext Time (p_c), s	0.0	2.6	0.0	0.3	0.0	2.7	0.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	18.6
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	25	51	4	12	61
Future Vol, veh/h	7	25	51	4	12	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	29	60	5	14	72

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	163	63	0	0	65	0
Stage 1	63	-	-	-	-	-
Stage 2	100	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	828	1002	-	-	1537	-
Stage 1	960	-	-	-	-	-
Stage 2	924	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	821	1002	-	-	1537	-
Mov Cap-2 Maneuver	821	-	-	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	916	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	1.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	956	1537	-
HCM Lane V/C Ratio	-	-	0.039	0.009	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	236	86	116	336	0	400	273
Future Volume (veh/h)	236	86	116	336	0	400	273
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	254	92	125	361		430	294
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	610	886	251	1924		1025	457
Arrive On Green	0.18	0.18	0.14	0.54		0.29	0.29
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	254	92	125	361		430	294
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	2.9	1.0	2.9	2.3		4.4	7.2
Cycle Q Clear(g_c), s	2.9	1.0	2.9	2.3		4.4	7.2
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	610	886	251	1924		1025	457
V/C Ratio(X)	0.42	0.10	0.50	0.19		0.42	0.64
Avail Cap(c_a), veh/h	1392	1517	399	3133		2736	1220
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	16.4	10.8	17.7	5.2		12.9	13.9
Incr Delay (d2), s/veh	0.5	0.1	1.5	0.0		0.3	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.0	1.1	0.5		1.3	2.1
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	16.8	10.8	19.2	5.3		13.1	15.4
LnGrp LOS	B	B	B	A		B	B
Approach Vol, veh/h	346			486		724	
Approach Delay, s/veh	15.2			8.9		14.1	
Approach LOS	B			A		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		30.3		14.4	11.3	19.0	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		4.3		4.9	4.9	9.2	
Green Ext Time (p_c), s		2.3		1.0	0.1	3.7	

Intersection Summary	
HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	187	67	48	104	5
Future Vol, veh/h	0	187	67	48	104	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	225	81	58	125	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	139	0	-	0	335	110
Stage 1	-	-	-	-	110	-
Stage 2	-	-	-	-	225	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1445	-	-	-	660	943
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	812	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1445	-	-	-	660	943
Mov Cap-2 Maneuver	-	-	-	-	660	-
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	812	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1445	-	-	-	669
HCM Lane V/C Ratio	-	-	-	-	0.196
HCM Control Delay (s)	0	-	-	-	11.7
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	16	231	85	12	17	154	327	115	12	361	6
Future Volume (veh/h)	5	16	231	85	12	17	154	327	115	12	361	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	6	18	257	94	13	19	171	363	128	13	401	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	42	370	313	329	671	568	212	688	239	20	566	10
Arrive On Green	0.02	0.20	0.20	0.18	0.36	0.36	0.12	0.27	0.27	0.01	0.16	0.16
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2587	899	1781	3574	62
Grp Volume(v), veh/h	6	18	257	94	13	19	171	248	243	13	199	209
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1709	1781	1777	1859
Q Serve(g_s), s	0.2	0.5	10.4	3.1	0.3	0.5	6.3	8.0	8.2	0.5	7.1	7.2
Cycle Q Clear(g_c), s	0.2	0.5	10.4	3.1	0.3	0.5	6.3	8.0	8.2	0.5	7.1	7.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.53	1.00		0.03
Lane Grp Cap(c), veh/h	42	370	313	329	671	568	212	473	455	20	281	294
V/C Ratio(X)	0.14	0.05	0.82	0.29	0.02	0.03	0.81	0.52	0.54	0.65	0.71	0.71
Avail Cap(c_a), veh/h	410	834	707	410	834	707	212	610	587	93	491	514
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	21.9	25.8	23.6	13.9	14.0	28.9	21.0	21.1	33.1	26.8	26.8
Incr Delay (d2), s/veh	1.5	0.1	5.3	0.5	0.0	0.0	20.1	0.9	1.0	30.3	3.3	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	4.2	1.3	0.1	0.2	3.7	3.1	3.1	0.4	3.0	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	21.9	31.1	24.1	13.9	14.0	49.0	21.9	22.1	63.5	30.1	30.0
LnGrp LOS	C	C	C	C	B	B	D	C	C	E	C	C
Approach Vol, veh/h		281			126			662			421	
Approach Delay, s/veh		30.6			21.5			29.0			31.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	24.3	16.4	19.8	14.0	17.1	5.6	30.6
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.5	10.2	5.1	12.4	8.3	9.2	2.2	2.5
Green Ext Time (p_c), s	0.0	2.3	0.1	0.9	0.0	1.5	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	29.3
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	34.8

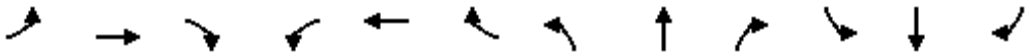
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	103	225	143	525	641	156
Future Vol, veh/h	103	225	143	525	641	156
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	117	256	163	597	728	177

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1740	817	905	0	-	0
Stage 1	817	-	-	-	-	-
Stage 2	923	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 96	376	752	-	-	-
Stage 1	434	-	-	-	-	-
Stage 2	387	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 65	376	752	-	-	-
Mov Cap-2 Maneuver	~ 65	-	-	-	-	-
Stage 1	293	-	-	-	-	-
Stage 2	387	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	185.3	2.4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	752	-	65	376	-	-
HCM Lane V/C Ratio	0.216	-	1.801	0.68	-	-
HCM Control Delay (s)	11.1	0$	518.6	32.7	-	-
HCM Lane LOS	B	A	F	D	-	-
HCM 95th %tile Q(veh)	0.8	-	10.6	4.8	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	11	93	0	82	39	622	38	14	877	11
Future Volume (veh/h)	7	0	11	93	0	82	39	622	38	14	877	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	0	12	106	0	93	44	707	43	16	997	12
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	25	0	38	242	0	215	110	829	702	56	1484	18
Arrive On Green	0.04	0.00	0.04	0.14	0.00	0.14	0.06	0.44	0.44	0.03	0.41	0.41
Sat Flow, veh/h	663	0	995	1781	0	1585	1781	1870	1585	1781	3596	43
Grp Volume(v), veh/h	20	0	0	106	0	93	44	707	43	16	493	516
Grp Sat Flow(s),veh/h/ln	1658	0	0	1781	0	1585	1781	1870	1585	1781	1777	1863
Q Serve(g_s), s	0.7	0.0	0.0	3.1	0.0	3.0	1.3	19.1	0.9	0.5	12.7	12.7
Cycle Q Clear(g_c), s	0.7	0.0	0.0	3.1	0.0	3.0	1.3	19.1	0.9	0.5	12.7	12.7
Prop In Lane	0.40		0.60	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	63	0	0	242	0	215	110	829	702	56	733	769
V/C Ratio(X)	0.32	0.00	0.00	0.44	0.00	0.43	0.40	0.85	0.06	0.29	0.67	0.67
Avail Cap(c_a), veh/h	854	0	0	253	0	225	263	1159	982	263	1101	1154
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	0.0	0.0	22.4	0.0	22.3	25.4	14.0	9.0	26.7	13.4	13.4
Incr Delay (d2), s/veh	2.8	0.0	0.0	1.2	0.0	1.4	2.3	4.6	0.0	2.8	1.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	1.3	0.0	1.1	0.6	6.9	0.2	0.2	4.0	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	0.0	0.0	23.6	0.0	23.7	27.7	18.6	9.0	29.4	14.5	14.5
LnGrp LOS	C	A	A	C	A	C	C	B	A	C	B	B
Approach Vol, veh/h		20			199			794			1025	
Approach Delay, s/veh		29.2			23.7			18.6			14.7	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	30.3		7.6	7.7	28.6		12.3				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	2.5	21.1		2.7	3.3	14.7		5.1				
Green Ext Time (p_c), s	0.0	3.9		0.1	0.0	5.9		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		17.3	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

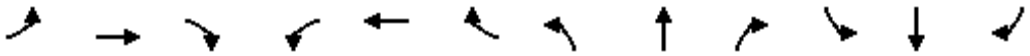
Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1034	6	37	720	6	4
Future Vol, veh/h	1034	6	37	720	6	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1100	6	39	766	6	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1106	0	1564	553
Stage 1	-	-	-	-	1103	-
Stage 2	-	-	-	-	461	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	627	-	102	477
Stage 1	-	-	-	-	279	-
Stage 2	-	-	-	-	601	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	627	-	96	477
Mov Cap-2 Maneuver	-	-	-	-	96	-
Stage 1	-	-	-	-	279	-
Stage 2	-	-	-	-	564	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	32.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	141	-	-	627	-
HCM Lane V/C Ratio	0.075	-	-	0.063	-
HCM Control Delay (s)	32.6	-	-	11.1	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.2	-	-	0.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	878	71	35	591	79	40	1	20	53	2	34
Future Volume (veh/h)	54	878	71	35	591	79	40	1	20	53	2	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	976	79	39	657	88	44	1	22	59	2	38
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	137	1191	96	88	1179	526	128	8	173	174	10	189
Arrive On Green	0.08	0.36	0.36	0.05	0.33	0.33	0.07	0.11	0.11	0.10	0.12	0.12
Sat Flow, veh/h	1781	3329	269	1781	3554	1585	1781	69	1526	1781	80	1517
Grp Volume(v), veh/h	60	521	534	39	657	88	44	0	23	59	0	40
Grp Sat Flow(s),veh/h/ln	1781	1777	1822	1781	1777	1585	1781	0	1596	1781	0	1597
Q Serve(g_s), s	1.7	14.4	14.4	1.1	8.2	2.1	1.3	0.0	0.7	1.7	0.0	1.2
Cycle Q Clear(g_c), s	1.7	14.4	14.4	1.1	8.2	2.1	1.3	0.0	0.7	1.7	0.0	1.2
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.96	1.00		0.95
Lane Grp Cap(c), veh/h	137	636	652	88	1179	526	128	0	180	174	0	199
V/C Ratio(X)	0.44	0.82	0.82	0.44	0.56	0.17	0.34	0.00	0.13	0.34	0.00	0.20
Avail Cap(c_a), veh/h	235	725	744	202	1391	620	264	0	1036	373	0	1111
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.8	15.7	15.7	24.9	14.8	12.7	23.8	0.0	21.5	22.7	0.0	21.2
Incr Delay (d2), s/veh	2.2	6.6	6.5	3.5	0.4	0.1	1.6	0.0	0.3	1.1	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.6	5.7	0.5	2.7	0.7	0.6	0.0	0.3	0.7	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.0	22.4	22.2	28.4	15.2	12.9	25.4	0.0	21.8	23.8	0.0	21.7
LnGrp LOS	C	C	C	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1115			784			67			99	
Approach Delay, s/veh		22.5			15.6			24.2			23.0	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	24.7	9.4	12.7	8.5	23.3	10.0	12.1
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	3.1	16.4	3.3	3.2	3.7	10.2	3.7	2.7
Green Ext Time (p_c), s	0.0	2.9	0.0	0.2	0.0	3.3	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	19.9
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	11	54	5	31	77
Future Vol, veh/h	3	11	54	5	31	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	13	64	6	36	91

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	230	67	0	0	70	0
Stage 1	67	-	-	-	-	-
Stage 2	163	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	758	997	-	-	1531	-
Stage 1	956	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	739	997	-	-	1531	-
Mov Cap-2 Maneuver	739	-	-	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	844	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	2.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	928	1531	-
HCM Lane V/C Ratio	-	-	0.018	0.024	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	344	333	154	376	0	717	206
Future Volume (veh/h)	344	333	154	376	0	717	206
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	370	358	166	404		771	222
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	626	898	251	2040		1194	533
Arrive On Green	0.18	0.18	0.14	0.57		0.34	0.34
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	370	358	166	404		771	222
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	5.1	5.1	4.5	2.8		9.5	5.6
Cycle Q Clear(g_c), s	5.1	5.1	4.5	2.8		9.5	5.6
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	626	898	251	2040		1194	533
V/C Ratio(X)	0.59	0.40	0.66	0.20		0.65	0.42
Avail Cap(c_a), veh/h	1209	1369	346	2720		2375	1059
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	19.3	13.6	20.9	5.3		14.5	13.2
Incr Delay (d2), s/veh	0.9	0.3	3.0	0.0		0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	4.3	1.8	0.6		3.0	1.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	20.2	13.9	23.9	5.3		15.1	13.7
LnGrp LOS	C	B	C	A		B	B
Approach Vol, veh/h	728			570		993	
Approach Delay, s/veh	17.1			10.7		14.8	
Approach LOS	B			B		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		35.6		15.8	12.3	23.4	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		4.8		7.1	6.5	11.5	
Green Ext Time (p_c), s		2.7		2.2	0.1	5.8	

Intersection Summary	
HCM 6th Ctrl Delay	14.5
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

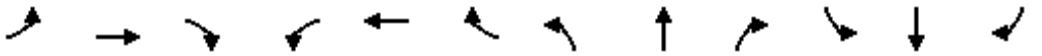
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	100	153	80	33	3
Future Vol, veh/h	2	100	153	80	33	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	120	184	96	40	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	280	0	-	0	356	232
Stage 1	-	-	-	-	232	-
Stage 2	-	-	-	-	124	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1283	-	-	-	642	807
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	902	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1283	-	-	-	641	807
Mov Cap-2 Maneuver	-	-	-	-	641	-
Stage 1	-	-	-	-	805	-
Stage 2	-	-	-	-	902	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1283	-	-	-	652
HCM Lane V/C Ratio	0.002	-	-	-	0.067
HCM Control Delay (s)	7.8	0	-	-	10.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	22	109	84	33	21	195	624	101	13	344	21
Future Volume (veh/h)	7	22	109	84	33	21	195	624	101	13	344	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	24	121	93	37	23	217	693	112	14	382	23
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	209	177	353	521	441	240	898	145	22	582	35
Arrive On Green	0.03	0.11	0.11	0.20	0.28	0.28	0.13	0.29	0.29	0.01	0.17	0.17
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3063	495	1781	3406	204
Grp Volume(v), veh/h	8	24	121	93	37	23	217	402	403	14	199	206
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1781	1781	1777	1834
Q Serve(g_s), s	0.3	0.7	4.4	2.6	0.9	0.6	7.1	12.3	12.3	0.5	6.2	6.3
Cycle Q Clear(g_c), s	0.3	0.7	4.4	2.6	0.9	0.6	7.1	12.3	12.3	0.5	6.2	6.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		0.11
Lane Grp Cap(c), veh/h	56	209	177	353	521	441	240	521	522	22	304	313
V/C Ratio(X)	0.14	0.11	0.68	0.26	0.07	0.05	0.91	0.77	0.77	0.65	0.65	0.66
Avail Cap(c_a), veh/h	464	943	799	464	943	799	240	690	692	105	556	573
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	23.8	25.4	20.2	15.8	15.7	25.4	19.2	19.2	29.3	23.0	23.0
Incr Delay (d2), s/veh	1.2	0.2	4.6	0.4	0.1	0.0	34.1	3.9	3.9	28.0	2.4	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	1.8	1.1	0.4	0.2	5.0	4.9	4.9	0.4	2.5	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	24.0	30.0	20.6	15.9	15.8	59.5	23.1	23.1	57.2	25.4	25.4
LnGrp LOS	C	C	C	C	B	B	E	C	C	E	C	C
Approach Vol, veh/h		153			153			1022			419	
Approach Delay, s/veh		29.0			18.7			30.8			26.5	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	23.8	15.8	13.1	14.0	16.6	5.9	23.1
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.5	14.3	4.6	6.4	9.1	8.3	2.3	2.9
Green Ext Time (p_c), s	0.0	3.1	0.1	0.5	0.0	1.6	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	28.6
HCM 6th LOS	C

APPENDIX D

K&D FACTORS DEFINITIONS

PEAK HOUR VOLUME DATA

Peak hour volume data consists of hourly volume relationships and data location. The hourly volumes are expressed as a percentage of the Annual Average Daily Traffic (AADT). The percentages are shown for both the AM and the PM peak periods.

The principle data described here are the K factor, the D factor and their product (KD). The K factor is the percentage of AADT during the peak hour for both directions of travel. The D factor is the percentage of the peak hour travel in the peak direction. KD multiplied with the AADT gives the one way peak period directional flow rate or the design hourly volume (DHV). The design hourly volume is used for either Operational Analysis or Design Analysis. Refer to the 2016 Highway Capacity Manual, 6th Edition A Guide for Multimodal Mobility Analysis for more details.

Following is a glossary of terms used in this listing of peak hour volume data:

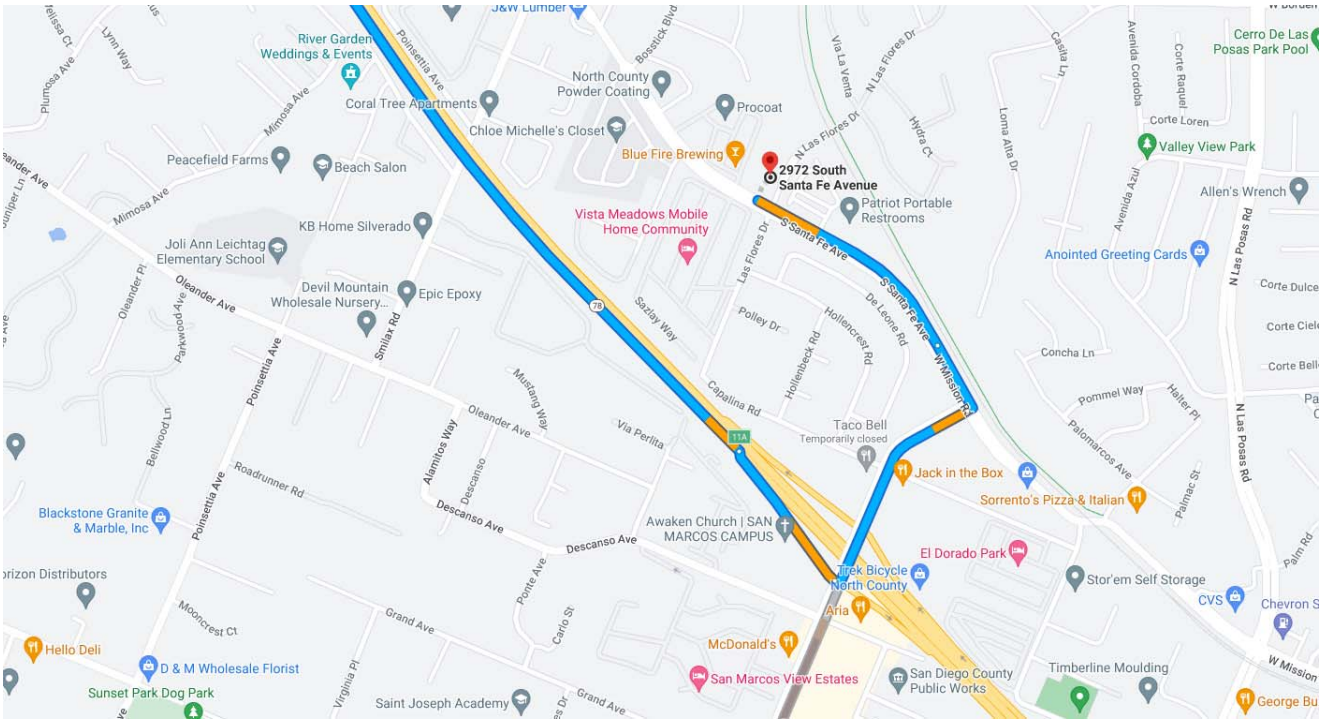
Dir	Indicates direction of travel for peak volume.
AADT	Annual Average Daily Traffic in vehicles per day (vpd).
AM Peak	Represents the morning peak period for traffic analysis.
CS	Control Station Number, Caltrans identification number for monitoring site.
CO	County abbreviation used by Caltrans.
D	D factor. The percentage of traffic in the peak direction during the peak hour. Values in this book are derived by dividing the measured PHV by the sum of both directions of travel during the peak hour.
DAY	Day of week for the peak volume.
DDHV	The directional design hour volume, in vehicles per hour (vph) DDHV=AADTxKxD. See Equation (3-1) on Page 3-13 of the 2016 Highway Capacity Manual.
DI	Caltrans has twelve transportation districts statewide. This abbreviation identifies the district in which the count station is located.
HR	The ending time for the peak hour volume listed. The volume observed from 1 to 2 would be recorded as 2.

K	The percentage of the AADT in both directions during the peak hour. Values in this table are derived by dividing the measured 2-way PHV by the AADT.
KD	The product of K and D. The percentage of AADT in the peak direction during the peak hour. Values in this table are derived by dividing the measured 1-way PHV by the AADT.
LEG	For traffic counting purposes, a highway intersection or interchange is assigned two legs according to increasing postmiles (route direction) and with a postmile reference at the center of the intersection or interchange. The volume of traffic on each leg is denoted by an A, B or O. A = ahead leg, B = back leg, and O – traffic volume being same for both back and ahead legs.
MNTH	The month that the peak volume occurred.
PHV	Peak Hour Volume in the peak direction. A one way volume in vehicles per hour (vph) as used here. The PHV is analogous to the DDHV as used for design purposes.
PM	The Post Mile is the mileage measured from the county line, or from the beginning of a route. Each postmile along a route in a county is a unique location on the state highway system.
PM Peak	Represents the afternoon peak period for traffic analysis.
PRE	The postmile may have a prefix like R, T, L, M, etc. When a length of highway is changed due to construction or realigment, new postmile values are assigned. To distinguish the new values from the old, an alpha code is prefixed to the new postmile.
RTE	The state highway route number.
YR	The year when the count was made. Traffic counting is on a 3-year cycle.

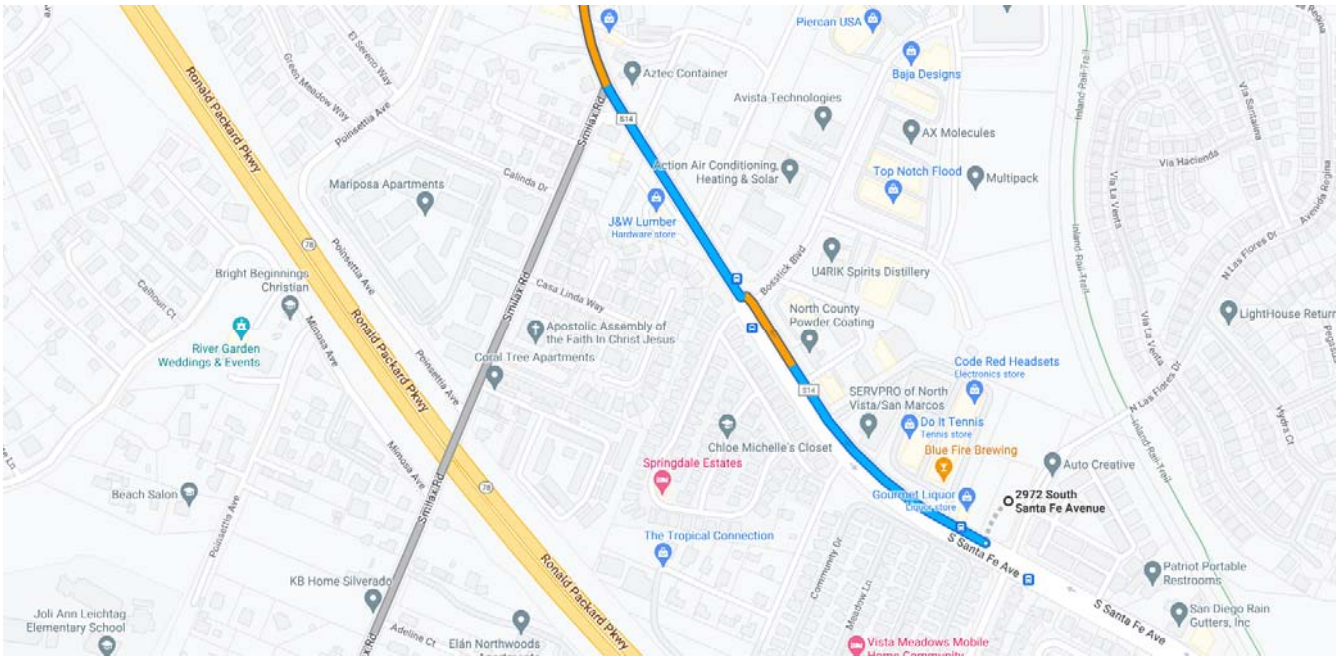
APPENDIX E

TRAVEL ROUTE MAPS

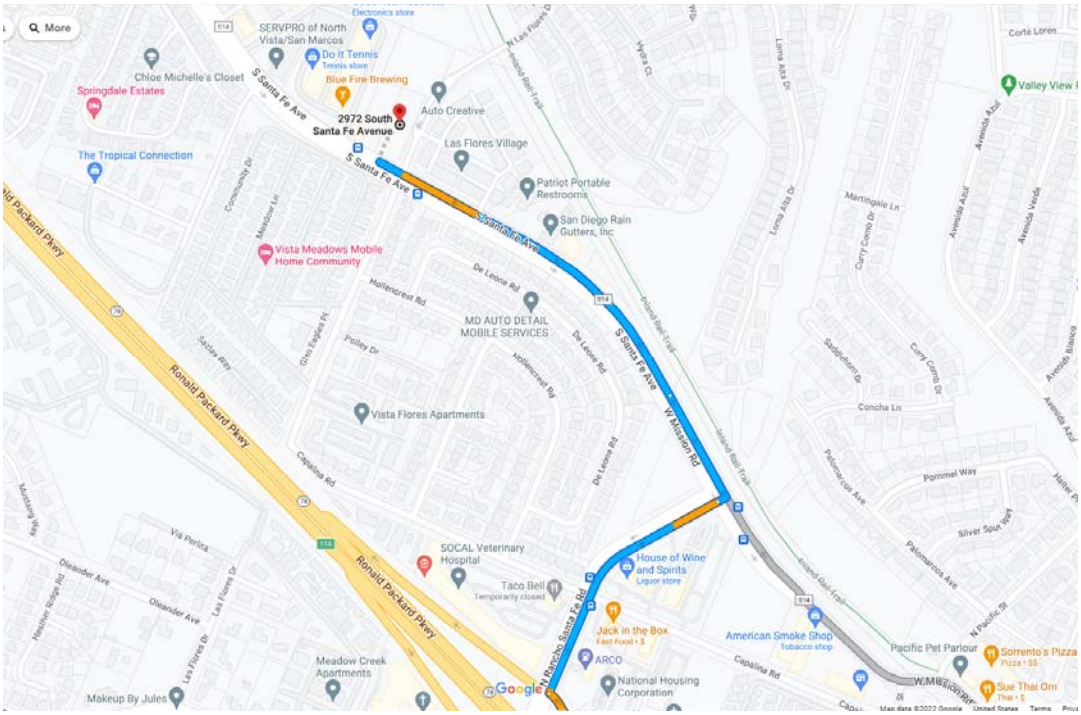
From Oceanside



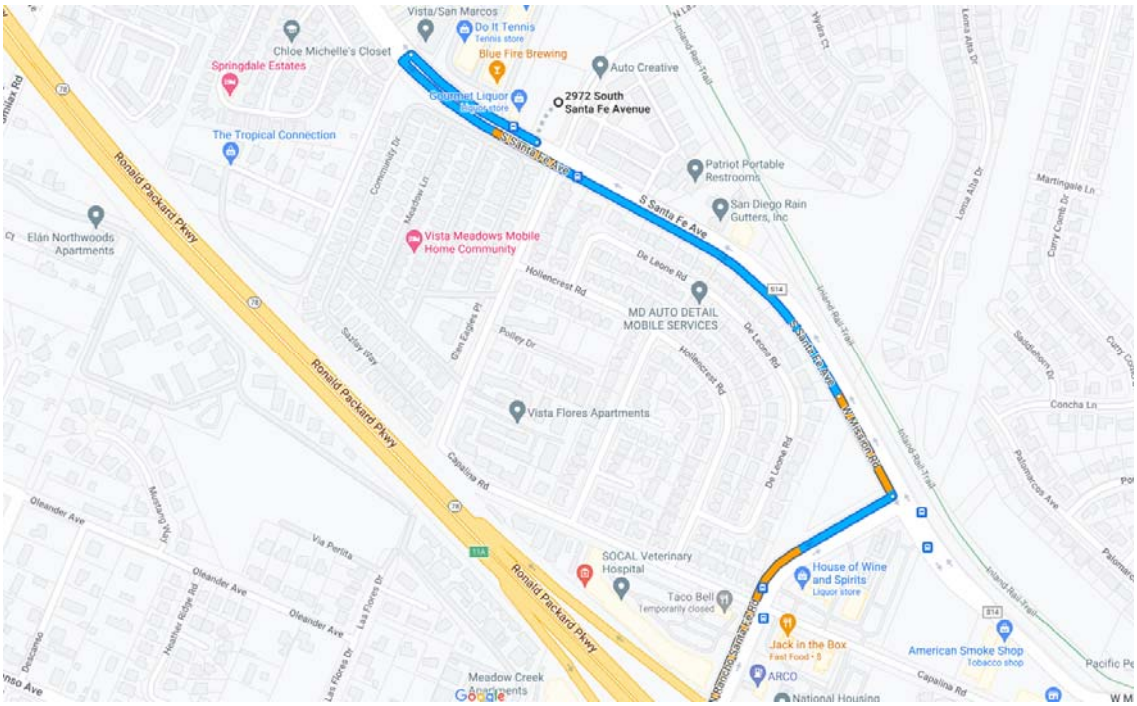
To Oceanside



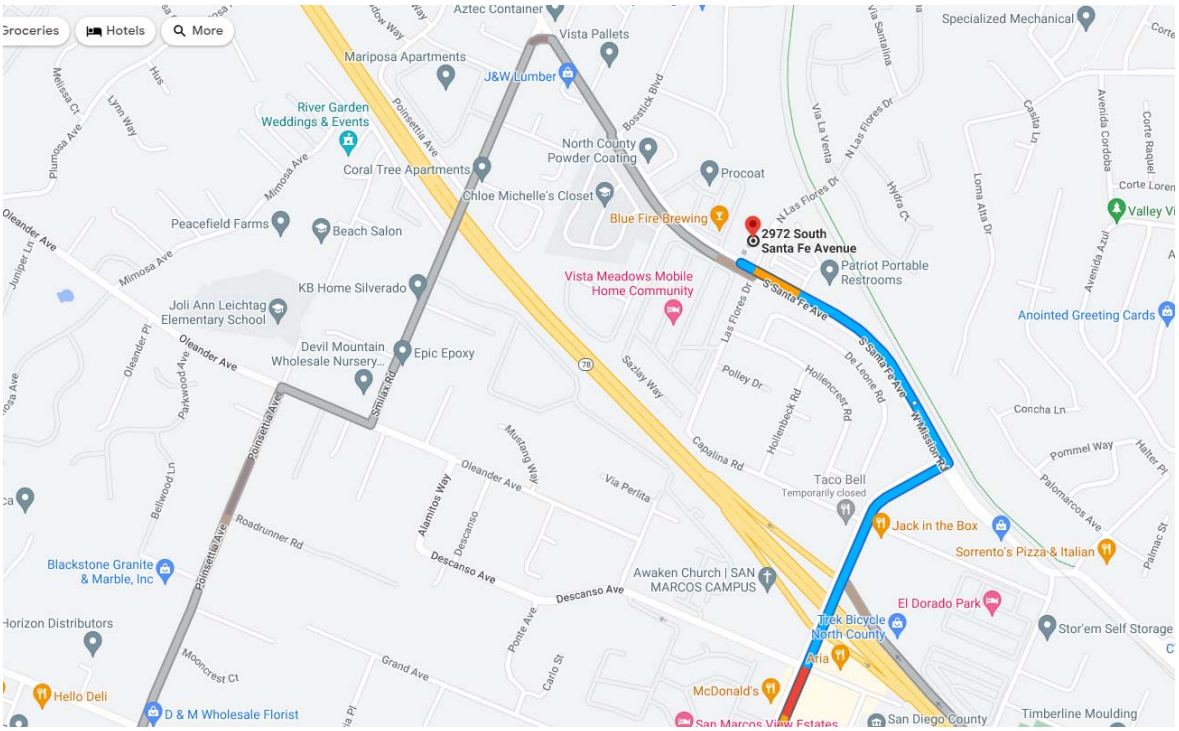
From Escondido



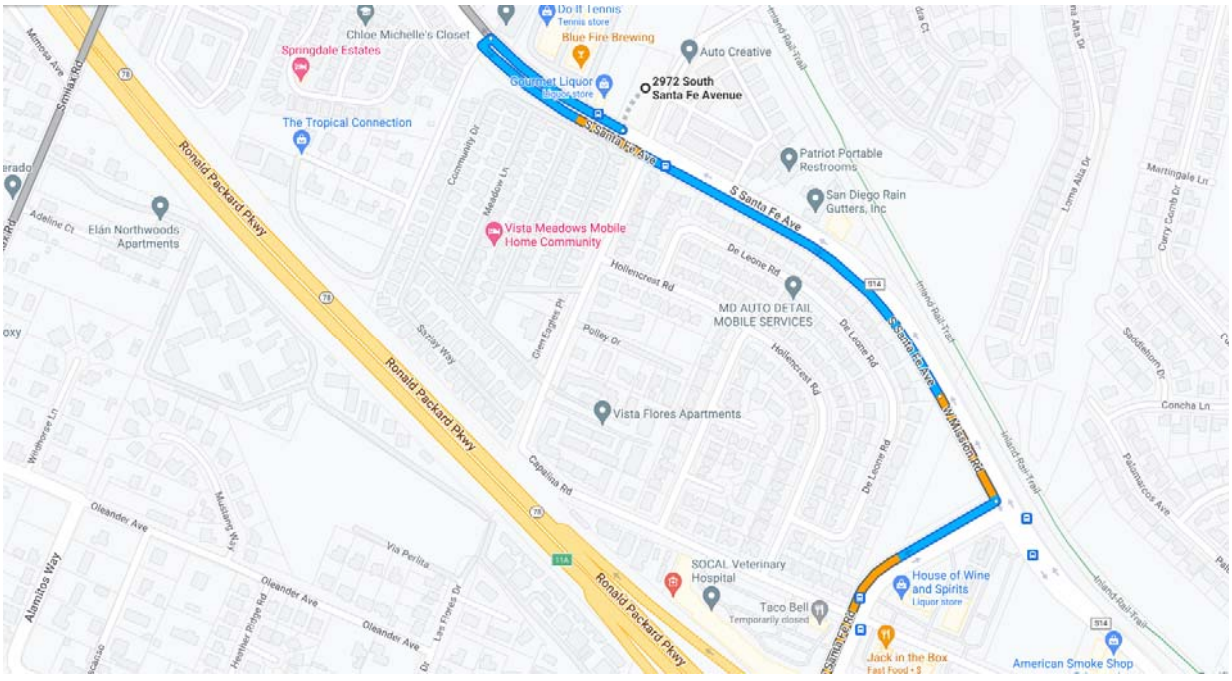
To Escondido



From Rancho Santa Fe



To Rancho Santa Fe



APPENDIX F

ANALYSIS WORKSHEETS – NEAR-TERM

Intersection	
Int Delay, s/veh	33.7

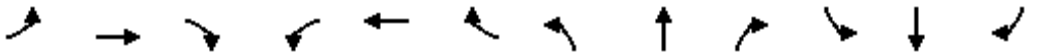
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	100	160	261	307	434	237
Future Vol, veh/h	100	160	261	307	434	237
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	114	182	297	349	493	269

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1571	628	762	0	-	0
Stage 1	628	-	-	-	-	-
Stage 2	943	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	122	483	850	-	-	-
Stage 1	532	-	-	-	-	-
Stage 2	379	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 69	483	850	-	-	-
Mov Cap-2 Maneuver	~ 69	-	-	-	-	-
Stage 1	302	-	-	-	-	-
Stage 2	379	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	182.5	5.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	850	-	69	483	-	-
HCM Lane V/C Ratio	0.349	-	1.647	0.376	-	-
HCM Control Delay (s)	11.5	0$	447.4	16.9	-	-
HCM Lane LOS	B	A	F	C	-	-
HCM 95th %tile Q(veh)	1.6	-	9.9	1.7	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	23	82	0	41	23	517	103	93	490	7
Future Volume (veh/h)	10	0	23	82	0	41	23	517	103	93	490	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	26	93	0	47	26	588	117	106	557	8
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	30	0	71	215	0	191	73	706	598	197	1602	23
Arrive On Green	0.06	0.00	0.06	0.12	0.00	0.12	0.04	0.38	0.38	0.11	0.45	0.45
Sat Flow, veh/h	487	0	1152	1781	0	1585	1781	1870	1585	1781	3586	51
Grp Volume(v), veh/h	37	0	0	93	0	47	26	588	117	106	276	289
Grp Sat Flow(s),veh/h/ln	1639	0	0	1781	0	1585	1781	1870	1585	1781	1777	1861
Q Serve(g_s), s	1.3	0.0	0.0	2.9	0.0	1.6	0.9	17.1	3.0	3.4	6.1	6.1
Cycle Q Clear(g_c), s	1.3	0.0	0.0	2.9	0.0	1.6	0.9	17.1	3.0	3.4	6.1	6.1
Prop In Lane	0.30		0.70	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	101	0	0	215	0	191	73	706	598	197	794	832
V/C Ratio(X)	0.37	0.00	0.00	0.43	0.00	0.25	0.36	0.83	0.20	0.54	0.35	0.35
Avail Cap(c_a), veh/h	793	0	0	238	0	212	247	1089	923	247	1034	1084
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	0.0	0.0	24.5	0.0	23.9	28.0	17.0	12.6	25.2	10.9	10.9
Incr Delay (d2), s/veh	2.2	0.0	0.0	1.4	0.0	0.7	2.9	3.4	0.2	2.3	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	1.2	0.0	0.6	0.4	6.5	0.9	1.4	1.9	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	0.0	0.0	25.8	0.0	24.6	30.9	20.4	12.7	27.5	11.1	11.1
LnGrp LOS	C	A	A	C	A	C	C	C	B	C	B	B
Approach Vol, veh/h		37			140			731			671	
Approach Delay, s/veh		29.2			25.4			19.5			13.7	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	28.0		9.2	6.7	32.2		11.9				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	5.4	19.1		3.3	2.9	8.1		4.9				
Green Ext Time (p_c), s	0.1	3.5		0.1	0.0	3.1		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		17.8	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

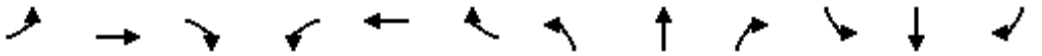
Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	681	7	10	619	9	8
Future Vol, veh/h	681	7	10	619	9	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	724	7	11	659	10	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	731	0	1080	366
Stage 1	-	-	-	-	728	-
Stage 2	-	-	-	-	352	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	869	-	213	631
Stage 1	-	-	-	-	439	-
Stage 2	-	-	-	-	683	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	869	-	210	631
Mov Cap-2 Maneuver	-	-	-	-	210	-
Stage 1	-	-	-	-	439	-
Stage 2	-	-	-	-	674	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	17.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	306	-	-	869	-
HCM Lane V/C Ratio	0.059	-	-	0.012	-
HCM Control Delay (s)	17.5	-	-	9.2	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	530	28	47	513	35	42	3	31	131	13	40
Future Volume (veh/h)	36	530	28	47	513	35	42	3	31	131	13	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	589	31	52	570	39	47	3	34	146	14	44
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	857	45	110	901	402	137	16	178	278	73	230
Arrive On Green	0.06	0.25	0.25	0.06	0.25	0.25	0.08	0.12	0.12	0.16	0.18	0.18
Sat Flow, veh/h	1781	3434	181	1781	3554	1585	1781	130	1475	1781	397	1248
Grp Volume(v), veh/h	40	304	316	52	570	39	47	0	37	146	0	58
Grp Sat Flow(s),veh/h/ln	1781	1777	1838	1781	1777	1585	1781	0	1605	1781	0	1646
Q Serve(g_s), s	1.1	7.8	7.8	1.4	7.1	0.9	1.3	0.0	1.0	3.8	0.0	1.5
Cycle Q Clear(g_c), s	1.1	7.8	7.8	1.4	7.1	0.9	1.3	0.0	1.0	3.8	0.0	1.5
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.92	1.00		0.76
Lane Grp Cap(c), veh/h	106	443	459	110	901	402	137	0	193	278	0	303
V/C Ratio(X)	0.38	0.69	0.69	0.47	0.63	0.10	0.34	0.00	0.19	0.52	0.00	0.19
Avail Cap(c_a), veh/h	253	782	809	217	1499	669	285	0	1123	403	0	1234
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.6	17.0	17.0	22.7	16.6	14.3	21.9	0.0	19.8	19.4	0.0	17.3
Incr Delay (d2), s/veh	2.2	1.9	1.8	3.1	0.7	0.1	1.5	0.0	0.5	1.5	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.8	2.8	0.6	2.4	0.3	0.5	0.0	0.4	1.6	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.8	18.9	18.8	25.8	17.3	14.4	23.4	0.0	20.3	20.9	0.0	17.6
LnGrp LOS	C	B	B	C	B	B	C	A	C	C	A	B
Approach Vol, veh/h		660			661			84			204	
Approach Delay, s/veh		19.2			17.8			22.0			20.0	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	17.9	9.3	15.2	7.4	18.1	12.5	12.0
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	3.4	9.8	3.3	3.5	3.1	9.1	5.8	3.0
Green Ext Time (p_c), s	0.0	2.7	0.0	0.3	0.0	2.8	0.2	0.2

Intersection Summary	
HCM 6th Ctrl Delay	18.9
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	26	54	5	13	66
Future Vol, veh/h	8	26	54	5	13	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	31	64	6	15	78

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	175	67	0	0	70	0
Stage 1	67	-	-	-	-	-
Stage 2	108	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	815	997	-	-	1531	-
Stage 1	956	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	807	997	-	-	1531	-
Mov Cap-2 Maneuver	807	-	-	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	907	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	1.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	945	1531	-
HCM Lane V/C Ratio	-	-	0.042	0.01	-
HCM Control Delay (s)	-	-	9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	249	94	126	358	0	427	289
Future Volume (veh/h)	249	94	126	358	0	427	289
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	268	101	135	385		459	311
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	598	882	255	1962		1066	475
Arrive On Green	0.17	0.17	0.14	0.55		0.30	0.30
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	268	101	135	385		459	311
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	3.2	1.2	3.2	2.5		4.8	7.8
Cycle Q Clear(g_c), s	3.2	1.2	3.2	2.5		4.8	7.8
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	598	882	255	1962		1066	475
V/C Ratio(X)	0.45	0.11	0.53	0.20		0.43	0.65
Avail Cap(c_a), veh/h	1357	1495	389	3055		2667	1190
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	17.0	11.1	18.2	5.2		12.9	14.0
Incr Delay (d2), s/veh	0.5	0.1	1.7	0.0		0.3	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	1.2	0.5		1.4	2.3
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	17.5	11.2	19.9	5.2		13.2	15.5
LnGrp LOS	B	B	B	A		B	B
Approach Vol, veh/h	369			520		770	
Approach Delay, s/veh	15.8			9.0		14.1	
Approach LOS	B			A		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		31.4		14.4	11.6	19.8	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		4.5		5.2	5.2	9.8	
Green Ext Time (p_c), s		2.5		1.1	0.1	3.9	

Intersection Summary	
HCM 6th Ctrl Delay	12.9
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

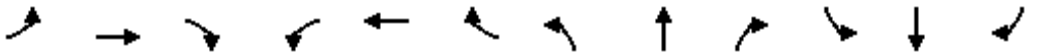
Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	189	68	48	105	6
Future Vol, veh/h	0	189	68	48	105	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	228	82	58	127	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	140	0	-	0	339	111
Stage 1	-	-	-	-	111	-
Stage 2	-	-	-	-	228	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1443	-	-	-	657	942
Stage 1	-	-	-	-	914	-
Stage 2	-	-	-	-	810	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1443	-	-	-	657	942
Mov Cap-2 Maneuver	-	-	-	-	657	-
Stage 1	-	-	-	-	914	-
Stage 2	-	-	-	-	810	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1443	-	-	-	668
HCM Lane V/C Ratio	-	-	-	-	0.2
HCM Control Delay (s)	0	-	-	-	11.7
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.7



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	17	234	86	13	19	157	349	118	13	386	7
Future Volume (veh/h)	6	17	234	86	13	19	157	349	118	13	386	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	19	260	96	14	21	174	388	131	14	429	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	372	316	327	665	564	208	709	236	21	592	11
Arrive On Green	0.03	0.20	0.20	0.18	0.36	0.36	0.12	0.27	0.27	0.01	0.17	0.17
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2617	873	1781	3569	66
Grp Volume(v), veh/h	7	19	260	96	14	21	174	262	257	14	213	224
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1713	1781	1777	1858
Q Serve(g_s), s	0.3	0.6	10.8	3.2	0.3	0.6	6.5	8.6	8.8	0.5	7.8	7.8
Cycle Q Clear(g_c), s	0.3	0.6	10.8	3.2	0.3	0.6	6.5	8.6	8.8	0.5	7.8	7.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.51	1.00		0.04
Lane Grp Cap(c), veh/h	49	372	316	327	665	564	208	481	464	21	295	308
V/C Ratio(X)	0.14	0.05	0.82	0.29	0.02	0.04	0.84	0.54	0.55	0.66	0.72	0.73
Avail Cap(c_a), veh/h	403	819	694	403	819	694	208	599	578	91	483	505
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	22.2	26.3	24.1	14.3	14.4	29.6	21.4	21.4	33.7	27.1	27.1
Incr Delay (d2), s/veh	1.3	0.1	5.4	0.5	0.0	0.0	24.6	1.0	1.0	29.5	3.4	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	4.4	1.3	0.1	0.2	4.0	3.4	3.3	0.4	3.3	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.9	22.2	31.7	24.6	14.3	14.4	54.2	22.3	22.5	63.2	30.4	30.3
LnGrp LOS	C	C	C	C	B	B	D	C	C	E	C	C
Approach Vol, veh/h		286			131			693			451	
Approach Delay, s/veh		31.1			21.9			30.4			31.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	24.9	16.6	20.1	14.0	17.8	5.9	30.9
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.5	10.8	5.2	12.8	8.5	9.8	2.3	2.6
Green Ext Time (p_c), s	0.0	2.3	0.1	0.9	0.0	1.5	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	30.1
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	63

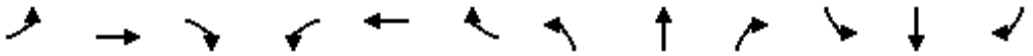
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	113	246	155	572	698	173
Future Vol, veh/h	113	246	155	572	698	173
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	128	280	176	650	793	197

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1894	892	990	0	-	0
Stage 1	892	-	-	-	-	-
Stage 2	1002	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 77	341	698	-	-	-
Stage 1	400	-	-	-	-	-
Stage 2	355	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 47	341	698	-	-	-
Mov Cap-2 Maneuver	~ 47	-	-	-	-	-
Stage 1	242	-	-	-	-	-
Stage 2	355	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 338.4	2.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	698	-	47	341	-	-
HCM Lane V/C Ratio	0.252	-	2.732	0.82	-	-
HCM Control Delay (s)	11.9	0	$ 967.4	49.4	-	-
HCM Lane LOS	B	A	F	E	-	-
HCM 95th %tile Q(veh)	1	-	13.7	7.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	13	110	0	98	41	654	46	17	922	13
Future Volume (veh/h)	8	0	13	110	0	98	41	654	46	17	922	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	0	15	125	0	111	47	743	52	19	1048	15
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	27	0	45	234	0	209	113	853	723	65	1537	22
Arrive On Green	0.04	0.00	0.04	0.13	0.00	0.13	0.06	0.46	0.46	0.04	0.43	0.43
Sat Flow, veh/h	620	0	1033	1781	0	1585	1781	1870	1585	1781	3587	51
Grp Volume(v), veh/h	24	0	0	125	0	111	47	743	52	19	519	544
Grp Sat Flow(s),veh/h/ln	1653	0	0	1781	0	1585	1781	1870	1585	1781	1777	1861
Q Serve(g_s), s	0.8	0.0	0.0	3.9	0.0	3.9	1.5	21.4	1.1	0.6	14.1	14.1
Cycle Q Clear(g_c), s	0.8	0.0	0.0	3.9	0.0	3.9	1.5	21.4	1.1	0.6	14.1	14.1
Prop In Lane	0.37		0.62	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	73	0	0	234	0	209	113	853	723	65	761	798
V/C Ratio(X)	0.33	0.00	0.00	0.53	0.00	0.53	0.42	0.87	0.07	0.29	0.68	0.68
Avail Cap(c_a), veh/h	805	0	0	239	0	213	248	1096	929	248	1041	1090
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.6	0.0	0.0	24.2	0.0	24.2	26.8	14.6	9.1	28.0	13.7	13.7
Incr Delay (d2), s/veh	2.6	0.0	0.0	2.2	0.0	2.4	2.4	6.4	0.0	2.5	1.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	1.7	0.0	1.5	0.7	8.2	0.3	0.3	4.6	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.2	0.0	0.0	26.3	0.0	26.6	29.3	21.0	9.2	30.5	14.8	14.8
LnGrp LOS	C	A	A	C	A	C	C	C	A	C	B	B
Approach Vol, veh/h		24			236			842			1082	
Approach Delay, s/veh		30.2			26.5			20.7			15.1	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	32.6		8.1	8.0	30.9		12.5				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	2.6	23.4		2.8	3.5	16.1		5.9				
Green Ext Time (p_c), s	0.0	3.8		0.1	0.0	6.2		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		18.7	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

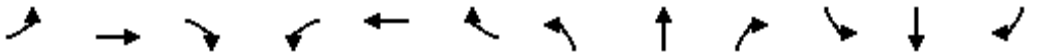
Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1064	7	38	741	7	5
Future Vol, veh/h	1064	7	38	741	7	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1132	7	40	788	7	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1139	0	1610	570
Stage 1	-	-	-	-	1136	-
Stage 2	-	-	-	-	474	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	609	-	95	465
Stage 1	-	-	-	-	268	-
Stage 2	-	-	-	-	592	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	609	-	89	465
Mov Cap-2 Maneuver	-	-	-	-	89	-
Stage 1	-	-	-	-	268	-
Stage 2	-	-	-	-	553	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	34.7
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	134	-	-	609	-
HCM Lane V/C Ratio	0.095	-	-	0.066	-
HCM Control Delay (s)	34.7	-	-	11.3	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.3	-	-	0.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	912	74	36	614	81	42	3	22	54	3	35
Future Volume (veh/h)	55	912	74	36	614	81	42	3	22	54	3	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	1013	82	40	682	90	47	3	24	60	3	39
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	137	1206	98	89	1197	534	133	21	166	175	14	186
Arrive On Green	0.08	0.36	0.36	0.05	0.34	0.34	0.07	0.12	0.12	0.10	0.13	0.13
Sat Flow, veh/h	1781	3329	269	1781	3554	1585	1781	179	1433	1781	114	1488
Grp Volume(v), veh/h	61	541	554	40	682	90	47	0	27	60	0	42
Grp Sat Flow(s),veh/h/ln	1781	1777	1822	1781	1777	1585	1781	0	1612	1781	0	1603
Q Serve(g_s), s	1.8	15.4	15.4	1.2	8.7	2.2	1.4	0.0	0.8	1.7	0.0	1.3
Cycle Q Clear(g_c), s	1.8	15.4	15.4	1.2	8.7	2.2	1.4	0.0	0.8	1.7	0.0	1.3
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.89	1.00		0.93
Lane Grp Cap(c), veh/h	137	643	660	89	1197	534	133	0	187	175	0	200
V/C Ratio(X)	0.44	0.84	0.84	0.45	0.57	0.17	0.35	0.00	0.14	0.34	0.00	0.21
Avail Cap(c_a), veh/h	230	710	728	197	1361	607	259	0	1024	365	0	1091
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.3	16.1	16.1	25.4	15.0	12.8	24.2	0.0	21.9	23.2	0.0	21.7
Incr Delay (d2), s/veh	2.2	8.3	8.1	3.5	0.4	0.1	1.6	0.0	0.4	1.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	6.3	6.4	0.5	2.9	0.7	0.6	0.0	0.3	0.7	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.5	24.4	24.2	29.0	15.4	13.0	25.8	0.0	22.2	24.3	0.0	22.2
LnGrp LOS	C	C	C	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1156			812			74			102	
Approach Delay, s/veh		24.4			15.8			24.5			23.4	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	25.4	9.6	12.9	8.6	23.9	10.1	12.4
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	3.2	17.4	3.4	3.3	3.8	10.7	3.7	2.8
Green Ext Time (p_c), s	0.0	2.6	0.0	0.2	0.0	3.3	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	21.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	13	59	6	33	83
Future Vol, veh/h	4	13	59	6	33	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	15	69	7	39	98

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	249	73	0	0	76	0
Stage 1	73	-	-	-	-	-
Stage 2	176	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	739	989	-	-	1523	-
Stage 1	950	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	719	989	-	-	1523	-
Mov Cap-2 Maneuver	719	-	-	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	832	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	2.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	909	1523	-
HCM Lane V/C Ratio	-	-	0.022	0.025	-
HCM Control Delay (s)	-	-	9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	365	361	168	402	0	766	217
Future Volume (veh/h)	365	361	168	402	0	766	217
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	392	388	181	432		824	233
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	650	910	246	2057		1238	552
Arrive On Green	0.19	0.19	0.14	0.58		0.35	0.35
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	392	388	181	432		824	233
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	5.6	5.9	5.3	3.2		10.6	6.1
Cycle Q Clear(g_c), s	5.6	5.9	5.3	3.2		10.6	6.1
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	650	910	246	2057		1238	552
V/C Ratio(X)	0.60	0.43	0.74	0.21		0.67	0.42
Avail Cap(c_a), veh/h	1150	1314	329	2589		2261	1008
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	20.1	14.3	22.4	5.5		14.9	13.5
Incr Delay (d2), s/veh	0.9	0.3	5.7	0.1		0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	4.9	2.3	0.7		3.4	1.8
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	21.0	14.6	28.0	5.5		15.6	14.0
LnGrp LOS	C	B	C	A		B	B
Approach Vol, veh/h	780			613		1057	
Approach Delay, s/veh	17.8			12.2		15.2	
Approach LOS	B			B		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		37.4		16.7	12.5	24.9	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		5.2		7.9	7.3	12.6	
Green Ext Time (p_c), s		2.9		2.3	0.1	6.2	

Intersection Summary		
HCM 6th Ctrl Delay		15.3
HCM 6th LOS		B

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

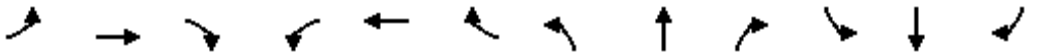
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	102	156	82	34	4
Future Vol, veh/h	2	102	156	82	34	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	123	188	99	41	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	287	0	-	0	365	238
Stage 1	-	-	-	-	238	-
Stage 2	-	-	-	-	127	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1275	-	-	-	635	801
Stage 1	-	-	-	-	802	-
Stage 2	-	-	-	-	899	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1275	-	-	-	634	801
Mov Cap-2 Maneuver	-	-	-	-	634	-
Stage 1	-	-	-	-	800	-
Stage 2	-	-	-	-	899	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1275	-	-	-	648
HCM Lane V/C Ratio	0.002	-	-	-	0.071
HCM Control Delay (s)	7.8	0	-	-	11
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	23	111	85	34	23	198	666	103	14	368	23
Future Volume (veh/h)	8	23	111	85	34	23	198	666	103	14	368	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	26	123	94	38	26	220	740	114	16	409	26
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	62	211	179	349	512	434	233	934	144	24	629	40
Arrive On Green	0.03	0.11	0.11	0.20	0.27	0.27	0.13	0.30	0.30	0.01	0.19	0.19
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3086	475	1781	3393	215
Grp Volume(v), veh/h	9	26	123	94	38	26	220	426	428	16	214	221
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1785	1781	1777	1832
Q Serve(g_s), s	0.3	0.8	4.6	2.7	0.9	0.7	7.5	13.4	13.4	0.5	6.8	6.8
Cycle Q Clear(g_c), s	0.3	0.8	4.6	2.7	0.9	0.7	7.5	13.4	13.4	0.5	6.8	6.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.27	1.00		0.12
Lane Grp Cap(c), veh/h	62	211	179	349	512	434	233	538	540	24	329	340
V/C Ratio(X)	0.15	0.12	0.69	0.27	0.07	0.06	0.94	0.79	0.79	0.66	0.65	0.65
Avail Cap(c_a), veh/h	452	919	779	452	919	779	233	672	675	102	541	558
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	24.4	26.1	20.8	16.4	16.4	26.3	19.5	19.5	30.0	23.0	23.1
Incr Delay (d2), s/veh	1.1	0.3	4.6	0.4	0.1	0.1	43.2	5.1	5.1	26.5	2.1	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	1.9	1.1	0.4	0.3	5.7	5.5	5.5	0.4	2.7	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.7	24.6	30.7	21.3	16.5	16.4	69.5	24.7	24.7	56.4	25.2	25.2
LnGrp LOS	C	C	C	C	B	B	E	C	C	E	C	C
Approach Vol, veh/h		158			158			1074			451	
Approach Delay, s/veh		29.6			19.3			33.9			26.3	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	24.9	16.0	13.4	14.0	17.7	6.1	23.2
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.5	15.4	4.7	6.6	9.5	8.8	2.3	2.9
Green Ext Time (p_c), s	0.0	3.1	0.1	0.5	0.0	1.6	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	30.4
HCM 6th LOS	C

APPENDIX G

ANALYSIS WORKSHEETS – NEAR-TERM + PROJECT

Intersection	
Int Delay, s/veh	35.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	100	160	263	312	435	237
Future Vol, veh/h	100	160	263	312	435	237
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	114	182	299	355	494	269

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1582	629	763	0	-	0
Stage 1	629	-	-	-	-	-
Stage 2	953	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	120	482	850	-	-	-
Stage 1	531	-	-	-	-	-
Stage 2	375	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 67	482	850	-	-	-
Mov Cap-2 Maneuver	~ 67	-	-	-	-	-
Stage 1	298	-	-	-	-	-
Stage 2	375	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	191.7	5.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	850	-	67	482	-	-
HCM Lane V/C Ratio	0.352	-	1.696	0.377	-	-
HCM Control Delay (s)	11.5	0$	471.3	16.9	-	-
HCM Lane LOS	B	A	F	C	-	-
HCM 95th %tile Q(veh)	1.6	-	10.1	1.7	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	23	82	0	41	23	524	103	93	492	7
Future Volume (veh/h)	10	0	23	82	0	41	23	524	103	93	492	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	26	93	0	47	26	595	117	106	559	8
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	30	0	71	214	0	190	73	712	603	196	1613	23
Arrive On Green	0.06	0.00	0.06	0.12	0.00	0.12	0.04	0.38	0.38	0.11	0.45	0.45
Sat Flow, veh/h	487	0	1152	1781	0	1585	1781	1870	1585	1781	3587	51
Grp Volume(v), veh/h	37	0	0	93	0	47	26	595	117	106	277	290
Grp Sat Flow(s),veh/h/ln	1639	0	0	1781	0	1585	1781	1870	1585	1781	1777	1861
Q Serve(g_s), s	1.3	0.0	0.0	2.9	0.0	1.6	0.9	17.4	3.0	3.4	6.1	6.1
Cycle Q Clear(g_c), s	1.3	0.0	0.0	2.9	0.0	1.6	0.9	17.4	3.0	3.4	6.1	6.1
Prop In Lane	0.30		0.70	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	100	0	0	214	0	190	73	712	603	196	799	837
V/C Ratio(X)	0.37	0.00	0.00	0.44	0.00	0.25	0.36	0.84	0.19	0.54	0.35	0.35
Avail Cap(c_a), veh/h	788	0	0	236	0	210	245	1082	917	245	1028	1077
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.2	0.0	0.0	24.7	0.0	24.1	28.2	17.0	12.5	25.4	10.8	10.8
Incr Delay (d2), s/veh	2.2	0.0	0.0	1.4	0.0	0.7	2.9	3.6	0.2	2.3	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	1.2	0.0	0.6	0.4	6.6	0.9	1.4	1.9	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.4	0.0	0.0	26.0	0.0	24.7	31.1	20.6	12.7	27.7	11.1	11.1
LnGrp LOS	C	A	A	C	A	C	C	C	B	C	B	B
Approach Vol, veh/h		37			140			738			673	
Approach Delay, s/veh		29.4			25.6			19.7			13.7	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	28.4		9.2	6.7	32.5		11.9				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	5.4	19.4		3.3	2.9	8.1		4.9				
Green Ext Time (p_c), s	0.1	3.5		0.1	0.0	3.1		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		17.9	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

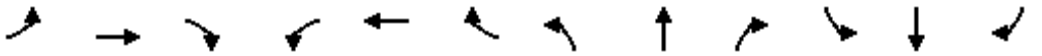
Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	683	7	26	626	9	8
Future Vol, veh/h	683	7	26	626	9	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	727	7	28	666	10	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	734	0	1120	367
Stage 1	-	-	-	-	731	-
Stage 2	-	-	-	-	389	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	867	-	200	630
Stage 1	-	-	-	-	437	-
Stage 2	-	-	-	-	654	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	867	-	194	630
Mov Cap-2 Maneuver	-	-	-	-	194	-
Stage 1	-	-	-	-	437	-
Stage 2	-	-	-	-	633	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	18.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	288	-	-	867	-
HCM Lane V/C Ratio	0.063	-	-	0.032	-
HCM Control Delay (s)	18.3	-	-	9.3	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	541	32	47	515	35	44	3	31	131	13	40
Future Volume (veh/h)	38	541	32	47	515	35	44	3	31	131	13	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	601	36	52	572	39	49	3	34	146	14	44
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	866	52	110	910	406	140	16	177	277	72	226
Arrive On Green	0.06	0.25	0.25	0.06	0.26	0.26	0.08	0.12	0.12	0.16	0.18	0.18
Sat Flow, veh/h	1781	3407	204	1781	3554	1585	1781	130	1475	1781	397	1248
Grp Volume(v), veh/h	42	313	324	52	572	39	49	0	37	146	0	58
Grp Sat Flow(s),veh/h/ln	1781	1777	1834	1781	1777	1585	1781	0	1605	1781	0	1646
Q Serve(g_s), s	1.1	8.0	8.1	1.4	7.2	0.9	1.3	0.0	1.0	3.8	0.0	1.5
Cycle Q Clear(g_c), s	1.1	8.0	8.1	1.4	7.2	0.9	1.3	0.0	1.0	3.8	0.0	1.5
Prop In Lane	1.00		0.11	1.00		1.00	1.00		0.92	1.00		0.76
Lane Grp Cap(c), veh/h	110	452	466	110	910	406	140	0	193	277	0	298
V/C Ratio(X)	0.38	0.69	0.69	0.47	0.63	0.10	0.35	0.00	0.19	0.53	0.00	0.19
Avail Cap(c_a), veh/h	251	775	800	215	1487	663	283	0	1114	399	0	1224
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.7	17.0	17.0	22.9	16.6	14.3	22.0	0.0	20.0	19.6	0.0	17.5
Incr Delay (d2), s/veh	2.2	1.9	1.9	3.2	0.7	0.1	1.5	0.0	0.5	1.6	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.9	3.0	0.6	2.4	0.3	0.6	0.0	0.4	1.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.9	18.9	18.9	26.0	17.4	14.4	23.5	0.0	20.4	21.2	0.0	17.8
LnGrp LOS	C	B	B	C	B	B	C	A	C	C	A	B
Approach Vol, veh/h		679			663			86			204	
Approach Delay, s/veh		19.3			17.9			22.2			20.2	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	18.2	9.5	15.1	7.5	18.3	12.5	12.1
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	3.4	10.1	3.3	3.5	3.1	9.2	5.8	3.0
Green Ext Time (p_c), s	0.0	2.8	0.0	0.3	0.0	2.8	0.2	0.2

Intersection Summary	
HCM 6th Ctrl Delay	19.0
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	27	55	5	15	68
Future Vol, veh/h	8	27	55	5	15	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	32	65	6	18	80

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	184	68	0	0	71	0
Stage 1	68	-	-	-	-	-
Stage 2	116	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	805	995	-	-	1529	-
Stage 1	955	-	-	-	-	-
Stage 2	909	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	795	995	-	-	1529	-
Mov Cap-2 Maneuver	795	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	898	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	1.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	941	1529	-
HCM Lane V/C Ratio	-	-	0.044	0.012	-
HCM Control Delay (s)	-	-	9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	251	94	126	358	0	431	296
Future Volume (veh/h)	251	94	126	358	0	431	296
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	270	101	135	385		463	318
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	594	878	254	1972		1080	482
Arrive On Green	0.17	0.17	0.14	0.55		0.30	0.30
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	270	101	135	385		463	318
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	3.2	1.2	3.2	2.5		4.8	8.1
Cycle Q Clear(g_c), s	3.2	1.2	3.2	2.5		4.8	8.1
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	594	878	254	1972		1080	482
V/C Ratio(X)	0.45	0.12	0.53	0.20		0.43	0.66
Avail Cap(c_a), veh/h	1348	1486	386	3035		2650	1182
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	17.2	11.2	18.3	5.1		12.9	14.0
Incr Delay (d2), s/veh	0.5	0.1	1.7	0.0		0.3	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	1.2	0.5		1.5	2.3
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	17.7	11.3	20.1	5.2		13.1	15.5
LnGrp LOS	B	B	C	A		B	B
Approach Vol, veh/h	371			520		781	
Approach Delay, s/veh	16.0			9.0		14.1	
Approach LOS	B			A		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		31.7		14.4	11.6	20.1	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		4.5		5.2	5.2	10.1	
Green Ext Time (p_c), s		2.5		1.1	0.1	4.0	

Intersection Summary	
HCM 6th Ctrl Delay	12.9
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

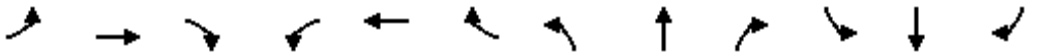
Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	191	69	49	107	6
Future Vol, veh/h	0	191	69	49	107	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	230	83	59	129	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	142	0	-	0	343	113
Stage 1	-	-	-	-	113	-
Stage 2	-	-	-	-	230	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1441	-	-	-	653	940
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	808	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1441	-	-	-	653	940
Mov Cap-2 Maneuver	-	-	-	-	653	-
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	808	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1441	-	-	-	664
HCM Lane V/C Ratio	-	-	-	-	0.205
HCM Control Delay (s)	0	-	-	-	11.8
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	17	238	86	13	19	159	351	118	13	393	7
Future Volume (veh/h)	6	17	238	86	13	19	159	351	118	13	393	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	19	264	96	14	21	177	390	131	14	437	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	377	319	326	668	566	207	712	236	21	599	11
Arrive On Green	0.03	0.20	0.20	0.18	0.36	0.36	0.12	0.27	0.27	0.01	0.17	0.17
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2621	870	1781	3570	65
Grp Volume(v), veh/h	7	19	264	96	14	21	177	263	258	14	217	228
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1714	1781	1777	1859
Q Serve(g_s), s	0.3	0.6	11.0	3.2	0.3	0.6	6.7	8.7	8.9	0.5	8.0	8.0
Cycle Q Clear(g_c), s	0.3	0.6	11.0	3.2	0.3	0.6	6.7	8.7	8.9	0.5	8.0	8.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.51	1.00		0.04
Lane Grp Cap(c), veh/h	49	377	319	326	668	566	207	483	466	21	298	312
V/C Ratio(X)	0.14	0.05	0.83	0.29	0.02	0.04	0.86	0.54	0.55	0.66	0.73	0.73
Avail Cap(c_a), veh/h	400	813	689	400	813	689	207	595	574	90	479	501
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.8	22.2	26.4	24.3	14.4	14.5	29.9	21.5	21.5	33.9	27.2	27.2
Incr Delay (d2), s/veh	1.3	0.1	5.4	0.5	0.0	0.0	28.2	1.0	1.0	29.6	3.4	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	4.5	1.4	0.1	0.2	4.3	3.4	3.4	0.4	3.4	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.1	22.3	31.8	24.8	14.4	14.5	58.1	22.4	22.6	63.5	30.6	30.5
LnGrp LOS	C	C	C	C	B	B	E	C	C	E	C	C
Approach Vol, veh/h		290			131			698			459	
Approach Delay, s/veh		31.3			22.1			31.5			31.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	25.2	16.6	20.4	14.0	18.0	5.9	31.1
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.5	10.9	5.2	13.0	8.7	10.0	2.3	2.6
Green Ext Time (p_c), s	0.0	2.3	0.1	0.9	0.0	1.6	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	30.7
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	64.8

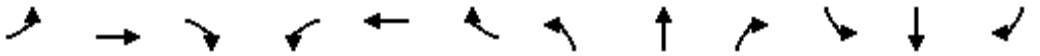
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	113	249	156	574	703	173
Future Vol, veh/h	113	249	156	574	703	173
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	128	283	177	652	799	197

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1904	898	996	0	-	0
Stage 1	898	-	-	-	-	-
Stage 2	1006	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 76	338	695	-	-	-
Stage 1	398	-	-	-	-	-
Stage 2	353	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 46	338	695	-	-	-
Mov Cap-2 Maneuver	~ 46	-	-	-	-	-
Stage 1	239	-	-	-	-	-
Stage 2	353	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s$	347.1	2.6	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	695	-	46	338	-	-
HCM Lane V/C Ratio	0.255	-	2.792	0.837	-	-
HCM Control Delay (s)	11.9	0	$ 997	52.2	-	-
HCM Lane LOS	B	A	F	F	-	-
HCM 95th %tile Q(veh)	1	-	13.8	7.4	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	13	110	0	98	41	657	46	17	930	13
Future Volume (veh/h)	8	0	13	110	0	98	41	657	46	17	930	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	0	15	125	0	111	47	747	52	19	1057	15
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	27	0	45	234	0	208	113	856	725	65	1543	22
Arrive On Green	0.04	0.00	0.04	0.13	0.00	0.13	0.06	0.46	0.46	0.04	0.43	0.43
Sat Flow, veh/h	620	0	1033	1781	0	1585	1781	1870	1585	1781	3587	51
Grp Volume(v), veh/h	24	0	0	125	0	111	47	747	52	19	524	548
Grp Sat Flow(s),veh/h/ln	1653	0	0	1781	0	1585	1781	1870	1585	1781	1777	1861
Q Serve(g_s), s	0.8	0.0	0.0	3.9	0.0	3.9	1.5	21.6	1.1	0.6	14.2	14.2
Cycle Q Clear(g_c), s	0.8	0.0	0.0	3.9	0.0	3.9	1.5	21.6	1.1	0.6	14.2	14.2
Prop In Lane	0.37		0.62	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	73	0	0	234	0	208	113	856	725	65	764	801
V/C Ratio(X)	0.33	0.00	0.00	0.54	0.00	0.53	0.42	0.87	0.07	0.29	0.68	0.68
Avail Cap(c_a), veh/h	802	0	0	238	0	212	247	1092	925	247	1037	1087
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.7	0.0	0.0	24.3	0.0	24.3	26.9	14.7	9.1	28.1	13.8	13.8
Incr Delay (d2), s/veh	2.6	0.0	0.0	2.2	0.0	2.5	2.4	6.6	0.0	2.5	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	1.7	0.0	1.5	0.7	8.4	0.3	0.3	4.6	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.3	0.0	0.0	26.5	0.0	26.7	29.4	21.2	9.1	30.6	14.9	14.8
LnGrp LOS	C	A	A	C	A	C	C	C	A	C	B	B
Approach Vol, veh/h		24			236			846			1091	
Approach Delay, s/veh		30.3			26.6			20.9			15.1	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	32.7		8.1	8.0	31.1		12.5				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	2.6	23.6		2.8	3.5	16.2		5.9				
Green Ext Time (p_c), s	0.0	3.8		0.1	0.0	6.2		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		18.8	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

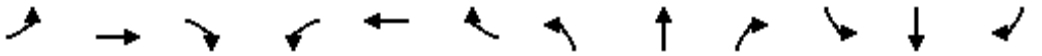
Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1072	7	46	744	7	5
Future Vol, veh/h	1072	7	46	744	7	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1140	7	49	791	7	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1147	0	1638	574
Stage 1	-	-	-	-	1144	-
Stage 2	-	-	-	-	494	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	605	-	91	462
Stage 1	-	-	-	-	266	-
Stage 2	-	-	-	-	579	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	605	-	84	462
Mov Cap-2 Maneuver	-	-	-	-	84	-
Stage 1	-	-	-	-	266	-
Stage 2	-	-	-	-	532	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	36.5
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	127	-	-	605	-
HCM Lane V/C Ratio	0.101	-	-	0.081	-
HCM Control Delay (s)	36.5	-	-	11.5	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	0.3	-	-	0.3	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	918	76	36	627	81	47	3	22	54	3	35
Future Volume (veh/h)	63	918	76	36	627	81	47	3	22	54	3	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	70	1020	84	40	697	90	52	3	24	60	3	39
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	148	1204	99	89	1175	524	141	22	172	174	14	185
Arrive On Green	0.08	0.36	0.36	0.05	0.33	0.33	0.08	0.12	0.12	0.10	0.12	0.12
Sat Flow, veh/h	1781	3324	274	1781	3554	1585	1781	179	1433	1781	114	1488
Grp Volume(v), veh/h	70	545	559	40	697	90	52	0	27	60	0	42
Grp Sat Flow(s),veh/h/ln	1781	1777	1821	1781	1777	1585	1781	0	1612	1781	0	1603
Q Serve(g_s), s	2.1	15.7	15.7	1.2	9.1	2.2	1.5	0.0	0.8	1.8	0.0	1.3
Cycle Q Clear(g_c), s	2.1	15.7	15.7	1.2	9.1	2.2	1.5	0.0	0.8	1.8	0.0	1.3
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.89	1.00		0.93
Lane Grp Cap(c), veh/h	148	643	660	89	1175	524	141	0	194	174	0	199
V/C Ratio(X)	0.47	0.85	0.85	0.45	0.59	0.17	0.37	0.00	0.14	0.34	0.00	0.21
Avail Cap(c_a), veh/h	227	702	720	195	1347	601	256	0	1014	362	0	1080
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.3	16.3	16.3	25.7	15.5	13.2	24.3	0.0	21.9	23.4	0.0	21.9
Incr Delay (d2), s/veh	2.3	8.9	8.7	3.6	0.5	0.2	1.6	0.0	0.3	1.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	6.5	6.7	0.5	3.0	0.8	0.7	0.0	0.3	0.8	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.7	25.2	25.1	29.3	16.1	13.4	25.9	0.0	22.2	24.6	0.0	22.4
LnGrp LOS	C	C	C	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1174			827			79			102	
Approach Delay, s/veh		25.2			16.4			24.6			23.7	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	25.6	9.9	12.9	9.0	23.8	10.1	12.7
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	3.2	17.7	3.5	3.3	4.1	11.1	3.8	2.8
Green Ext Time (p_c), s	0.0	2.4	0.0	0.2	0.0	3.3	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	16	61	6	34	84
Future Vol, veh/h	4	16	61	6	34	84
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	19	72	7	40	99

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	255	76	0	0	79	0
Stage 1	76	-	-	-	-	-
Stage 2	179	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	734	985	-	-	1519	-
Stage 1	947	-	-	-	-	-
Stage 2	852	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	713	985	-	-	1519	-
Mov Cap-2 Maneuver	713	-	-	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	828	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	2.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	915	1519	-
HCM Lane V/C Ratio	-	-	0.026	0.026	-
HCM Control Delay (s)	-	-	9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	373	361	168	407	0	769	220
Future Volume (veh/h)	373	361	168	407	0	769	220
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	401	388	181	438		827	237
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	651	910	246	2059		1241	553
Arrive On Green	0.19	0.19	0.14	0.58		0.35	0.35
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	401	388	181	438		827	237
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	5.8	5.9	5.3	3.2		10.7	6.2
Cycle Q Clear(g_c), s	5.8	5.9	5.3	3.2		10.7	6.2
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	651	910	246	2059		1241	553
V/C Ratio(X)	0.62	0.43	0.74	0.21		0.67	0.43
Avail Cap(c_a), veh/h	1147	1311	329	2582		2255	1006
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	20.2	14.3	22.4	5.5		15.0	13.5
Incr Delay (d2), s/veh	1.0	0.3	5.8	0.1		0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	2.3	0.8		3.5	1.8
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	21.2	14.6	28.2	5.5		15.6	14.0
LnGrp LOS	C	B	C	A		B	B
Approach Vol, veh/h	789			619		1064	
Approach Delay, s/veh	17.9			12.2		15.2	
Approach LOS	B			B		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		37.5		16.7	12.5	25.0	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		5.2		7.9	7.3	12.7	
Green Ext Time (p_c), s		2.9		2.3	0.1	6.2	

Intersection Summary		
HCM 6th Ctrl Delay		15.3
HCM 6th LOS		B

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

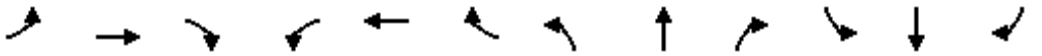
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	103	158	85	35	4
Future Vol, veh/h	2	103	158	85	35	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	124	190	102	42	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	292	0	-	0	369	241
Stage 1	-	-	-	-	241	-
Stage 2	-	-	-	-	128	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1270	-	-	-	631	798
Stage 1	-	-	-	-	799	-
Stage 2	-	-	-	-	898	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1270	-	-	-	630	798
Mov Cap-2 Maneuver	-	-	-	-	630	-
Stage 1	-	-	-	-	797	-
Stage 2	-	-	-	-	898	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1270	-	-	-	644
HCM Lane V/C Ratio	0.002	-	-	-	0.073
HCM Control Delay (s)	7.8	0	-	-	11
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	23	113	85	34	23	203	674	103	14	371	23
Future Volume (veh/h)	8	23	113	85	34	23	203	674	103	14	371	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	26	126	94	38	26	226	749	114	16	412	26
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	62	215	182	347	514	436	232	940	143	24	637	40
Arrive On Green	0.03	0.11	0.11	0.19	0.27	0.27	0.13	0.30	0.30	0.01	0.19	0.19
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3092	470	1781	3395	214
Grp Volume(v), veh/h	9	26	126	94	38	26	226	430	433	16	215	223
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1786	1781	1777	1832
Q Serve(g_s), s	0.3	0.8	4.7	2.8	0.9	0.7	7.8	13.7	13.7	0.5	6.9	6.9
Cycle Q Clear(g_c), s	0.3	0.8	4.7	2.8	0.9	0.7	7.8	13.7	13.7	0.5	6.9	6.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.26	1.00		0.12
Lane Grp Cap(c), veh/h	62	215	182	347	514	436	232	540	543	24	333	344
V/C Ratio(X)	0.15	0.12	0.69	0.27	0.07	0.06	0.97	0.80	0.80	0.66	0.64	0.65
Avail Cap(c_a), veh/h	449	913	773	449	913	773	232	668	671	101	538	554
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	24.4	26.2	21.0	16.5	16.4	26.6	19.6	19.6	30.2	23.1	23.1
Incr Delay (d2), s/veh	1.1	0.2	4.7	0.4	0.1	0.1	51.9	5.4	5.4	26.5	2.1	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	1.9	1.1	0.4	0.3	6.3	5.7	5.7	0.4	2.8	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.8	24.7	30.8	21.4	16.6	16.5	78.5	25.1	25.1	56.7	25.2	25.2
LnGrp LOS	C	C	C	C	B	B	E	C	C	E	C	C
Approach Vol, veh/h		161			158			1089			454	
Approach Delay, s/veh		29.8			19.5			36.2			26.3	
Approach LOS		C			B			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	25.1	16.0	13.6	14.0	17.9	6.1	23.4
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.5	15.7	4.8	6.7	9.8	8.9	2.3	2.9
Green Ext Time (p_c), s	0.0	3.0	0.1	0.5	0.0	1.7	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	31.8
HCM 6th LOS	C

APPENDIX H

ANALYSIS WORKSHEETS – LONG-TERM

Intersection	
Int Delay, s/veh	640.3

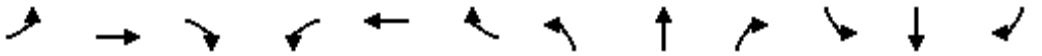
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	140	220	360	420	600	340
Future Vol, veh/h	140	220	360	420	600	340
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	159	250	409	477	682	386

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2170	875	1068	0	-	0
Stage 1	875	-	-	-	-	-
Stage 2	1295	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 51	349	653	-	-	-
Stage 1	408	-	-	-	-	-
Stage 2	257	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 8	349	653	-	-	-
Mov Cap-2 Maneuver	~ 8	-	-	-	-	-
Stage 1	~ 60	-	-	-	-	-
Stage 2	257	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 3680	8.9	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	653	-	8	349	-	-
HCM Lane V/C Ratio	0.626	-	19.886	0.716	-	-
HCM Control Delay (s)	19.3	$	9403.9	37.5	-	-
HCM Lane LOS	C	A	F	E	-	-
HCM 95th %tile Q(veh)	4.4	-	21.6	5.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	30	140	0	70	30	630	180	160	600	10
Future Volume (veh/h)	10	0	30	140	0	70	30	630	180	160	600	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	34	159	0	80	34	716	205	182	682	11
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	26	0	81	200	0	178	86	799	677	208	1773	29
Arrive On Green	0.07	0.00	0.07	0.11	0.00	0.11	0.05	0.43	0.43	0.12	0.50	0.50
Sat Flow, veh/h	398	0	1231	1781	0	1585	1781	1870	1585	1781	3579	58
Grp Volume(v), veh/h	45	0	0	159	0	80	34	716	205	182	339	354
Grp Sat Flow(s),veh/h/ln	1629	0	0	1781	0	1585	1781	1870	1585	1781	1777	1860
Q Serve(g_s), s	1.9	0.0	0.0	6.2	0.0	3.4	1.3	25.3	6.1	7.2	8.5	8.5
Cycle Q Clear(g_c), s	1.9	0.0	0.0	6.2	0.0	3.4	1.3	25.3	6.1	7.2	8.5	8.5
Prop In Lane	0.24		0.76	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	108	0	0	200	0	178	86	799	677	208	880	922
V/C Ratio(X)	0.42	0.00	0.00	0.79	0.00	0.45	0.40	0.90	0.30	0.88	0.38	0.38
Avail Cap(c_a), veh/h	663	0	0	200	0	178	208	916	776	208	880	922
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	0.0	0.0	30.8	0.0	29.6	32.9	18.9	13.4	31.0	11.2	11.2
Incr Delay (d2), s/veh	2.6	0.0	0.0	19.5	0.0	1.8	3.0	10.5	0.2	31.7	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	3.6	0.0	1.3	0.6	11.4	1.9	4.7	2.7	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.5	0.0	0.0	50.4	0.0	31.3	35.9	29.4	13.7	62.7	11.5	11.5
LnGrp LOS	C	A	A	D	A	C	D	C	B	E	B	B
Approach Vol, veh/h		45			239			955			875	
Approach Delay, s/veh		34.5			44.0			26.3			22.1	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.5	35.8		10.2	7.6	40.7		12.7				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	9.2	27.3		3.9	3.3	10.5		8.2				
Green Ext Time (p_c), s	0.0	3.1		0.2	0.0	3.9		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		26.7
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

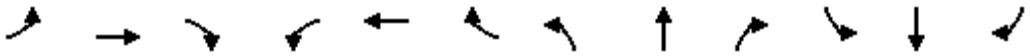
Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	770	10	10	700	10	10
Future Vol, veh/h	770	10	10	700	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	819	11	11	745	11	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	830	0	1220	415
Stage 1	-	-	-	-	825	-
Stage 2	-	-	-	-	395	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	798	-	172	586
Stage 1	-	-	-	-	391	-
Stage 2	-	-	-	-	650	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	798	-	170	586
Mov Cap-2 Maneuver	-	-	-	-	170	-
Stage 1	-	-	-	-	391	-
Stage 2	-	-	-	-	641	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	19.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	264	-	-	798	-
HCM Lane V/C Ratio	0.081	-	-	0.013	-
HCM Control Delay (s)	19.8	-	-	9.6	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	620	30	60	600	40	50	10	40	150	20	50
Future Volume (veh/h)	40	620	30	60	600	40	50	10	40	150	20	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	689	33	67	667	44	56	11	44	167	22	56
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	112	941	45	126	1003	447	150	40	160	273	82	209
Arrive On Green	0.06	0.27	0.27	0.07	0.28	0.28	0.08	0.12	0.12	0.15	0.18	0.18
Sat Flow, veh/h	1781	3452	165	1781	3554	1585	1781	327	1308	1781	467	1189
Grp Volume(v), veh/h	44	354	368	67	667	44	56	0	55	167	0	78
Grp Sat Flow(s),veh/h/ln	1781	1777	1841	1781	1777	1585	1781	0	1635	1781	0	1656
Q Serve(g_s), s	1.3	9.8	9.8	2.0	8.9	1.1	1.6	0.0	1.6	4.7	0.0	2.2
Cycle Q Clear(g_c), s	1.3	9.8	9.8	2.0	8.9	1.1	1.6	0.0	1.6	4.7	0.0	2.2
Prop In Lane	1.00		0.09	1.00		1.00	1.00		0.80	1.00		0.72
Lane Grp Cap(c), veh/h	112	484	502	126	1003	447	150	0	200	273	0	292
V/C Ratio(X)	0.39	0.73	0.73	0.53	0.66	0.10	0.37	0.00	0.28	0.61	0.00	0.27
Avail Cap(c_a), veh/h	234	724	750	201	1389	620	264	0	1060	373	0	1151
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.3	17.8	17.8	24.2	17.1	14.3	23.4	0.0	21.5	21.4	0.0	19.2
Incr Delay (d2), s/veh	2.3	2.2	2.1	3.5	0.8	0.1	1.5	0.0	0.7	2.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.5	3.7	0.8	3.1	0.4	0.7	0.0	0.6	2.0	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.6	20.0	19.9	27.7	17.9	14.4	24.9	0.0	22.3	23.6	0.0	19.7
LnGrp LOS	C	B	B	C	B	B	C	A	C	C	A	B
Approach Vol, veh/h		766			778			111			245	
Approach Delay, s/veh		20.3			18.5			23.6			22.3	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	20.1	10.0	15.5	7.8	20.6	13.0	12.6
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	4.0	11.8	3.6	4.2	3.3	10.9	6.7	3.6
Green Ext Time (p_c), s	0.0	2.9	0.0	0.5	0.0	3.1	0.2	0.3

Intersection Summary	
HCM 6th Ctrl Delay	20.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	30	70	10	20	90
Future Vol, veh/h	10	30	70	10	20	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	35	82	12	24	106

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	242	88	0	0	94	0
Stage 1	88	-	-	-	-	-
Stage 2	154	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	746	970	-	-	1500	-
Stage 1	935	-	-	-	-	-
Stage 2	874	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	733	970	-	-	1500	-
Mov Cap-2 Maneuver	733	-	-	-	-	-
Stage 1	935	-	-	-	-	-
Stage 2	859	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	1.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	897	1500	-
HCM Lane V/C Ratio	-	-	0.052	0.016	-
HCM Control Delay (s)	-	-	9.2	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	310	130	170	460	0	550	360
Future Volume (veh/h)	310	130	170	460	0	550	360
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	333	140	183	495		591	387
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	544	846	260	2111		1242	554
Arrive On Green	0.16	0.16	0.15	0.59		0.35	0.35
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	333	140	183	495		591	387
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	4.6	1.9	5.0	3.3		6.6	10.7
Cycle Q Clear(g_c), s	4.6	1.9	5.0	3.3		6.6	10.7
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	544	846	260	2111		1242	554
V/C Ratio(X)	0.61	0.17	0.70	0.23		0.48	0.70
Avail Cap(c_a), veh/h	1227	1397	351	2761		2411	1075
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	19.9	13.0	20.6	4.9		12.9	14.2
Incr Delay (d2), s/veh	1.1	0.1	4.0	0.1		0.3	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	2.1	0.7		2.0	3.1
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	21.0	13.0	24.6	4.9		13.1	15.8
LnGrp LOS	C	B	C	A		B	B
Approach Vol, veh/h	473			678		978	
Approach Delay, s/veh	18.7			10.2		14.2	
Approach LOS	B			B		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		36.2		14.5	12.4	23.8	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		5.3		6.6	7.0	12.7	
Green Ext Time (p_c), s		3.3		1.3	0.1	5.1	

Intersection Summary	
HCM 6th Ctrl Delay	13.9
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

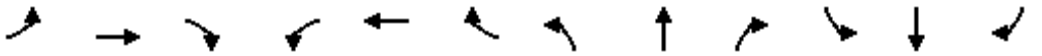
Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	200	70	50	110	10
Future Vol, veh/h	0	200	70	50	110	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	241	84	60	133	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	144	0	-	0	355	114
Stage 1	-	-	-	-	114	-
Stage 2	-	-	-	-	241	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1438	-	-	-	643	939
Stage 1	-	-	-	-	911	-
Stage 2	-	-	-	-	799	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1438	-	-	-	643	939
Mov Cap-2 Maneuver	-	-	-	-	643	-
Stage 1	-	-	-	-	911	-
Stage 2	-	-	-	-	799	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1438	-	-	-	660
HCM Lane V/C Ratio	-	-	-	-	0.219
HCM Control Delay (s)	0	-	-	-	12
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	20	250	90	20	30	170	450	130	20	500	10
Future Volume (veh/h)	10	20	250	90	20	30	170	450	130	20	500	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	22	278	100	22	33	189	500	144	22	556	11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	390	330	315	644	546	193	784	225	31	701	14
Arrive On Green	0.04	0.21	0.21	0.18	0.34	0.34	0.11	0.29	0.29	0.02	0.20	0.20
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2726	781	1781	3564	70
Grp Volume(v), veh/h	11	22	278	100	22	33	189	325	319	22	277	290
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1730	1781	1777	1858
Q Serve(g_s), s	0.4	0.7	12.4	3.6	0.6	1.0	7.8	11.8	11.9	0.9	11.0	11.0
Cycle Q Clear(g_c), s	0.4	0.7	12.4	3.6	0.6	1.0	7.8	11.8	11.9	0.9	11.0	11.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		0.04
Lane Grp Cap(c), veh/h	73	390	330	315	644	546	193	511	498	31	349	365
V/C Ratio(X)	0.15	0.06	0.84	0.32	0.03	0.06	0.98	0.64	0.64	0.72	0.79	0.79
Avail Cap(c_a), veh/h	374	759	644	374	759	644	193	555	541	84	447	468
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	23.4	28.1	26.5	16.1	16.2	32.9	22.9	23.0	36.1	28.3	28.3
Incr Delay (d2), s/veh	0.9	0.1	5.8	0.6	0.0	0.0	58.8	2.1	2.3	26.6	7.4	7.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	5.1	1.6	0.2	0.4	6.3	4.8	4.7	0.6	5.0	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.1	23.5	33.9	27.1	16.1	16.3	91.7	25.1	25.3	62.8	35.6	35.4
LnGrp LOS	D	C	C	C	B	B	F	C	C	E	D	D
Approach Vol, veh/h		311			155			833			589	
Approach Delay, s/veh		33.2			23.2			40.3			36.5	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	27.7	17.1	21.9	14.0	20.9	7.0	31.9
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.9	13.9	5.6	14.4	9.8	13.0	2.4	3.0
Green Ext Time (p_c), s	0.0	2.5	0.1	1.0	0.0	1.5	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	36.5
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	5274.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	160	340	210	790	960	250
Future Vol, veh/h	160	340	210	790	960	250
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	182	386	239	898	1091	284

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2609	1233	1375	0	-	0
Stage 1	1233	-	-	-	-	-
Stage 2	1376	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 27	~ 216	499	-	-	-
Stage 1	275	-	-	-	-	-
Stage 2	234	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 1	~ 216	499	-	-	-
Mov Cap-2 Maneuver	~ 1	-	-	-	-	-
Stage 1	~ 12	-	-	-	-	-
Stage 2	234	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 28581.9	3.9	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	499	-	1	216	-	-
HCM Lane V/C Ratio	0.478	-	181.818	1.789	-	-
HCM Control Delay (s)	18.6	0	$ 88445	$ 411	-	-
HCM Lane LOS	C	A	F	F	-	-
HCM 95th %tile Q(veh)	2.5	-	25.3	26.7	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	20	190	0	170	50	800	80	30	1130	20
Future Volume (veh/h)	10	0	20	190	0	170	50	800	80	30	1130	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	23	216	0	193	57	909	91	34	1284	23
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	0	61	202	0	180	119	926	785	98	1727	31
Arrive On Green	0.06	0.00	0.06	0.11	0.00	0.11	0.07	0.50	0.50	0.06	0.48	0.48
Sat Flow, veh/h	532	0	1112	1781	0	1585	1781	1870	1585	1781	3572	64
Grp Volume(v), veh/h	34	0	0	216	0	193	57	909	91	34	639	668
Grp Sat Flow(s),veh/h/ln	1644	0	0	1781	0	1585	1781	1870	1585	1781	1777	1859
Q Serve(g_s), s	1.4	0.0	0.0	8.0	0.0	8.0	2.2	33.6	2.2	1.3	20.4	20.4
Cycle Q Clear(g_c), s	1.4	0.0	0.0	8.0	0.0	8.0	2.2	33.6	2.2	1.3	20.4	20.4
Prop In Lane	0.32		0.68	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	91	0	0	202	0	180	119	926	785	98	859	899
V/C Ratio(X)	0.37	0.00	0.00	1.07	0.00	1.07	0.48	0.98	0.12	0.35	0.74	0.74
Avail Cap(c_a), veh/h	676	0	0	202	0	180	210	926	785	210	880	921
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	0.0	0.0	31.2	0.0	31.2	31.7	17.5	9.5	32.1	14.7	14.7
Incr Delay (d2), s/veh	2.5	0.0	0.0	82.6	0.0	87.7	3.0	25.0	0.1	2.1	3.4	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	7.9	0.0	7.3	1.0	17.6	0.6	0.6	7.3	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	0.0	0.0	113.8	0.0	119.0	34.7	42.5	9.6	34.1	18.0	17.9
LnGrp LOS	C	A	A	F	A	F	C	D	A	C	B	B
Approach Vol, veh/h		34			409			1057			1341	
Approach Delay, s/veh		34.7			116.2			39.2			18.4	
Approach LOS		C			F			D			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	40.3		9.4	8.9	39.5		12.7				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	3.3	35.6		3.4	4.2	22.4		10.0				
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	6.4		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		40.4	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

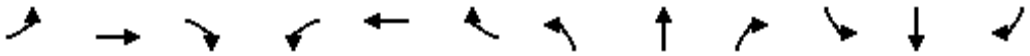
Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1200	10	40	840	10	10
Future Vol, veh/h	1200	10	40	840	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1277	11	43	894	11	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1288	0	1816	644
Stage 1	-	-	-	-	1283	-
Stage 2	-	-	-	-	533	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	534	-	69	416
Stage 1	-	-	-	-	224	-
Stage 2	-	-	-	-	553	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	534	-	63	416
Mov Cap-2 Maneuver	-	-	-	-	63	-
Stage 1	-	-	-	-	224	-
Stage 2	-	-	-	-	508	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	45.9
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	109	-	-	534	-
HCM Lane V/C Ratio	0.195	-	-	0.08	-
HCM Control Delay (s)	45.9	-	-	12.3	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	0.7	-	-	0.3	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1070	90	40	720	90	50	10	30	60	10	40
Future Volume (veh/h)	60	1070	90	40	720	90	50	10	30	60	10	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	67	1189	100	44	800	100	56	11	33	67	11	44
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	141	1243	104	93	1242	554	145	50	149	181	42	166
Arrive On Green	0.08	0.37	0.37	0.05	0.35	0.35	0.08	0.12	0.12	0.10	0.13	0.13
Sat Flow, veh/h	1781	3318	279	1781	3554	1585	1781	412	1236	1781	327	1308
Grp Volume(v), veh/h	67	636	653	44	800	100	56	0	44	67	0	55
Grp Sat Flow(s),veh/h/ln	1781	1777	1820	1781	1777	1585	1781	0	1648	1781	0	1635
Q Serve(g_s), s	2.1	20.5	20.6	1.4	11.1	2.6	1.8	0.0	1.4	2.1	0.0	1.8
Cycle Q Clear(g_c), s	2.1	20.5	20.6	1.4	11.1	2.6	1.8	0.0	1.4	2.1	0.0	1.8
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.75	1.00		0.80
Lane Grp Cap(c), veh/h	141	666	682	93	1242	554	145	0	199	181	0	208
V/C Ratio(X)	0.47	0.96	0.96	0.47	0.64	0.18	0.39	0.00	0.22	0.37	0.00	0.26
Avail Cap(c_a), veh/h	215	666	682	185	1277	569	243	0	982	343	0	1044
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.9	17.9	17.9	27.0	16.0	13.3	25.6	0.0	23.3	24.6	0.0	23.2
Incr Delay (d2), s/veh	2.5	24.3	24.5	3.7	1.1	0.2	1.7	0.0	0.6	1.2	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	11.1	11.4	0.6	3.8	0.9	0.8	0.0	0.6	0.9	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.3	42.2	42.4	30.7	17.1	13.4	27.2	0.0	23.9	25.9	0.0	23.8
LnGrp LOS	C	D	D	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1356			944			100			122	
Approach Delay, s/veh		41.6			17.4			25.8			24.9	
Approach LOS		D			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	27.4	10.3	13.5	9.1	25.9	10.7	13.1
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	3.4	22.6	3.8	3.8	4.1	13.1	4.1	3.4
Green Ext Time (p_c), s	0.0	0.0	0.0	0.3	0.0	3.3	0.1	0.2

Intersection Summary	
HCM 6th Ctrl Delay	31.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	20	80	10	40	110
Future Vol, veh/h	10	20	80	10	40	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	24	94	12	47	129

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	323	100	0	0	106	0
Stage 1	100	-	-	-	-	-
Stage 2	223	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	671	956	-	-	1485	-
Stage 1	924	-	-	-	-	-
Stage 2	814	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	648	956	-	-	1485	-
Mov Cap-2 Maneuver	648	-	-	-	-	-
Stage 1	924	-	-	-	-	-
Stage 2	786	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	825	1485	-
HCM Lane V/C Ratio	-	-	0.043	0.032	-
HCM Control Delay (s)	-	-	9.6	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	460	490	230	520	0	990	270
Future Volume (veh/h)	460	490	230	520	0	990	270
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	495	527	247	559		1065	290
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	727	991	258	2157		1384	617
Arrive On Green	0.21	0.21	0.14	0.61		0.39	0.39
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	495	527	247	559		1065	290
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	9.1	10.4	9.5	5.1		18.0	9.4
Cycle Q Clear(g_c), s	9.1	10.4	9.5	5.1		18.0	9.4
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	727	991	258	2157		1384	617
V/C Ratio(X)	0.68	0.53	0.96	0.26		0.77	0.47
Avail Cap(c_a), veh/h	902	1132	258	2157		1772	790
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	25.1	17.7	29.3	6.3		18.4	15.7
Incr Delay (d2), s/veh	1.5	0.4	44.0	0.1		1.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	8.4	6.9	1.4		6.5	3.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	26.6	18.1	73.3	6.4		20.0	16.3
LnGrp LOS	C	B	E	A		B	B
Approach Vol, veh/h	1022			806		1355	
Approach Delay, s/veh	22.2			26.9		19.2	
Approach LOS	C			C		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		48.0		21.0	15.0	33.0	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		7.1		12.4	11.5	20.0	
Green Ext Time (p_c), s		3.8		2.2	0.0	6.9	

Intersection Summary		
HCM 6th Ctrl Delay		22.1
HCM 6th LOS		C

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

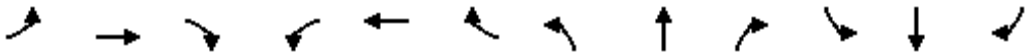
Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	110	170	90	40	10
Future Vol, veh/h	0	110	170	90	40	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	133	205	108	48	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	313	0	-	0	392	259
Stage 1	-	-	-	-	259	-
Stage 2	-	-	-	-	133	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1247	-	-	-	612	780
Stage 1	-	-	-	-	784	-
Stage 2	-	-	-	-	893	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1247	-	-	-	612	780
Mov Cap-2 Maneuver	-	-	-	-	612	-
Stage 1	-	-	-	-	784	-
Stage 2	-	-	-	-	893	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1247	-	-	-	640
HCM Lane V/C Ratio	-	-	-	-	0.094
HCM Control Delay (s)	0	-	-	-	11.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	30	120	90	40	30	210	860	110	20	480	30
Future Volume (veh/h)	10	30	120	90	40	30	210	860	110	20	480	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	33	133	100	44	33	233	956	122	22	533	33
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	221	187	336	497	421	212	1060	135	31	791	49
Arrive On Green	0.04	0.12	0.12	0.19	0.27	0.27	0.12	0.33	0.33	0.02	0.23	0.23
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3170	404	1781	3399	210
Grp Volume(v), veh/h	11	33	133	100	44	33	233	536	542	22	278	288
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1798	1781	1777	1833
Q Serve(g_s), s	0.4	1.1	5.4	3.2	1.2	1.0	8.0	19.3	19.3	0.8	9.6	9.6
Cycle Q Clear(g_c), s	0.4	1.1	5.4	3.2	1.2	1.0	8.0	19.3	19.3	0.8	9.6	9.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.22	1.00		0.11
Lane Grp Cap(c), veh/h	74	221	187	336	497	421	212	594	601	31	413	426
V/C Ratio(X)	0.15	0.15	0.71	0.30	0.09	0.08	1.10	0.90	0.90	0.70	0.67	0.68
Avail Cap(c_a), veh/h	411	836	709	411	836	709	212	612	619	93	493	508
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.0	26.6	28.5	23.4	18.5	18.5	29.5	21.3	21.3	32.8	23.4	23.4
Incr Delay (d2), s/veh	0.9	0.3	4.9	0.5	0.1	0.1	90.1	16.4	16.3	24.9	2.8	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.5	2.3	1.4	0.5	0.4	8.5	9.7	9.8	0.5	3.9	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.9	26.9	33.4	23.9	18.6	18.6	119.7	37.7	37.6	57.7	26.2	26.2
LnGrp LOS	C	C	C	C	B	B	F	D	D	E	C	C
Approach Vol, veh/h		177			177			1311			588	
Approach Delay, s/veh		32.1			21.6			52.2			27.4	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	28.8	16.7	14.4	14.0	22.0	6.8	24.3
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.8	21.3	5.2	7.4	10.0	11.6	2.4	3.2
Green Ext Time (p_c), s	0.0	1.1	0.2	0.6	0.0	1.8	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	41.8
HCM 6th LOS	D

APPENDIX I

ANALYSIS WORKSHEETS – LONG-TERM + PROJECT

Intersection	
Int Delay, s/veh	732

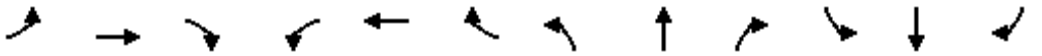
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	140	220	362	425	601	340
Future Vol, veh/h	140	220	362	425	601	340
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	159	250	411	483	683	386

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2181	876	1069	0	-	0
Stage 1	876	-	-	-	-	-
Stage 2	1305	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 51	348	652	-	-	-
Stage 1	407	-	-	-	-	-
Stage 2	254	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 7	348	652	-	-	-
Mov Cap-2 Maneuver	~ 7	-	-	-	-	-
Stage 1	~ 56	-	-	-	-	-
Stage 2	254	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, $	4226.1	9	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	652	-	7	348	-	-
HCM Lane V/C Ratio	0.631	-	22.727	0.718	-	-
HCM Control Delay (s)	19.5	$ 0	10807.8	37.8	-	-
HCM Lane LOS	C	A	F	E	-	-
HCM 95th %tile Q(veh)	4.5	-	21.8	5.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	30	140	0	70	30	637	180	160	602	10
Future Volume (veh/h)	10	0	30	140	0	70	30	637	180	160	602	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	34	159	0	80	34	724	205	182	684	11
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	26	0	81	199	0	177	86	804	682	206	1782	29
Arrive On Green	0.07	0.00	0.07	0.11	0.00	0.11	0.05	0.43	0.43	0.12	0.50	0.50
Sat Flow, veh/h	398	0	1231	1781	0	1585	1781	1870	1585	1781	3579	58
Grp Volume(v), veh/h	45	0	0	159	0	80	34	724	205	182	339	356
Grp Sat Flow(s),veh/h/ln	1629	0	0	1781	0	1585	1781	1870	1585	1781	1777	1860
Q Serve(g_s), s	1.9	0.0	0.0	6.2	0.0	3.4	1.3	25.8	6.1	7.2	8.5	8.5
Cycle Q Clear(g_c), s	1.9	0.0	0.0	6.2	0.0	3.4	1.3	25.8	6.1	7.2	8.5	8.5
Prop In Lane	0.24		0.76	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	108	0	0	199	0	177	86	804	682	206	885	926
V/C Ratio(X)	0.42	0.00	0.00	0.80	0.00	0.45	0.40	0.90	0.30	0.88	0.38	0.38
Avail Cap(c_a), veh/h	659	0	0	199	0	177	206	911	772	206	885	926
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	0.0	0.0	31.0	0.0	29.8	33.1	19.0	13.4	31.2	11.2	11.2
Incr Delay (d2), s/veh	2.6	0.0	0.0	20.2	0.0	1.8	3.0	11.0	0.2	32.8	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	3.7	0.0	1.3	0.6	11.6	1.9	4.7	2.8	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	0.0	0.0	51.2	0.0	31.6	36.1	30.0	13.6	64.0	11.4	11.4
LnGrp LOS	C	A	A	D	A	C	D	C	B	E	B	B
Approach Vol, veh/h		45			239			963			877	
Approach Delay, s/veh		34.7			44.6			26.7			22.3	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.5	36.2		10.2	7.6	41.1		12.7				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	9.2	27.8		3.9	3.3	10.5		8.2				
Green Ext Time (p_c), s	0.0	3.0		0.2	0.0	3.9		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		27.1	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

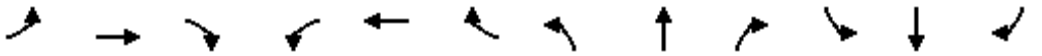
Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	772	10	26	707	10	10
Future Vol, veh/h	772	10	26	707	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	821	11	28	752	11	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	832	0	1259	416
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	432	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	796	-	163	585
Stage 1	-	-	-	-	390	-
Stage 2	-	-	-	-	622	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	796	-	157	585
Mov Cap-2 Maneuver	-	-	-	-	157	-
Stage 1	-	-	-	-	390	-
Stage 2	-	-	-	-	600	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	20.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	248	-	-	796	-
HCM Lane V/C Ratio	0.086	-	-	0.035	-
HCM Control Delay (s)	20.9	-	-	9.7	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	631	34	60	602	40	52	10	40	150	20	50
Future Volume (veh/h)	42	631	34	60	602	40	52	10	40	150	20	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	47	701	38	67	669	44	58	11	44	167	22	56
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	117	949	51	125	1008	449	153	40	159	271	81	206
Arrive On Green	0.07	0.28	0.28	0.07	0.28	0.28	0.09	0.12	0.12	0.15	0.17	0.17
Sat Flow, veh/h	1781	3428	186	1781	3554	1585	1781	327	1308	1781	467	1189
Grp Volume(v), veh/h	47	363	376	67	669	44	58	0	55	167	0	78
Grp Sat Flow(s),veh/h/ln	1781	1777	1837	1781	1777	1585	1781	0	1635	1781	0	1656
Q Serve(g_s), s	1.4	10.1	10.1	2.0	9.0	1.1	1.7	0.0	1.7	4.8	0.0	2.2
Cycle Q Clear(g_c), s	1.4	10.1	10.1	2.0	9.0	1.1	1.7	0.0	1.7	4.8	0.0	2.2
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.80	1.00		0.72
Lane Grp Cap(c), veh/h	117	492	509	125	1008	449	153	0	199	271	0	287
V/C Ratio(X)	0.40	0.74	0.74	0.54	0.66	0.10	0.38	0.00	0.28	0.62	0.00	0.27
Avail Cap(c_a), veh/h	233	719	743	200	1379	615	262	0	1053	370	0	1143
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.4	17.9	17.9	24.4	17.2	14.3	23.5	0.0	21.7	21.6	0.0	19.5
Incr Delay (d2), s/veh	2.2	2.3	2.2	3.5	0.8	0.1	1.5	0.0	0.7	2.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.7	3.8	0.9	3.1	0.4	0.7	0.0	0.6	2.0	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.6	20.1	20.1	27.9	17.9	14.4	25.0	0.0	22.4	23.8	0.0	20.0
LnGrp LOS	C	C	C	C	B	B	C	A	C	C	A	B
Approach Vol, veh/h		786			780			113			245	
Approach Delay, s/veh		20.5			18.6			23.8			22.6	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	20.5	10.2	15.4	8.0	20.8	13.0	12.6
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	4.0	12.1	3.7	4.2	3.4	11.0	6.8	3.7
Green Ext Time (p_c), s	0.0	2.9	0.0	0.5	0.0	3.1	0.2	0.3

Intersection Summary	
HCM 6th Ctrl Delay	20.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	31	71	10	22	92
Future Vol, veh/h	10	31	71	10	22	92
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	36	84	12	26	108

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	250	90	0	0	96	0
Stage 1	90	-	-	-	-	-
Stage 2	160	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	739	968	-	-	1498	-
Stage 1	934	-	-	-	-	-
Stage 2	869	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	726	968	-	-	1498	-
Mov Cap-2 Maneuver	726	-	-	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	853	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	1.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	895	1498	-
HCM Lane V/C Ratio	-	-	0.054	0.017	-
HCM Control Delay (s)	-	-	9.3	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	312	130	170	460	0	554	367
Future Volume (veh/h)	312	130	170	460	0	554	367
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	335	140	183	495		596	395
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	541	841	258	2121		1258	561
Arrive On Green	0.16	0.16	0.14	0.60		0.35	0.35
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	335	140	183	495		596	395
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	4.6	1.9	5.0	3.3		6.6	11.0
Cycle Q Clear(g_c), s	4.6	1.9	5.0	3.3		6.6	11.0
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	541	841	258	2121		1258	561
V/C Ratio(X)	0.62	0.17	0.71	0.23		0.47	0.70
Avail Cap(c_a), veh/h	1218	1387	349	2741		2393	1068
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	20.1	13.1	20.8	4.8		12.8	14.2
Incr Delay (d2), s/veh	1.2	0.1	4.2	0.1		0.3	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.7	2.1	0.7		2.0	3.2
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	21.3	13.2	25.0	4.9		13.1	15.8
LnGrp LOS	C	B	C	A		B	B
Approach Vol, veh/h	475			678		991	
Approach Delay, s/veh	18.9			10.3		14.2	
Approach LOS	B			B		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		36.6		14.5	12.4	24.2	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		5.3		6.6	7.0	13.0	
Green Ext Time (p_c), s		3.3		1.4	0.1	5.1	

Intersection Summary		
HCM 6th Ctrl Delay	14.0	
HCM 6th LOS	B	

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

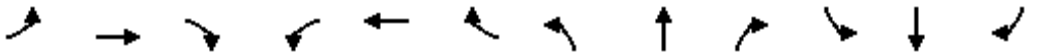
Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	202	71	51	112	10
Future Vol, veh/h	0	202	71	51	112	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	243	86	61	135	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	147	0	-	0	360	117
Stage 1	-	-	-	-	117	-
Stage 2	-	-	-	-	243	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1435	-	-	-	639	935
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	797	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1435	-	-	-	639	935
Mov Cap-2 Maneuver	-	-	-	-	639	-
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	797	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1435	-	-	-	656
HCM Lane V/C Ratio	-	-	-	-	0.224
HCM Control Delay (s)	0	-	-	-	12.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.9



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	20	254	90	20	30	172	452	130	20	507	10
Future Volume (veh/h)	10	20	254	90	20	30	172	452	130	20	507	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	22	282	100	22	33	191	502	144	22	563	11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	394	334	314	647	548	192	787	224	31	706	14
Arrive On Green	0.04	0.21	0.21	0.18	0.35	0.35	0.11	0.29	0.29	0.02	0.20	0.20
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2729	778	1781	3565	70
Grp Volume(v), veh/h	11	22	282	100	22	33	191	326	320	22	280	294
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1730	1781	1777	1858
Q Serve(g_s), s	0.4	0.7	12.7	3.6	0.6	1.0	8.0	11.9	12.0	0.9	11.2	11.2
Cycle Q Clear(g_c), s	0.4	0.7	12.7	3.6	0.6	1.0	8.0	11.9	12.0	0.9	11.2	11.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		0.04
Lane Grp Cap(c), veh/h	73	394	334	314	647	548	192	512	499	31	352	368
V/C Ratio(X)	0.15	0.06	0.84	0.32	0.03	0.06	1.00	0.64	0.64	0.72	0.80	0.80
Avail Cap(c_a), veh/h	371	754	639	371	754	639	192	552	537	84	444	465
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.4	23.5	28.2	26.7	16.1	16.3	33.2	23.1	23.1	36.4	28.4	28.4
Incr Delay (d2), s/veh	0.9	0.1	5.9	0.6	0.0	0.0	64.1	2.2	2.3	26.8	7.8	7.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	5.2	1.6	0.2	0.4	6.6	4.9	4.8	0.6	5.2	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.4	23.5	34.0	27.3	16.1	16.3	97.3	25.2	25.5	63.2	36.2	36.0
LnGrp LOS	D	C	C	C	B	B	F	C	C	E	D	D
Approach Vol, veh/h		315			155			837			596	
Approach Delay, s/veh		33.4			23.4			41.8			37.1	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	27.8	17.1	22.2	14.0	21.1	7.0	32.2
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.9	14.0	5.6	14.7	10.0	13.2	2.4	3.0
Green Ext Time (p_c), s	0.0	2.5	0.1	1.0	0.0	1.5	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	37.4
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	5255.9

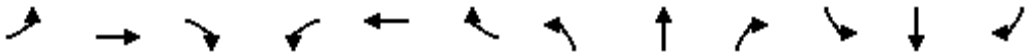
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	160	343	211	792	965	250
Future Vol, veh/h	160	343	211	792	965	250
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	182	390	240	900	1097	284

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2619	1239	1381	0	-	0
Stage 1	1239	-	-	-	-	-
Stage 2	1380	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 27	~ 214	496	-	-	-
Stage 1	273	-	-	-	-	-
Stage 2	233	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 1	~ 214	496	-	-	-
Mov Cap-2 Maneuver	~ 1	-	-	-	-	-
Stage 1	~ 9	-	-	-	-	-
Stage 2	233	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 28423.8	4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	496	-	1	214	-	-
HCM Lane V/C Ratio	0.483	-	181.818	1.821	-	-
HCM Control Delay (s)	18.9	0	$ 88445	$ 425.6	-	-
HCM Lane LOS	C	A	F	F	-	-
HCM 95th %tile Q(veh)	2.6	-	25.3	27.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	20	190	0	170	50	803	80	30	1138	20
Future Volume (veh/h)	10	0	20	190	0	170	50	803	80	30	1138	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	23	216	0	193	57	912	91	34	1293	23
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	0	61	202	0	180	119	926	785	98	1727	31
Arrive On Green	0.06	0.00	0.06	0.11	0.00	0.11	0.07	0.50	0.50	0.06	0.48	0.48
Sat Flow, veh/h	532	0	1112	1781	0	1585	1781	1870	1585	1781	3572	64
Grp Volume(v), veh/h	34	0	0	216	0	193	57	912	91	34	643	673
Grp Sat Flow(s),veh/h/ln	1644	0	0	1781	0	1585	1781	1870	1585	1781	1777	1859
Q Serve(g_s), s	1.4	0.0	0.0	8.0	0.0	8.0	2.2	33.9	2.2	1.3	20.6	20.7
Cycle Q Clear(g_c), s	1.4	0.0	0.0	8.0	0.0	8.0	2.2	33.9	2.2	1.3	20.6	20.7
Prop In Lane	0.32		0.68	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	91	0	0	202	0	180	119	926	785	98	859	899
V/C Ratio(X)	0.37	0.00	0.00	1.07	0.00	1.07	0.48	0.98	0.12	0.35	0.75	0.75
Avail Cap(c_a), veh/h	676	0	0	202	0	180	210	926	785	210	880	921
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	0.0	0.0	31.2	0.0	31.2	31.7	17.5	9.5	32.1	14.7	14.7
Incr Delay (d2), s/veh	2.5	0.0	0.0	82.6	0.0	87.7	3.0	25.7	0.1	2.1	3.5	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	7.9	0.0	7.3	1.0	17.9	0.6	0.6	7.4	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	0.0	0.0	113.8	0.0	119.0	34.7	43.3	9.6	34.1	18.2	18.1
LnGrp LOS	C	A	A	F	A	F	C	D	A	C	B	B
Approach Vol, veh/h		34			409			1060			1350	
Approach Delay, s/veh		34.7			116.2			39.9			18.6	
Approach LOS		C			F			D			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	40.3		9.4	8.9	39.5		12.7				
Change Period (Y+Rc), s	* 4.2	5.4		5.5	* 4.2	5.4		4.7				
Max Green Setting (Gmax), s	* 8.3	34.9		29.0	* 8.3	34.9		8.0				
Max Q Clear Time (g_c+I1), s	3.3	35.9		3.4	4.2	22.7		10.0				
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	6.3		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		40.7	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

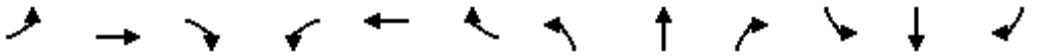
Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1208	10	48	843	10	10
Future Vol, veh/h	1208	10	48	843	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1285	11	51	897	11	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1296	0	1842	648
Stage 1	-	-	-	-	1291	-
Stage 2	-	-	-	-	551	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	531	-	67	413
Stage 1	-	-	-	-	222	-
Stage 2	-	-	-	-	541	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	531	-	61	413
Mov Cap-2 Maneuver	-	-	-	-	61	-
Stage 1	-	-	-	-	222	-
Stage 2	-	-	-	-	489	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	47.3
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	106	-	-	531	-
HCM Lane V/C Ratio	0.201	-	-	0.096	-
HCM Control Delay (s)	47.3	-	-	12.5	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	0.7	-	-	0.3	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	1076	92	40	733	90	55	10	30	60	10	40
Future Volume (veh/h)	68	1076	92	40	733	90	55	10	30	60	10	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	1196	102	44	814	100	61	11	33	67	11	44
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	1236	105	93	1216	542	153	51	154	181	41	166
Arrive On Green	0.08	0.37	0.37	0.05	0.34	0.34	0.09	0.12	0.12	0.10	0.13	0.13
Sat Flow, veh/h	1781	3314	282	1781	3554	1585	1781	412	1236	1781	327	1308
Grp Volume(v), veh/h	76	640	658	44	814	100	61	0	44	67	0	55
Grp Sat Flow(s),veh/h/ln	1781	1777	1820	1781	1777	1585	1781	0	1648	1781	0	1635
Q Serve(g_s), s	2.4	20.9	21.0	1.4	11.5	2.6	1.9	0.0	1.4	2.1	0.0	1.8
Cycle Q Clear(g_c), s	2.4	20.9	21.0	1.4	11.5	2.6	1.9	0.0	1.4	2.1	0.0	1.8
Prop In Lane	1.00		0.16	1.00		1.00	1.00		0.75	1.00		0.80
Lane Grp Cap(c), veh/h	151	662	678	93	1216	542	153	0	205	181	0	207
V/C Ratio(X)	0.50	0.97	0.97	0.47	0.67	0.18	0.40	0.00	0.21	0.37	0.00	0.27
Avail Cap(c_a), veh/h	214	662	678	184	1271	567	241	0	977	341	0	1039
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.8	18.1	18.2	27.2	16.6	13.6	25.5	0.0	23.3	24.7	0.0	23.3
Incr Delay (d2), s/veh	2.6	26.8	27.1	3.7	1.3	0.2	1.7	0.0	0.5	1.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	11.7	12.0	0.6	4.0	0.9	0.8	0.0	0.6	0.9	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.4	44.9	45.2	30.9	17.9	13.8	27.2	0.0	23.8	26.0	0.0	24.0
LnGrp LOS	C	D	D	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1374			958			105			122	
Approach Delay, s/veh		44.2			18.0			25.8			25.1	
Approach LOS		D			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	27.4	10.6	13.5	9.4	25.6	10.7	13.3
Change Period (Y+Rc), s	4.5	5.4	5.5	6.0	4.4	5.4	* 4.7	6.0
Max Green Setting (Gmax), s	6.1	22.0	8.0	37.5	7.1	21.1	* 11	35.0
Max Q Clear Time (g_c+I1), s	3.4	23.0	3.9	3.8	4.4	13.5	4.1	3.4
Green Ext Time (p_c), s	0.0	0.0	0.0	0.3	0.0	3.2	0.1	0.2

Intersection Summary	
HCM 6th Ctrl Delay	32.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	23	82	10	41	111
Future Vol, veh/h	10	23	82	10	41	111
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	27	96	12	48	131

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	329	102	0	0	108	0
Stage 1	102	-	-	-	-	-
Stage 2	227	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	665	953	-	-	1483	-
Stage 1	922	-	-	-	-	-
Stage 2	811	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	642	953	-	-	1483	-
Mov Cap-2 Maneuver	642	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	783	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	831	1483	-
HCM Lane V/C Ratio	-	-	0.047	0.033	-
HCM Control Delay (s)	-	-	9.5	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	468	490	230	525	0	993	273
Future Volume (veh/h)	468	490	230	525	0	993	273
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	503	527	247	565		1068	294
Peak Hour Factor	0.93	0.93	0.93	0.93		0.93	0.93
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	727	991	258	2158		1387	618
Arrive On Green	0.21	0.21	0.14	0.61		0.39	0.39
Sat Flow, veh/h	3456	2790	1781	3647		3647	1585
Grp Volume(v), veh/h	503	527	247	565		1068	294
Grp Sat Flow(s),veh/h/ln	1728	1395	1781	1777		1777	1585
Q Serve(g_s), s	9.3	10.4	9.5	5.1		18.1	9.6
Cycle Q Clear(g_c), s	9.3	10.4	9.5	5.1		18.1	9.6
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	727	991	258	2158		1387	618
V/C Ratio(X)	0.69	0.53	0.96	0.26		0.77	0.48
Avail Cap(c_a), veh/h	900	1130	258	2158		1769	789
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh	25.2	17.7	29.3	6.3		18.4	15.8
Incr Delay (d2), s/veh	1.7	0.4	44.5	0.1		1.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.1	6.9	1.4		6.5	3.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	26.9	18.2	73.8	6.4		20.0	16.3
LnGrp LOS	C	B	E	A		B	B
Approach Vol, veh/h	1030			812		1362	
Approach Delay, s/veh	22.4			26.9		19.2	
Approach LOS	C			C		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		48.1		21.0	15.0	33.1	
Change Period (Y+Rc), s		* 6.1		6.5	5.0	* 6.1	
Max Green Setting (Gmax), s		* 39		18.0	10.0	* 34	
Max Q Clear Time (g_c+I1), s		7.1		12.4	11.5	20.1	
Green Ext Time (p_c), s		3.9		2.2	0.0	6.9	

Intersection Summary		
HCM 6th Ctrl Delay	22.2	
HCM 6th LOS	C	

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

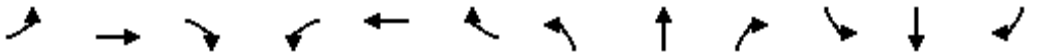
Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	111	172	93	41	10
Future Vol, veh/h	0	111	172	93	41	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	134	207	112	49	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	319	0	-	0	397	263
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	134	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1241	-	-	-	608	776
Stage 1	-	-	-	-	781	-
Stage 2	-	-	-	-	892	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1241	-	-	-	608	776
Mov Cap-2 Maneuver	-	-	-	-	608	-
Stage 1	-	-	-	-	781	-
Stage 2	-	-	-	-	892	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1241	-	-	-	635
HCM Lane V/C Ratio	-	-	-	-	0.097
HCM Control Delay (s)	0	-	-	-	11.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3



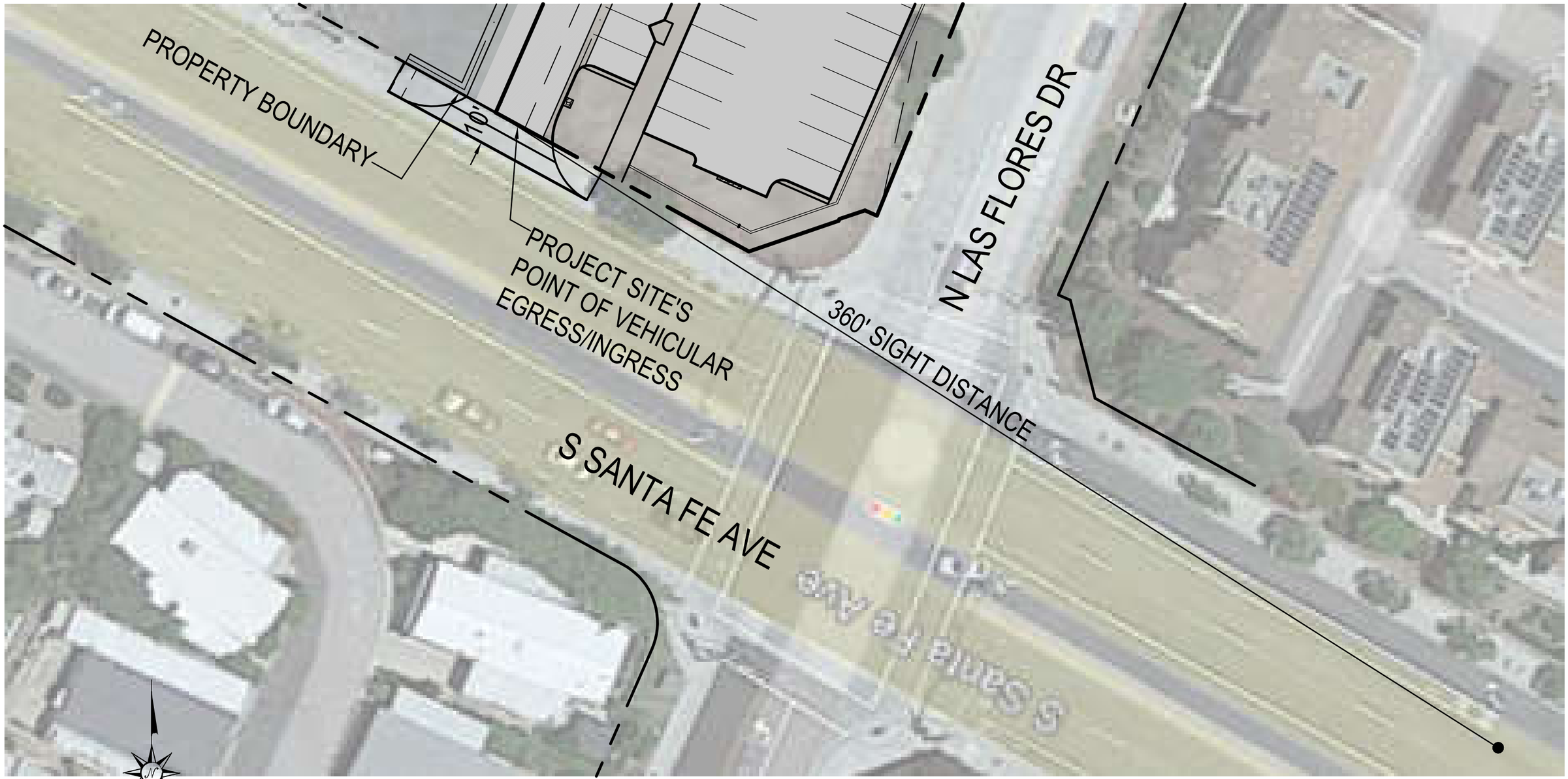
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	30	122	90	40	30	215	868	110	20	483	30
Future Volume (veh/h)	10	30	122	90	40	30	215	868	110	20	483	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	33	136	100	44	33	239	964	122	22	537	33
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	224	190	335	499	423	211	1062	134	31	794	49
Arrive On Green	0.04	0.12	0.12	0.19	0.27	0.27	0.12	0.33	0.33	0.02	0.23	0.23
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3173	402	1781	3401	209
Grp Volume(v), veh/h	11	33	136	100	44	33	239	540	546	22	280	290
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1798	1781	1777	1833
Q Serve(g_s), s	0.4	1.1	5.6	3.3	1.2	1.1	8.0	19.6	19.6	0.8	9.7	9.7
Cycle Q Clear(g_c), s	0.4	1.1	5.6	3.3	1.2	1.1	8.0	19.6	19.6	0.8	9.7	9.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.22	1.00		0.11
Lane Grp Cap(c), veh/h	74	224	190	335	499	423	211	594	601	31	415	428
V/C Ratio(X)	0.15	0.15	0.72	0.30	0.09	0.08	1.13	0.91	0.91	0.70	0.68	0.68
Avail Cap(c_a), veh/h	410	832	705	410	832	705	211	609	616	92	490	506
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	26.6	28.6	23.5	18.6	18.5	29.7	21.4	21.4	32.9	23.5	23.5
Incr Delay (d2), s/veh	0.9	0.3	5.0	0.5	0.1	0.1	101.4	17.3	17.2	25.0	2.9	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.5	2.3	1.4	0.5	0.4	9.1	9.9	10.0	0.6	4.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.1	26.9	33.5	24.0	18.6	18.6	131.1	38.7	38.6	57.9	26.4	26.4
LnGrp LOS	C	C	C	C	B	B	F	D	D	E	C	C
Approach Vol, veh/h		180			177			1325			592	
Approach Delay, s/veh		32.2			21.7			55.4			27.6	
Approach LOS		C			C			E			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	28.9	16.7	14.6	14.0	22.1	6.8	24.5
Change Period (Y+Rc), s	6.0	6.4	4.0	6.5	6.0	6.4	4.0	6.5
Max Green Setting (Gmax), s	3.5	23.1	15.5	30.0	8.0	18.6	15.5	30.0
Max Q Clear Time (g_c+I1), s	2.8	21.6	5.3	7.6	10.0	11.7	2.4	3.2
Green Ext Time (p_c), s	0.0	1.0	0.2	0.6	0.0	1.8	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	43.7
HCM 6th LOS	D

APPENDIX J

SIGHT DISTANCE EXHIBIT



SIGHT DISTANCE EXHIBIT

2972 S. SANTA FE APARTMENTS

PLSA JOB NO. 3527
07-26-2022
SHEET 1 OF 1

NOTES

* DISTANCES FOLLOW THE CALTRANS HIGHWAY DESIGN MANUAL, CHAPTER 200, INDEX 201.1, ASSUMING A 45MPH SPEED LIMIT ON S SANTA FE AVENUE

PASCO LARET SUITER & ASSOCIATES
San Diego | Encinitas | Orange County
Phone 858.259.8212 | www.plsaengineering.com

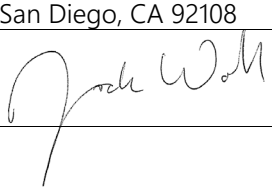
SAVE DATE: 07/26/22 ~ PLOT DATE: 07/26/22 ~ FILE NAME: J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\DRAWING\EXHIBITS\Sight Distance\3527-SIGHT-DISTANCE-EXHIBIT.dwg

ATTACHMENT D.4

BIOLOGICAL RESOURCES LETTER REPORT

RECON

An Employee-Owned Company

Project Name and Number:	Santa Fe Flores Townhomes (modified project; GPA25-0001; R25-0001; MFSDP25-0001; TSM25-0001)
Report:	Biological Resources Letter Report
Date:	March 24, 2026
Project Proponent:	Santa Fe Flores LP P.O. Box 903 Rancho Santa Fe, CA 92067
Prepared for:	City of San Marcos
City-approved CEQA Consultant:	Jade Woll RECON Environmental, Inc. 3111 Camino del Rio North, Suite 600 San Diego, CA 92108
Signature of City-approved CEQA Consultant:	

1.0 INTRODUCTION, PROJECT DESCRIPTION, AND LOCATION

On February 28, 2023, the City of San Marcos City Council adopted a Mitigated Negative Declaration (MND; ND22-008; SCH No. 2022090486), approved a General Plan Amendment (GPA) (GPA21-0008), and approved a Multi-Family Site Development Plan (MFSDP21-0002) for the Santa Fe Flores, LP Project (approved project). The requested Rezone (R21-0004) required a second reading prior to approval on March 14, 2023. A biological resources survey report was prepared in 2022 for the approved project which evaluated the impacts associated with a GPA to change the land use from Commercial (C) and Light Industrial (L-I) to Medium Density Residential 2 (MDR2) and a zone change from Commercial (C) and Light Industrial (L-I) to Multi-Family Residential (R-3-10) to allow for the construction of 50 dwelling units, in conjunction with a Density Bonus, on a 2.53-acre site (2.23 net acres) consisting of two parcels, assessor parcel numbers (APNs) 217-161-18 and 217-161-19.

Subsequent to MND approval, the applicant modified the site plan (modified project) and added 0.37 acres of APN 217-161-17. The modified project would develop 46 multi-family residential townhome units in seven buildings that would be three stories and 35 feet 4 inches in height. Vehicle parking would include 92 spaces within attached garages and 15 guest spaces.

The modified project site totals 2.6 net acres [2.23 acres plus 0.37 acres (added with modified project; see above)]. The modified project also proposes approximately 0.12 acres of off-site improvements, including the construction of a new shared driveway extending into the southern portion of APN 217-161-17, upgrades to the existing liquor store parking lot, and landscaping within the eight-foot-wide irrevocable offer of dedication area along the project frontage. The liquor store would not be part of the modified project and would remain. Project grading would include 23,300 cubic yards of cut and 3,200 cubic yards of fill, resulting in the export of 20,100 cubic yards of soil.

An addendum (Addendum No. 1) has been prepared to assess impacts associated with the modified project. This report describes the results of the biological resources survey conducted for the approved project in 2022, as well as the updated biological resources survey conducted for the modified project in 2024.

The modified project is located in San Marcos, California (Figure 1), in the Los Vallecitos de San Marcos Land Grant, of the U.S. Geological Survey (USGS) 7.5-minute topographic map, San Marcos (Figure 2; USGS 1996). It is located west of North Las Flores Drive, north of South Santa Fe Avenue and north of State Route 78. The project occurs within APNs 217-161-18, 217-161-19, and a portion of 217-161-17 (Figure 3). The modified project is located within a developed area and is bounded by an existing multi-family residential development located east of North Las Flores Drive, by South Santa Fe Avenue to the south, existing industrial to the north and west, and an existing liquor store and parking lot to the southwest. The Sprinter railroad tracks and single-family residential homes off North Las Flores Drive are north and northeast of the modified project, and the Vista Meadows mobile home community is south of South Santa Fe Avenue across from the modified project (Figure 3).

2.0 ENVIRONMENTAL SETTING

The modified project is located within a developed area surrounded by light-industrial, residential, and commercial properties on all sides of the project. The City of San Marcos (City) adheres to the draft Subarea Plan under the Multiple Habitat Conservation Program (MHCP), though it has not been formally approved (City of San Marcos 2001). The MHCP is a habitat conservation plan for the seven jurisdictional areas within the northern subregion of San Diego County, including San Marcos (San Diego Association of Governments [SANDAG] 2003). This draft City of San Marcos Subarea Plan identifies a series of focused planning areas (FPA) within which some lands will be dedicated for preservation of native habitats. These areas contain both "hardline" preserve areas, which will ultimately be preserved as open space, and "softline" planning areas, which will include some areas that ultimately will become preserves and other areas that will ultimately be developed, as determined through the planning process. The modified project is located outside of any hardline preserve areas or softline planning areas identified by the draft City of San Marcos Subarea Plan. The nearest hardline reserve is approximately 2,000 feet east and northeast of the modified project.

Areas just outside the City of San Marcos within unincorporated San Diego County are within the planning boundaries of the San Diego Multiple Species Conservation Program draft North County Plan. The modified project is outside of and situated approximately 1,500 feet south of these areas, which are identified in the draft North County Plan as "Outside Open Space Network" indicating they are not intended for conservation lands (Figure 4).

3.0 SURVEY METHODS

RECON Environmental, Inc. (RECON) biologist Jade Woll conducted an initial biological survey of the approved project on March 3, 2022 (Figure 5). The modified project was surveyed by RECON biologist Danelle Gadia on October 31, 2024 (Figure 5) within an approximately 2.7-acre survey area, including on-site and off-site areas to be potentially impacted. The 2024 survey determined the current condition of the biological resources present within the modified project. Prior to conducting field surveys in both 2022 and 2024, a review of publicly available data was conducted to determine the potential for special-status species to occur within the project site. The review included data provided by U.S. Fish and Wildlife Service (USFWS) (USFWS 2024), California Natural Diversity Database (CNDDB; CDFW 2024a), and California Native Plant Society (CNPS 2024).

During the field survey, habitats were assessed for their potential to support special-status species, and all incidentally observed species were recorded. No focused special-status species surveys were conducted. All plant and wildlife species observed during the general survey are presented in Attachments 2 and 3, respectively. Plant or wildlife species are considered special status if they are: (1) covered or listed as a narrow endemic under the MHCP (SANDAG 2003); (2) listed by state or federal agencies as threatened or endangered or are proposed for listing; (3) included on CNPS California Rare Plant Ranks 1, 2, 3, or 4 (CNPS 2024); or (4) considered rare, endangered, or threatened by local conservation organizations or specialists (Reiser 2001).

4.0 VEGETATION COMMUNITIES/LAND COVER TYPES

Two vegetation communities/land cover types were identified within the survey area: disturbed land and urban/developed. The acreages of each vegetation community/land cover type within the survey area are presented in Table 1 and depicted in Figure 6. Under the MHCP, environmentally sensitive lands are categorized into different habitat groups of sensitivity. Group A consists of wetland/riparian habitats, which are considered the most sensitive of habitats. Upland vegetation communities that are classified as Group B (rare uplands), Group C (coastal sage scrub), Group D (chaparral), and Group E (annual [non-native] grasslands) are considered sensitive by the MHCP. Group F (other lands), which includes disturbed lands, is not considered sensitive (SANDAG 2003).

Table 1
Land Cover Types within the Modified Project Survey Area

Land Cover Types (Holland Code as modified by Oberbauer)	MHCP Group	Total (acres)[1,3]
Disturbed Land (11300)	F	2.3
Urban/Developed (12000)	--[2]	0.4
TOTAL[1,3]		**2.7**

MHCP = Multiple Habitat Conservation Program
[1]Includes off-site improvement area. Rounded to the nearest tenth of an acre. Any discrepancies in totals are due to rounding.
[2]No MHCP assigned group.
[3]Total acres includes approved project acreage (2.3 acres) plus modified project acreage (0.4 acres).

Disturbed Land. Disturbed land consists of areas that may have been disturbed by human activity and no longer function as a native vegetation community. Vegetation in such areas is typically dominated by opportunistic non-native species but may also contain a substantial portion of bare ground. Disturbed land can also include areas that have been previously graded, repeatedly cleared for fuel management, and/or experience repeated use (e.g., off-road-vehicle trails and construction staging sites) (Oberbauer et al. 2008).

Disturbed land occurs within the majority of the survey area and includes areas that have been disturbed through frequent off-roading activity (Attachment 1, Photographs 1 and 2). This land cover type includes non-native forbs and ornamental species with dominant species including telegraph weed (*Heterotheca grandiflora*), Russian thistle (*Salsola tragus*), bristly ox-tongue (*Helminthotheca echioides*), vanilla-scented wattle (*Acacia redolens*), and Peruvian pepper tree (*Schinus molle*). Several scattered native shrubs were identified throughout the disturbed land but these individual species were too few to form a distinct native habitat (see Figure 6). Disturbed land is classified as Group F by the MHCP. Impacts to Group F habitat types would not be considered significant and would not require mitigation.

Urban/Developed Land. Urban/developed land consists of any land that has been constructed upon, containing permanent or semi-permanent structures, pavement or hardscape, or landscaped areas that are regularly maintained and/or irrigated (Oberbauer et al. 2008). Urban/developed land includes a paved parking lot in the southwestern corner of the survey area and ornamental landscaping along the eastern edge of the survey area (see Figure 6 and Photograph 1). As noted in Section 1.0 above, the existing liquor store would not be part of the modified project and would remain.

5.0 WILDLIFE SPECIES

Wildlife species observed during the time of the survey include those typically found within disturbed and urban/developed land such as American crow (*Corvus brachyrhynchos*), house finch (*Haemorhous mexicanus*), California ground squirrel (*Otopermophilus beecheyi*), and black phoebe (*Sayornis nigricans*).

6.0 AQUATIC RESOURCES

A formal wetland delineation was not conducted; however, no potential jurisdictional wetlands or waters were observed within the modified project. Additionally, no vernal pools or depressions containing wetland or vernal pool plant species characteristic of vernal habitat were observed during the survey.

7.0 SPECIAL-STATUS SPECIES

7.1 Special Status Plant Species

One special status plant species, decumbent goldenbush (*Isocoma menziesii* var. *decumbens)*, was observed within the approved project during the 2022 biological survey (see Figure 6; RECON 2022). A total of 30 individuals were observed (Figure 6). No other sensitive plants were observed within the modified project area or are anticipated to occur due to high levels of disturbance within the BSA (e.g., off-roading activity, prevalence of non-native species). Additionally, thread-leaved brodiaea (*Brodiaea filifolia*) was not observed during the 2022 biological survey, which was conducted during the species blooming period (March–June) when vegetative stems/stalks or blooming individuals would have been visible. Furthermore, the modified project lacks suitable vernal pool and grassland habitat to support this species and consists of predominantly non-native species and heavily disturbed areas from frequent off-roading activity. A comprehensive list of sensitive plant species with a potential to occur within the BSA based on the records search is presented in Attachment 4 and includes species with potential to occur based on species range and habitat conditions (CDFW 2024b and 2024c).

7.2 Special Status Wildlife Species

No special status wildlife species were observed within the survey area; however, one special status wildlife species, Cooper's hawk (*Accipiter cooperii*), has a moderate potential to occur on-site. A comprehensive list of sensitive wildlife species with potential to occur in the survey area based on the record search is presented in Attachment 5 and includes species with potential to occur based on species range and habitat conditions (CDFW 2024a and 2024d; USFWS 2024).

Cooper's Hawk (Nesting). The Cooper's hawk is a CDFW watch list species (nesting) and a MHCP-covered species (CDFW 2024a; SANDAG 2003). This species has a moderate potential to occur due to the presence of suitable trees for nesting within the disturbed land and urban/developed within the survey area. No individuals or active nests were observed at the time of the survey.

Nesting/Migratory Birds. The survey area has the potential to support migratory and nesting birds. Under Section 3503 of the California Fish and Game Code (CFGC), it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 of the CFGC prohibits take, possession, or destruction of any birds in the orders Falconiformes (raptors) or Strigiformes (owls), or of their nests and eggs.

8.0 WILDLIFE CORRIDORS AND LINKAGES

Though it is reasonable to assume that urban-adapted species may occur locally within the modified project, the project as a whole does not function as a wildlife movement corridor and there is no indication that it supports any wildlife nursery sites. The modified project is outside any City FPAs and biological core and linkage areas (BCLA).

9.0 SIGNIFICANCE OF PROJECT IMPACTS AND PROPOSED MITIGATION

This section describes project impacts and recommended avoidance and mitigation measures based on the County's MHCP (SANDAG 2003) and Report Format and Content Recommendations for biological resources reports (City of San Marcos 2022).

9.1 Vegetation Community Impacts and Proposed Mitigation

The modified project would cause direct permanent impacts to 2.3 acres of disturbed land and 0.4 acres of urban/developed (Table 2; Figure 7). Impacts to disturbed land and urban/developed are not considered significant and, therefore, no mitigation would be required.

Table 2
Habitat/Vegetation Communities, Impacts, and Mitigation

Habitat/ Vegetation Community	Total Impacts (acres)[3]	Mitigation Ratio	Mitigation Required (acres)
Disturbed Land (Group F)	2.3	0:1	0.0
Urban/Developed (--[1])	0.4	N/A	N/A
TOTAL[2]	**2.7**	**-**	**0.0**

[1]No Multiple Habitat Conservation Program assigned group.
[2]Total acres include approved project acreage (2.3 acres) plus modified project acreage (0.4 acres).
[3]Rounded to nearest tenth of an acre. Any discrepancies in totals are due to rounding.
N/A = not applicable

9.2 Sensitive Plant Species

The modified project would result in direct permanent impacts to decumbent goldenbush, an impact that was disclosed in the MND for the approved project. No additional sensitive plant species were observed within the additional 0.4 acres of the modified project area in 2024. Project impacts to sensitive plant species would be limited to decumbent goldenbush within the previously approved project footprint. The 2023 MND concluded that these impacts are less than significant because the habitat for decumbent goldenbush is of marginal quality due to heavy disturbance and comprises a small fraction of the habitat available to this species both at a local level (within the City) and on a regional scale. Because the modified project does not result in any additional impacts to this species beyond that which was disclosed for the approved project, the impacts that would occur to sensitive plants would remain less than significant and no mitigation would be required.

9.3 Sensitive Wildlife Species

Migratory and Nesting Birds. Direct impacts to migratory and nesting birds, including Cooper's hawk, could result from the accidental destruction of nests during project construction activities. These impacts could occur if removal of suitable habitat for these species, such as the ornamental trees that ring the survey area were to occur during the general bird breeding season (between February 1 and September 15). Therefore, mitigation measure BIO-1 from the

MND will be implemented during construction to prevent direct impacts to migratory and nesting birds, including Cooper's hawk. Mitigation measure BIO-1 language from the MND is provided below for reference. Please note that the measure BIO-1 from the approved project used "March" and "September" as the dates within which surveys would be required. To provide greater specificity and ensure all migratory birds, including early nesting passerines and raptors are protected, minor edits to BIO-1 are provided below. In addition, impacts to nesting birds may occur up to 300 feet from the modified project footprint and as such, BIO-1 has been modified to clarify that surveys should be conducted within that survey distance prior to construction. New language is included in underline; removed language is shown in strike-through font:

BIO-1: If construction initiation occurs between ~~March~~ February 1 and September 15, a pre-construction nesting bird and raptor survey within 300 feet of the project impact area shall be completed by a qualified biologist prior to vegetation removal. The pre-construction survey shall be conducted within 10 calendar days prior to the start of construction activities (including removal of vegetation). If any active nests are detected, the area will be flagged and mapped along with a buffer as recommended by the qualified biologist. The buffer area(s) established by the qualified biologist will be avoided until the nesting cycle is complete or it is determined that the nest is no longer active. The qualified biologist shall be a person familiar with bird breeding behavior and capable of identifying the bird species of San Diego County by sight and sound and determining alterations of behavior as a result of human interaction. Buffers will be based on species-appropriate buffers and/or local topography and line of sight, species behavior and tolerance to disturbance, and existing disturbance levels, as determined appropriate by the qualified biologist.

9.4 Jurisdictional Wetlands and Waterways

No potential jurisdictional wetlands or waters were observed on-site. Therefore, there are no anticipated impacts to any jurisdictional wetlands or waterways and no mitigation would be required.

9.5 Wildlife Movement and Nursery Sites

Though it is reasonable to assume that urban-adapted species may occur locally within the impact footprint, the site as a whole does not function as a wildlife movement corridor and there is no indication that the site supports any wildlife nursery sites. Therefore, the project will not result in any impact to wildlife movement or nursery sites and no mitigation would be required.

The modified project also is outside any City FPAs and BCLA. Therefore, there are no impacts anticipated to wildlife movement corridors, wildlife nursery sites, FPAs, or a BCLA.

10.0 REFERENCES CITED

American Society of Mammalogists
2020 Mammalian Species (online). http://www.mammalsociety.org/publications/mammalian-species. July.

Bradley, R. D., L.K. Ammerman, R. J. Baker, L. C. Bradley, J. A. Cook, R. C. Dowler, C. Jones, D. J. Schimdly, F. B. Stangl Jr., R. A. Van Den Bussche, and B. Wursig
2014 Revised Checklist of North American Mammals North of Mexico. Occasional Papers, Museum of Texas Tech University No. 327. October.

Brenzel, K. N.
2001 *Sunset Western Garden Book*. Sunset Publishing. Menlo Park, California.

California Department of Fish and Wildlife (CDFW)
2024a Special Animals. Natural Diversity Database. Department of Fish and Wildlife. October.

2024b Special Vascular Plants, Bryophytes, and Lichens List. Natural Diversity Database. Department of Fish and Wildlife. October.

2024c State and Federally Listed Endangered, Threatened, and Rare Plants of California. October.

2024d State & Federally Listed Endangered & Threatened Animals of California. October.

California Native Plant Society (CNPS)
2024 Rare Plant Program. Inventory of Rare and Endangered Plants of California (online edition, v8-03). Sacramento, CA. Accessed in July. Available at http://www.rareplants.cnps.org.

Chesser, R. T., S. M. Billerman, K. J. Burns, C. Cicero, J. L. Dunn, B. E. Hernández-Baños, A. W. Kratter, I. J. Lovette, N. A. Mason, P. C. Rasmussen, J. V. Remsen, Jr., D. F. Stotz, and K. Winker
2021 Check-list of North American Birds (online). American Ornithological Society. http://checklist.aou.org/taxa.

Crother, B. I., Ronald M. Bonett, Jeff Boundy, Frank T. Burbrink, Kevin de Queiroz, Darrel R. Frost, Richard Highton, John B. Iverson, Elizabeth L. Jockusch, Fred Kraus, Kenneth L. Krysko, , Adam D. Leaché, Emilly Moriarty Lemmon, Roy W. McDiarmid, Joseph R. Mendelson III, Peter A. Meylan, Tod W. Reeder, Sara Ruane, and Michael E. Seidel
2017 *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in our Understanding,* Eighth Edition. Society for the Study of Amphibians and Reptiles Herpetological Circular No. 43.

Eriksen, Clyde, and Denton Belk
1999 *Fairy Shrimp of California's Puddles, Pools, and Playas.* Mad River Press, Eureka.

Evans, Arthur V.
2008 *Field Guide to Insects and Spiders of North America.* Sterling Publishing Company, New York.

Harvey, M. J., J. S. Altenbach, and T. L. Best
2011 *Bats of the United States and Canada*. The Johns Hopkins University Press, Baltimore.

Jennings, M. R., and M. P. Hayes
1994 Amphibian and Reptile Species of Special Concern in California. Final report submitted to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA. Contract number 8023.

Jepson Flora Project (eds.)
2020 Jepson eFlora, http://ucjeps.berkeley.edu/IJM.html.

Nature Festivals of San Diego County
2002 Checklist of Butterflies of San Diego County. Professional review by David Faulkner of the San Diego Natural History Museum and Dr. John Brown of the Smithsonian Institute. Revised September. http://www.sdnhm.org/science/entomology/projects/checklist-of-butterflies-of-san-diego-county/.

NatureServe
2021 NatureServe Explorer. www.natureserve.org.

Oberbauer, T., M. Kelly, and J. Buegge
2008 *Draft Vegetation Communities of San Diego County*. Based on "Preliminary Descriptions of the Terrestrial Natural Communities of California," Robert F. Holland, Ph.D., October 1986. March.

Page, L. M., H. Espinosa-Pérez, L. T. Findley, C. R. Gilbert, R. N. Lea, N. E. Mandrak, R. L. Mayden, and J. S. Nelson
2013 Common and scientific names of fishes from the United States, Canada, and Mexico, 7th edition. American Fisheries Society, Special Publication 34, Bethesda, Maryland.

Rebman, J. P., and M. G. Simpson
2014 Checklist of the Vascular Plants of San Diego County, 5th edition. San Diego Natural History Museum.

RECON Environmental, Inc.
2022 Biological Resources Report for the Santa Fe Flores Project (RECON Number 9865). November 29.

Reiser, C. H.
2001 Rare Plants of San Diego County. Aquafir Press. July.

San Diego, County of
2010 Guidelines for Determining Significance. Biological Resources, Land Use and Environment Group. Department of Planning and Land Use. Department of Public Works. Fourth Revision. September 15.

San Diego Association of Governments (SANDAG)
2003 Final MHCP Plan. Prepared for the Multiple Habitat Conservation Program for the Cities of Carlsbad, Encinitas, Escondido, San Marcos, Solana Beach, and Vista. Volumes I, II, and III. March.

San Marcos, City of
2001 Natural Community Conservation Plan for the City of San Marcos. Agency review draft, May.

2022 Report Format and Content Recommendations, Biological Resources Report. May. Available: https://www.san-marcos.net/home/showpublisheddocument/26428/637883135667770000

Tremor, Scott, D. Stokes, W. Spencer, J. Diffendorfer, H. Thomas, S. Chivers, and P. Unitt, eds.
2017 San Diego County Mammal Atlas. San Diego Natural History Museum.

Unitt, P. A.
2004 *San Diego County Bird Atlas*. San Diego Natural History Museum, Ibis, San Diego

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS)
2024 The PLANTS Database. National Plant Data Team, Greensboro, North Carolina, USA. Accessed from http://plants.usda.gov.

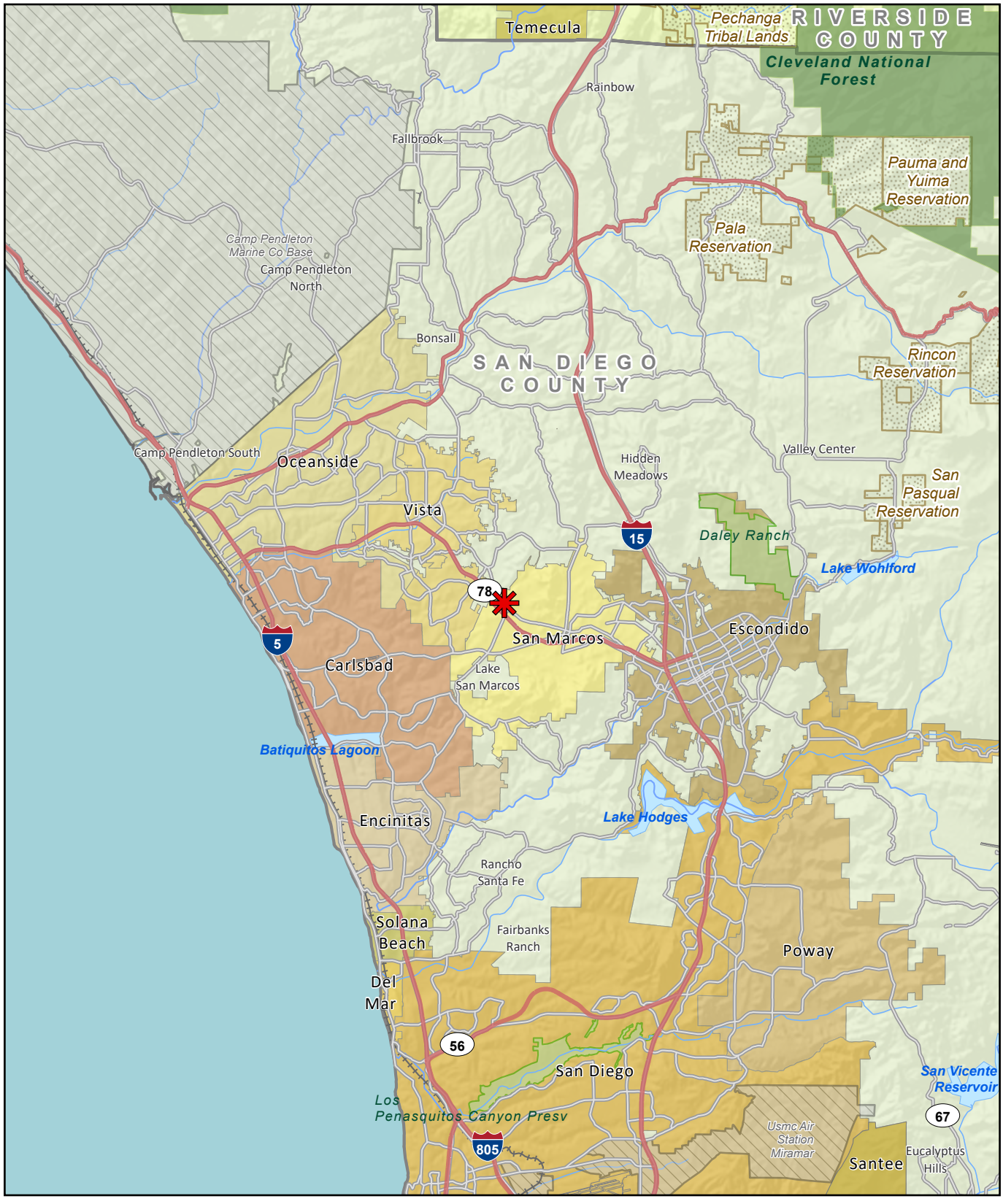
U.S. Fish and Wildlife Service (USFWS)
2024 Species Observation Database.

U.S. Geological Survey (USGS)
1996 7.5 minute topographic map series, San Marcos quadrangle, Los Vallecitos de San Marcos Land Grant.

Western Bat Working Group (WBWG)
2017 Western Bat Species (species accounts). http://wbwg.org/western-bat-species/.

11.0 LIST OF PREPARERS

RECON Environmental, Inc.
Jade Woll, Biologist
Danelle Gadia, Biologist
Benjamin Arp, GIS Specialist
Stacey Higgins, Senior Production Specialist
Steven Gaughran, Production Specialist



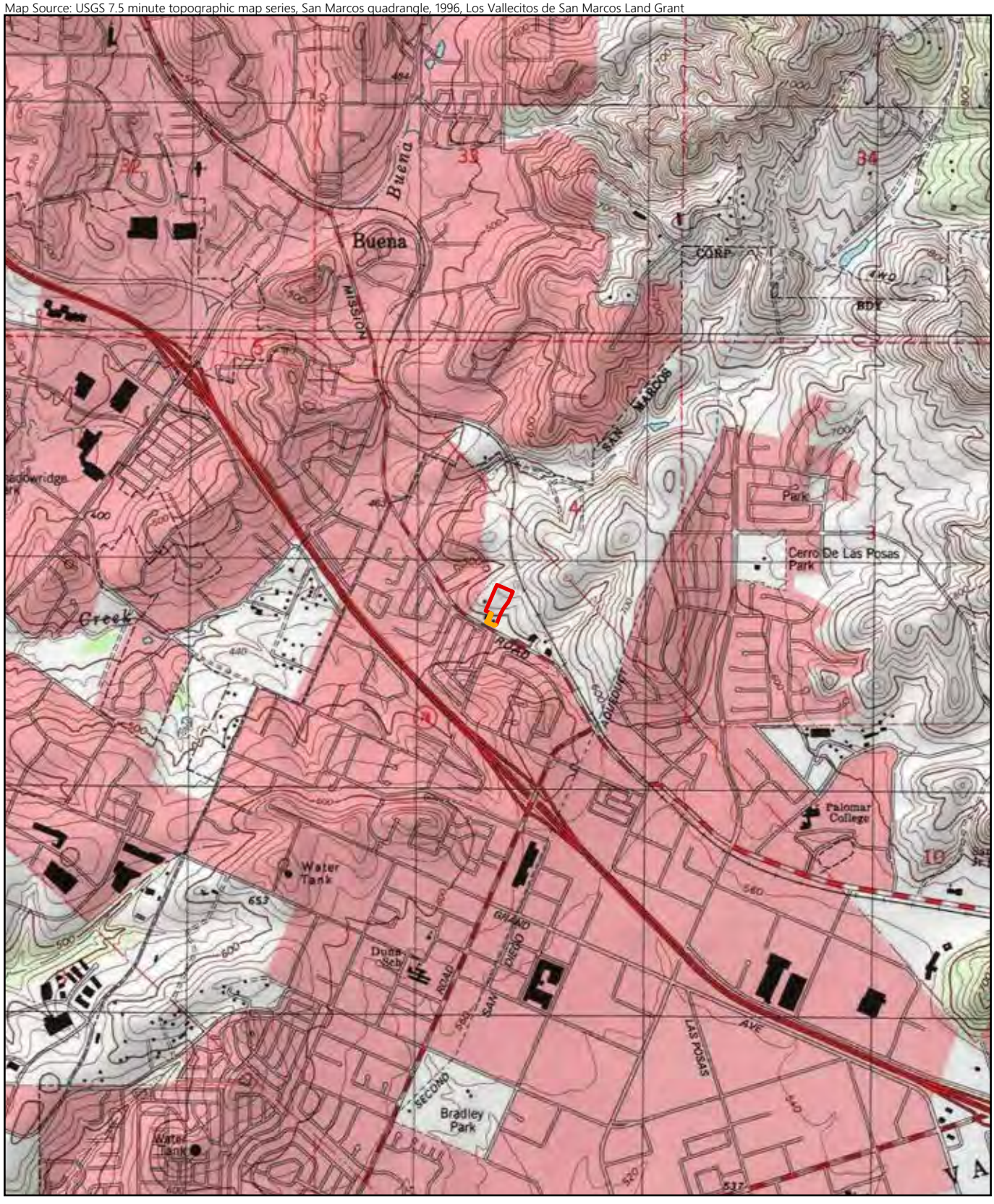
Project Location

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 10/29/2024 fmm

FIGURE 1
Regional Location

Map Source: USGS 7.5 minute topographic map series, San Marcos quadrangle, 1996, Los Vallecitos de San Marcos Land Grant



0 Feet 2,000

Project Boundary

Off-site Improvements

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 12/12/2025 bma

FIGURE 2
Project Location on USGS Map

Image Source: Nearmap (flown September 2025)

Project Boundary
Off-site Improvements
Approved Project
Modified Project
Parcels

0 Feet 150

FIGURE 3
Project Location on Aerial Photograph

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 12/12/2025 bma

Image Source: Nearmap (flown September 2025)

Project Boundary

Off-site Improvements

North County Draft MSCP

Outside Open Space Network

Draft San Marcos MHCP Subarea Plan

Focused Planning Areas

Hardline Preserve Area

Softline Planning Area

0 Feet 600

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 12/12/2025 bma

FIGURE 4

Project in Relation to MSCP Preserve Area

Image Source: Nearmap (flown September 2025)

Project Boundary
Off-site Improvements
Survey Area 2022 (Approved Project)
Survey Area 2024 (Modified Project)

0 Feet 100

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 12/12/2025 bma

FIGURE 5
Project Survey Areas

Image Source: Nearmap (flown September 2025)

Project Boundary
Off-site Improvements
Modified Project
Decumbent Goldenbush (*Isocoma menziezii decumbens*)

Vegetation Community
Disturbed Land
Urban/Developed

0 Feet 100

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 12/12/2025 bma

FIGURE 6
Existing Biological Resources

Image Source: Nearmap (flown September 2025)

Project Boundary
Off-site Improvements
Modified Project
Impact Areas

Decumbent Goldenbush
(*Isocoma menziezii decumbens*)

Vegetation Community
Disturbed Land
Urban/Developed

0 Feet 100

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 12/12/2025 bma

FIGURE 7
Impacts to Biological Resources

ATTACHMENTS

ATTACHMENT 1

Site Photographs

PHOTOGRAPH 1
View of Disturbed Land in Project Site, Facing Southeast

PHOTOGRAPH 2
View of Disturbed Land and Urban/Developed in Project Site, Facing Northwest

ATTACHMENT 2

Plant Species Observed

Attachment 2 Plant Species Observed			
Scientific Name	Common Name	Habitat	Origin
ANGIOSPERMS: MONOCOTS			
ARECACEAE	PALM FAMILY		
Washingtonia robusta	Mexican fan palm	DL	I
POACEAE (GRAMINEAE)	GRASS FAMILY		
Avena sp.	oats	DL	I
Bromus diandrus	ripgut grass	DL	I
Bromus rubens [=*Bromus madritensis* ssp. *rubens*]	red brome	DL	I
Festuca perennis [=*Lolium multiflorum* and *Lolium perenne*]	rye grass	DL	I
Hordeum murinum	wall barley	DL	I
Pennisetum setaceum	crimson fountain grass	DL	I
ANGIOSPERMS: EUDICOTS			
AIZOACEAE	FIG-MARIGOLD FAMILY		
Carpobrotus edulis	freeway iceplant	DL	I
ANACARDIACEAE	SUMAC OR CASHEW FAMILY		
Schinus molle L.	Peruvian pepper tree	DL	I
Searsia [=Rhus] lancea	African sumac	UD	I
APIACEAE (UMBELLIFERAE)	CARROT FAMILY		
Foeniculum vulgare	fennel	DL	I
ASTERACEAE	SUNFLOWER FAMILY		
Baccharis pilularis	chaparral broom, coyote brush	DL	N
Baccharis salicifolia ssp. *salicifolia*	mule fat, seep-willow	DL	N
Cynara cardunculus ssp. *flavescens*	cardoon, artichoke thistle	DL	I
Dittrichia graveolens	stinkwort	DL	I
Hedypnois cretica	Crete weed	DL	I

Attachment 2 Plant Species Observed			
Scientific Name	Common Name	Habitat	Origin
Helminthotheca [=*Picris*] *echioides*	bristly ox-tongue	DL	I
Heterotheca grandiflora	telegraph weed	DL	N
Isocoma menziesii	coastal goldenbush	DL	N
Isocoma menziesii var. *decumbens*	decumbent goldenbush	DL	N
BRASSICACEAE (CRUCIFERAE)	**MUSTARD FAMILY**		
Brassica sp.	mustard	DL	I
Brassica rapa	turnip, field mustard	DL	I
CAPRIFOLIACEAE	**HONEYSUCKLE FAMILY**		
Lonicera japonica	Japanese honeysuckle	UD	I
CHENOPODIACEAE	**GOOSEFOOT FAMILY**		
Salsola tragus	Russian thistle, tumbleweed	DL	I
CONVOLVULACEAE	**MORNING-GLORY FAMILY**		
Calystegia macrostegia	morning-glory	DL	N
EUPHORBIACEAE	**SPURGE FAMILY**		
Euphorbia peplus	petty spurge	DL	I

Attachment 2 Plant Species Observed			
Scientific Name	Common Name	Habitat	Origin
FABACEAE (LEGUMINOSAE)	**LEGUME FAMILY**		
Acacia redolens Maslin	desert carpet	DL	I
Acmispon glaber [=*Lotus scoparius*]	deerweed, California broom	DL	N
Astragalus trichopodus var. *lonchus*	ocean locoweed	DL	N
Medicago polymorpha	California burclover	DL	I
Melilotus albus	white sweetclover	DL	I
GERANIACEAE	**GERANIUM FAMILY**		
Erodium botrys	long-beak filaree	DL	I
Erodium moschatum	greenstem filaree	DL	I
MALVACEAE	**MALLOW FAMILY**		
Malva neglecta	common mallow, cheeses	DL	I
OXALIDACEAE	**OXALIS FAMILY**		
Oxalis pes-caprae	Bermuda buttercup	DL	I
POLYGONACEAE	**BUCKWHEAT FAMILY**		
Polygonum aviculare	Prostrate knotweed	DL	I
SCROPHULARIACEAE	**FIGWORT FAMILY**		
Myoporum parvifolium	slender myoporum	UD	I
VERBENACEAE	**VERVAIN FAMILY**		
Lantana montevidensis	trailing lantana	UD	I

NOTE: Scientific and common names were primarily derived from Jepson eFlora (Jepson Flora Project 2020). In instances where common names were not provided in this resource, common names were obtained from Rebman and Simpson (2014). Additional common names were obtained from the USDA maintained database (USDA 2021) or the *Sunset Western Garden Book* (Brenzel 2001) for ornamental/horticultural plants. Common names denoted with * are from County of San Diego 2010.

HABITAT

DL = Disturbed Land
UD = Urban/Developed

ORIGIN

N = Native to locality
I = Introduced species from outside locality

ATTACHMENT 3

Wildlife Species Observed

Attachment 3 Wildlife Species Observed				
Scientific Name	Common Name	Occupied Habitat	On-Site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence
		INVERTEBRATES		
PIERIDAE	WHITES & SULPHURS			
Pieris rapae	cabbage white (I)	DL		O
		BIRDS		
ACCIPITRIDAE	HAWKS, KITES, & EAGLES			
Buteo lineatus	red-shouldered hawk	FO	F/ Y	O
COLUMBIDAE	PIGEONS & DOVES			
Zenaida macroura	mourning dove	FO	C/ Y	O
TROCHILIDAE	HUMMINGBIRDS			
Calypte anna	Anna's hummingbird	DL	C/ Y	O
CORVIDAE	CROWS, JAYS, & MAGPIES			
Corvus brachyrhynchos	American crow	FO	C/ Y	O
AEGITHALIDAE	BUSHTIT			
Psaltriparus minimus	bushtit	UD	C/ Y	V
Melozone [=*Pipilo*] *crissalis*	California towhee	DL	C/ Y	O
		MAMMALS		
SCIURIDAE	SQUIRRELS & CHIPMUNKS			
Otopermophilus [=*Spermophilus*] *beecheyi*	California ground squirrel	DL		B
CANIDAE	CANIDS			
Canis latrans	coyote	DL		S

(I) = Introduced species

NOTE: Zoological nomenclature for invertebrates is in accordance with the NatureServe 2021 and Evans 2008; for fish with NatureServe 2021; for reptiles and amphibians with Crother et. al (2017); for birds with Chesser et al. 2021; for mammals with Bradley et al. (2014), American Society of Mammalogists 2021.

Attachment 3 Wildlife Species Observed				
Scientific Name	Common Name	Occupied Habitat	On-Site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence

HABITATS

DL = Disturbed land
FO = Flying overhead
UD = Urban/developed

EVIDENCE OF OCCURRENCE

B = Burrow
O = Observed
S = Scat
V = Vocalization

ABUNDANCE

C = Common to abundant; almost always encountered in proper habitat, usually in moderate to large numbers
F = Fairly common; usually encountered in proper habitat, generally not in large numbers

SEASONALITY (birds only)

Y = Year-round resident; probable breeder on-site or in vicinity

ATTACHMENT 4

Sensitive Plant Species with the Potential to Occur

Attachment 4 Sensitive Plant Species Observed or with the Potential to Occur							
Scientific Name Common Name	Sensitivity Code & Status			Habitat Preference/ Requirements	Detected On-Site Yes/No	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
	State/ Federal Status	CNPS Rank	County of San Diego				
ANGIOSPERMS: DICOTS							
APIACEAE **CARROT FAMILY**							
Eryngium aristulatum var. *parishii* San Diego button-celery	SE/FE	1B.1	--	Biennial/perennial herb; vernal pools, mesic areas of coastal sage scrub and grasslands, blooms April–June; elevation less than 2,000 feet. Known from San Diego and Riverside counties. Additional populations occur in Baja California, Mexico.	No	U	Unlikely to occur due to lack of vernal pools, mesic areas of coastal sage scrub, and grasslands. This species has been documented within a one-mile radius of the project site (CDFW 2024b).
ASTERACEAE **SUNFLOWER FAMILY**							
Isocoma menziesii var. *decumbens* decumbent goldenbush	–/–	1B.2	--	Perennial shrub; chaparral, coastal sage scrub; sandy soils, often in disturbed areas; blooms April–November; elevation less than 500 feet.	Yes	H	This species was **observed** within the project site.

Attachment 4 Sensitive Plant Species Observed or with the Potential to Occur							
Scientific Name Common Name	Sensitivity Code & Status State/ Federal Status	 CNPS Rank	 County of San Diego	Habitat Preference/ Requirements	Detected On-Site Yes/No	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
ANGIOSPERMS: MONOCOTS							
THEMIDACEAE BRODIAEA FAMILY							
Brodiaea filifolia thread-leaved brodiaea [=thread-leaf brodiaea]	SE/FT	1B.1	--	Perennial herb (bulbiferous); cismontane woodland, coastal sage scrub, playas, valley and foothill grassland, vernal pools; often clay soils; blooms March–June; elevation 80-3,675 feet. California endemic. Known from San Diego, Riverside, Orange, Los Angeles, and San Bernardino counties.	No	U	Unlikely to occur due to lack of cismontane woodland, coastal sage scrub, playas, valley and foothill grassland, and vernal pools. This species has been documented within a one-mile radius of the project site (CDFW 2024b).
Brodiaea orcuttii Orcutt's brodiaea	–/–	1B.1	--	Perennial herb (bulbiferous); closed cone coniferous forest, chaparral, meadows and seeps, valley and foothill grassland, vernal pools; mesic, clay soil; blooms May–July; elevation less than 5,600 feet.	No	U	Unlikely to occur due to lack of closed cone coniferous forest, chaparral, meadows and seeps, valley and foothill grassland, and vernal pools. This species has been documented within a one-mile radius of the project site (CDFW 2024b).

Attachment 4 Sensitive Plant Species Observed or with the Potential to Occur							
	Sensitivity Code & Status						
Scientific Name Common Name	State/ Federal Status	CNPS Rank	County of San Diego	Habitat Preference/ Requirements	Detected On-Site Yes/No	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential

NOTE: Scientific and common names were primarily derived from Jepson eFlora (Jepson Flora Project 2020). In instances where common names were not provided in this resource, common names were obtained from Rebman and Simpson (2014). Additional common names were obtained from the USDA maintained database (USDA 2021) or the *Sunset Western Garden Book* (Brenzel 2001) for ornamental/horticultural plants. Common names denoted with * are from County of San Diego 2010.

FEDERAL CANDIDATES AND LISTED PLANTS

FE = Federally listed endangered

FT = Federally listed threatened

STATE LISTED PLANTS

SE = State listed endangered

CALIFORNIA NATIVE PLANT SOCIETY (CNPS): CALIFORNIA RARE PLANT RANKS (CRPR)

1B = Species rare, threatened, or endangered in California and elsewhere. These species are eligible for state listing.

.1 = Species seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat).

.2 = Species fairly threatened in California (20-80% occurrences threatened; moderate degree and immediacy of threat).

POTENTIAL TO OCCUR ON-SITE

U = Unexpected

ATTACHMENT 5

Sensitive Wildlife Species with the Potential to Occur

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur						
Common Name/ Scientific Name	Sensitivity Code & Status State/Federal Status	 County of San Diego	Habitat Preference/ Requirements	Detected On-Site? Yes/No	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
INVERTEBRATES						
BRANCHINECTIDAE FAIRY SHRIMP						
San Diego fairy shrimp *Branchinecta sandiegonensis*	FT	MHCP	Vernal pools.	No	U	Not expected to occur. No vernal pools or other depressions containing wetland or vernal pool plant species characteristic of vernal habitat were observed.
BIRDS						
ACCIPITRIDAE HAWKS, KITES, & EAGLES						
Cooper's hawk (nesting) *Accipiter cooperii*	WL/-	MHCP	Mature forest, open woodlands, wood edges, river groves. Parks and residential areas.	No	M	Moderate potential to nest within the project site due to the presence of suitable trees for nesting.
POLIOPTILIDAE GNATCATCHERS						
Coastal California gnatcatcher *Polioptila californica californica*	SSC/FT	MHCP	Coastal sage scrub, maritime succulent scrub. Resident.	No	U	Not expected to occur due to the lack of coastal sage scrub, and maritime succulent scrub. This species has been documented within a one-mile radius of the project site (CDFW 2024b).

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur						
Common Name/ Scientific Name	Sensitivity Code & Status State/Federal Status	 County of San Diego	Habitat Preference/ Requirements	Detected On-Site? Yes/No	Potential to Occur On-Site (Observed or L/M/H/U)	Basis for Determination of Occurrence Potential
PASSERELLIDAE NEW WORLD PASSERINES						
Southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	WL/-	MHCP	Coastal sage scrub, chaparral, grassland. Resident.	No	U	Not expected to occur due to the lack of coastal sage scrub, chaparral, and grassland. This species has been documented within a one -mile radius of the project site (CDFW 2024b).
MAMMALS						
MUSTELIDAE WEASELS, OTTERS, & BADGERS						
American badger *Taxidea taxus*	SSC/-	--	Grasslands, Sonoran desert scrub.	No	U	Not expected to occur in the project site due to the high level of disturbance and lack of suitable habitat. This species has been documented within a one-mile radius of the project site (CDFW 2024a).

(I) = Introduced species

NOTE: Zoological nomenclature for invertebrates is in accordance with the NatureServe 2021 and Evans 2008; for fish with NatureServe 2021; for reptiles and amphibians with Crother et. al (2017); for birds with Chesser et al. 2021; for mammals with Bradley et al. (2014), American Society of Mammalogists 2021. Determination of the potential occurrence for listed, sensitive, or noteworthy species is based upon known ranges and habitat preferences for species follows Eriksen and Belk 1999, Nature Festivals of San Diego County 2002, Evans 2008, Page et al. 2013, Jennings and Hayes 1994, Unitt 2004, Tremor et. al. 2017, Western Bat Working Group 2017, and Harvey et al. 2011. Listing status is based on California Department of Fish and Wildlife, Natural Diversity Database (CDFW) 2024d and the County of San Diego MHCP (SANDAG 2003).

Attachment 5
Sensitive Wildlife Species Occurring or with the Potential to Occur

STATUS CODES

Listed/Proposed

FT = Listed as threatened by the federal government

Other

SSC = California Department of Fish and Wildlife species of special concern
WL = California Department of Fish and Wildlife watch list species
MHCP = Multiple Habitat Conservation Program covered species

Potential to Occur On-Site

M = Medium
U = Unexpected

ATTACHMENT D.5

CULTURAL RESOURCES SURVEY

Cultural Resources Survey for the Santa Fe Flores Townhomes Project San Marcos, California

Project Nos. GPA25-0001, R25-0001, MFSDP25-0001, and TSM25-0001

Prepared for
Santa Fe Flores, LP
P.O. Box 903
Rancho Santa Fe, CA 92067
Contact: Paul Mayer

Prepared by
RECON Environmental, Inc.
3111 Camino del Rio North, Suite 600
San Diego, CA 92108
P 619.308.9333

RECON Number 10587
January 29, 2026

Nathanial Yerka, Project Archaeologist/Author

Carmen Zepeda-Herman, M.A., RPA, Principal Investigator

NATIONAL ARCHAEOLOGICAL DATA BASE INFORMATION

Author:	Nathanial Yerka, Project Archaeologist Carmen Zepeda-Herman, M.A., RPA, Principal Investigator
Consulting Firm:	RECON Environmental, Inc. 3111 Camino del Rio North, Suite 600 San Diego, CA 92108
Report Date:	January 29, 2026
Report Title:	Cultural Resources Survey for the Santa Fe Flores Townhomes Project, San Marcos, California (GPA25-0001, R25-0001, MFSDP25-0001, and TSM25-0001)
Submitted to:	Mr. Paul Mayer
Prepared for:	Santa Fe Flores, LP P.O. Box 903 Rancho Santa Fe, CA 92067
Project Number:	RECON Number 10587
USGS Quadrangle Map:	7.5-minute, San Marcos
Acres:	2.72 (net)
Keywords:	Negative archaeological survey; San Marcos quadrangle

RECON Environmental, Inc. (RECON) conducted a cultural resources inventory for the proposed Santa Fe Flores Townhomes Project. The survey covered 2.72 acres, which includes the 2.6-acre (net) project area located at 2966, 2972, and 2982 South Santa Fe Avenue (Assessor's Parcel Numbers 217-161-18, 217-161-19, and the northern portion of 217-161-17) and 0.12 acres of off-site improvements.

The cultural resources surveys took place on March 10, 2022, and November 12, 2024, using a survey interval of approximately seven meters across the property. The RECON archaeologist was accompanied by a Luiseño representative from Saving Sacred Sites during both surveys.

No significant prehistoric or historic cultural resources were observed during the survey of the project area. No prehistoric or historic cultural resources were mapped on or immediately adjacent to the property in the record search files. Therefore, the proposed project will have no impact on known prehistoric or historic cultural resources. However, the possibility exists for buried prehistoric archaeological deposits on-site. Because of this factor, RECON recommends that all ground-disturbing activities for the project be monitored by a qualified archaeological monitor and Native American monitors representing the Luiseño community.

TABLE OF CONTENTS

Acronyms and Abbreviations iii

Summary 1

1.0 Introduction 2

2.0 Natural Setting 2

3.0 Cultural Setting 6

3.1 Paleoindian Period 6

3.2 Archaic Period 6

3.3 Late Prehistoric Period 7

3.4 Ethnohistory 8

3.5 Spanish Period 9

3.6 Mexican Period 10

3.7 American Period 10

3.8 City of San Marcos 11

4.0 Background Research 11

4.1 Records Search 11

4.2 Native American Heritage Commission and Tribal Response 13

5.0 Methods 14

6.0 Report of Findings 14

7.0 Management Considerations 17

8.0 Certification and Project Staff 21

9.0 References Cited 21

FIGURES

1: Regional Location 3

2: Project Location on USGS Map 4

3: Project Location on Aerial Photograph 5

TABLES

1: Cultural Resources within One Mile of the Project 12

TABLE OF CONTENTS (cont.)

PHOTOGRAPHS

1: Overview of Project Area from the Southeast Corner, Looking North 15
2: Two Granite Boulders Checked for Cultural Manipulation, Looking North-Northeast 15
3: Overview of Project Area from Northern Terrace on Eastern Boundary, Looking Southwest 16
4: Overview of Manufactured Drainage Area on Northern Terrace, Looking South 16
5: Overview of Southern Terrace Showing a Portion of Off-Highway Vehicle Disturbance, Looking South 18
6: Episodic Rubbish Dumping on Northern Terrace, Looking West-Northwest 18
7: Boulder Barrier East of Commercial Development, Looking North-Northeast 19
8: Overview of Recent Cut-Graded Road, Looking Northwest 19
9: Overview of Recent Geotechnical Testing Location 20

ATTACHMENT

1: Native American Heritage Commission and Tribal Response

CONFIDENTIAL ATTACHMENT (Under Separate Cover)

1: Records Search: Historical Resources with Primary and Trinomial Designations; Reports; Historic Addresses

Acronyms and Abbreviations

APN	Assessor's Parcel Number
C.E.	Common Era
CEQA	California Environmental Quality Act
CRHR	California Register of Historical Resources
GPA	General Plan Amendment
MFSDP	Multi-Family Site Development Plan
MND	Mitigated Negative Declaration
NAHC	Native American Heritage Commission
project	Santa Fe Flores Townhomes Project
RECON	RECON Environmental, Inc.

Summary

RECON Environmental conducted a cultural resources inventory, in accordance with the California Environmental Quality Act (CEQA) and the California Register of Historical Resources for the proposed Santa Fe Flores Townhomes Project (project). The survey covered the 2.6-acre (net) project area and 0.12 acres of off-site improvements for a total of 2.72 acres surveyed. The project area occurs on Assessor's Parcel Numbers (APNs) 217-161-18, 217-161-19 (2972 and 2982 South Santa Fe Avenue) and 0.37 acres of the northern portion of APN 217-161-17 (2966 South Santa Fe Avenue).

On February 28, 2023, the City Council adopted a Mitigated Negative Declaration (MND; ND22-008; State Clearinghouse Number 2022090486), approved a General Plan Amendment (GPA; GPA21-0008), approved a Multi-Family Site Development Plan (MFSDP21-0002), and on March 14, 2023 approved a Rezone (R21-0004) for the Santa Fe Flores, LP Project (approved project). The approved project evaluated the impacts associated with a GPA to change the land use from Commercial (C) and Light Industrial (L-I) to Medium Density Residential 2 (MDR2) and a zone change from Commercial (C) and Light Industrial (L-I) to Multi-Family Residential (R-3-10) to allow for the construction of 50 multi-family residential townhome units, in conjunction with a Density Bonus, on a 2.23-acre site consisting of two parcels: APNs 217-161-18 and 217-161-19.

Subsequent to MND approval, the applicant modified the site plan and added 0.37 acres of APN 217-161-17. The project would require a GPA from Medium Density Residential 2 (MDR2) to Medium High Density Residential (MHDR) for APNs 217-161-18 and 217-161-19, and a GPA from Commercial (C) to Medium High Density Residential (MHDR) for 0.37 acres of the northern portion of APN 217-161-17. Additionally, the project would rezone APNs 217-161-18 and 217-161-19 from Multi-Family Residential 3 (R-3-10) to Multi-Family Residential (R-3-6) and 0.37 acres of the northern portion of APN 217-161-17 from Commercial (C) to Multi-Family Residential (R-3-6). The project would develop 46 multi-family residential townhome units in seven buildings that would be three stories and 35 feet 4 inches in height. Vehicle parking would include 92 spaces within attached garages and 15 guest spaces. The liquor store would not be part of the project and would remain. Project grading would include 23,300 cubic yards of cut and 3,200 cubic yards of fill, resulting in a net export of 20,100 cubic yards.

RECON requested a records search at the South Coastal Information Center, San Diego State University. The search radius was one mile. No prehistoric or historic cultural resources are recorded on or adjacent to the project area. A total of 31 cultural resources has been documented within one mile of the project boundary, including 9 prehistoric period resources and 22 historic period resources. In addition, there are 19 historic addresses listed within the one-mile search radius.

The cultural resources surveys took place on March 10, 2022, and November 12, 2024, using a survey interval of approximately seven meters across the property. The RECON archaeologist was accompanied by a Luiseño representative from Saving Sacred Sites during both surveys. No significant prehistoric or historic archaeological resources were observed during the survey of the project area. The project will have no impact on known prehistoric or historic cultural resources. However, the possibility exists for the buried prehistoric archaeological deposits to exist on-site. Because of this factor, RECON recommends that all ground-disturbing activities for the project be monitored by a qualified archaeological monitor and Native American monitors representing the Luiseño community.

1.0 Introduction

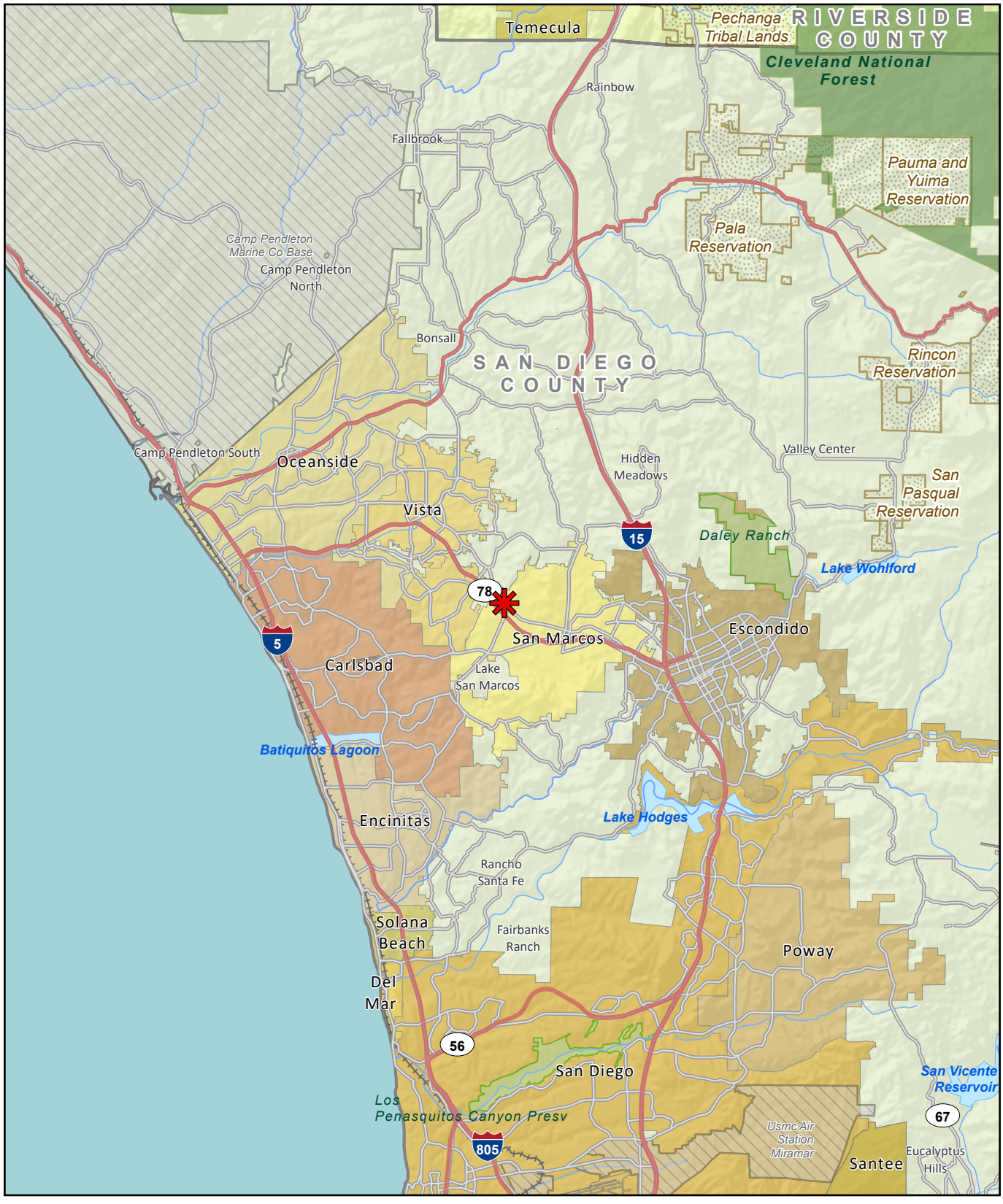
The Santa Fe Flores Townhomes Project (project) is located in the city of San Marcos at 2966, 2972, and 2982 South Santa Fe Avenue adjacent to Las Flores Drive on Assessor Parcel Numbers (APNs) 217-161-18, 217-161-19, and the northern portion (0.37 acres) of 217-161-17 (Figure 1). The 2.6-acre (net) project area would require a General Plan Amendment (GPA) from Medium Density Residential 2 (MDR2) to Medium High Density Residential (MHDR) for APNs 217-161-18 and 217-161-19, and a GPA from Commercial (C) to Medium High Density Residential (MHDR) for the northern portion of APN 217-161-17. Additionally, the project would rezone APNs 217-161-18 and 217-161-19 from Multi-Family Residential 3 (R-3-10) to Multi-Family Residential (R-3-6) and rezone the northern portion of APN 217-161-17 from Commercial (C) to Multi-Family Residential (R-3-6). The project would develop 46 multi-family residential townhome units in seven buildings that would be three stories in height. Vehicle parking would include 92 spaces within attached garages and 15 guest spaces. The liquor store, Gourmet Liquor, located on the southern portion of APN 217-161-17 is not part of the project and would remain. Off-site improvements total 0.12 acres. The project would require 23,300 cubic yards of cut and 3,200 cubic yards of fill, for a net export of 20,100 cubic yards.

The project area is in an unsectioned portion of the Los Vallecitos de San Marcos land grant, of the U.S. Geological Survey 7.5-minute topographic map, San Marcos quadrangle (Figure 2; U.S. Geological Survey 1996). The project area is mostly vacant and undeveloped land with an adjacent liquor store and associated improved parking area to the southwest. It is surrounded on the west and north by industrial development, to the east by multi-family residential development, and to the south by single-family residential development (Figure 3). The area of potential effect includes the 2.6-acre (net) project area and the 0.12 acres of off-site improvements for a total of 2.72 acres.

2.0 Natural Setting

The project area dominated by disturbed habitat which includes areas that have been disturbed through frequent off-roading activity. The project area is comprised of non-native herbaceous cover mixed with non-native grasses. A smaller portion of the project area consists of urban/developed land which features landscaping that receives routine maintenance and irrigation; this area occurs along the eastern boundary of the project area and consists of ornamental vegetation. The elevation of the project area ranges between approximately 495 feet above mean sea level in the south and 550 above mean sea level to the north.

Soils within the project area consist of Diablo clay on the northern portion and Huerhuero loam on the southern portion (U.S. Department of Agriculture 1973). The Diablo clay series with 9 to 15 percent slopes occurs on strong slopes and ranges from 26 to 37 inches in depth over rock. The Huerhuero loam soil series is loam soils developed in sandy marine sediments and have slopes ranging from 2 to 9 percent. In a representative profile the surface layer is brown and pale brown, strongly acid to medium acid loam. The upper subsoil is brown moderately alkaline clay. Below this is brown mildly alkaline clay loam and sandy loam (U.S. Department of Agriculture 1973).

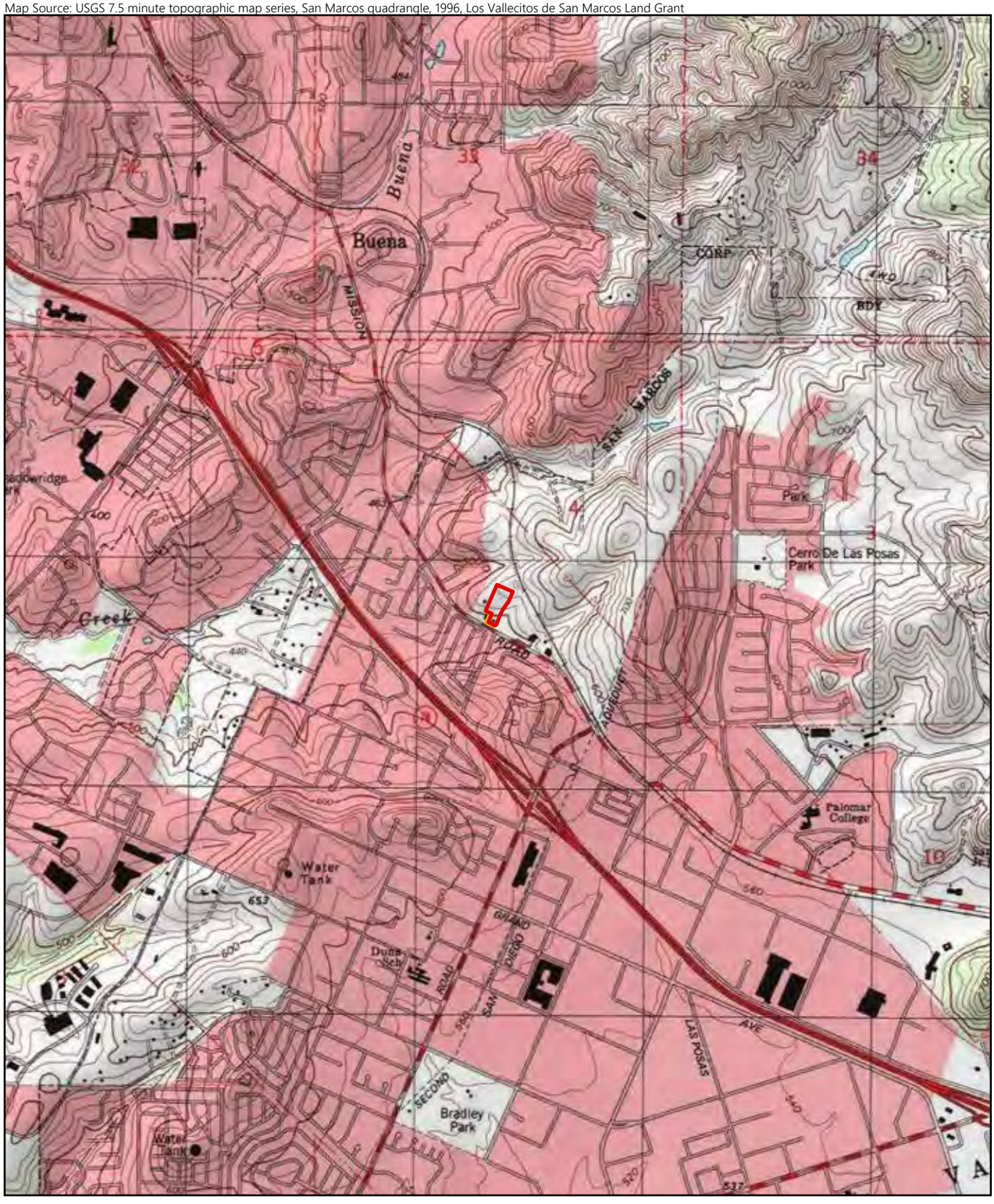


RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 10/29/2024 fmm

FIGURE 1
Regional Location

Map Source: USGS 7.5 minute topographic map series, San Marcos quadrangle, 1996, Los Vallecitos de San Marcos Land Grant



0 Feet 2,000

Project Boundary

Off-site Improvements

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 07/21/2025 bma

FIGURE 2
Project Location on USGS Map

Image Source: Nearmap (flown May 2025)

Project Boundary
Off-site Improvements
2024 Survey Area
2022 Survey Area

0 Feet 200

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 12/03/2025 bma

FIGURE 3
Project Location on Aerial Photograph

3.0 Cultural Setting

3.1 Paleoindian Period

The Paleoindian Period in northern San Diego County is most closely associated with the San Dieguito Complex, as identified by Malcolm Rogers (1938, 1939, 1945) and Claude N. Warren (1961, 1964, 1966, 1967). The San Dieguito Complex includes the Lake Mohave sites, Death Valley I sites, and Playa I and II sites according to Warren (1967) and represents a generalized hunting tradition (Moratto 2004). The San Dieguito Complex can be found in all of San Diego County, parts of Riverside County, north through the Mohave Desert, east through western Arizona, and south into northern Baja California and northern Sonora (Rogers 1966). The San Dieguito Complex assemblage is dominated by finely made scraping and chopping tools, such as well-made scraper planes, choppers, scraping tools, crescentics, elongated bifacial knives, and leaf-shaped projectile points. These tools were often made of fine-grained, slate-green felsite, or fine-grained basalt. Projectile points consist of Lake Mojave and Silver Lake types along with non-diagnostic leaf-shaped points. Evidence of seed grinding technology (manos and metates) is scarce. San Dieguito sites in the desert are typically found around dry Pleistocene playas (Moratto 2004). Site locations and assemblages suggest a subsistence emphasis on lacustrine resources and big game hunting.

3.2 Archaic Period

The Archaic Period in northern San Diego County is represented by the Pauma Complex, a local manifestation of the widespread Millingstone Horizon (Wallace 1955). The Millingstone Horizon has been identified throughout coastal southern and central California and includes La Jolla Complex of the San Diego region and the Pauma Complex in the foothills of San Diego and Riverside counties. These have very similar assemblages and are thought to be different environmental adaptations of the same culture (True 1958). A similar assemblage has been identified in the Cajon Pass area of Riverside County and is referred to as the Sayles Complex (Kowta 1969). This is thought to be transitional between the Pinto Complex of the Mojave Desert and the Millingstone Horizon of the coast (Kowta 1969:1).

The Pauma Complex assemblage suggests a generalized subsistence focus with an emphasis on hard seeds. This emphasis is indicated by the appearance of numerous slab and basin metates and the adoption of a mixed cobble/core-based tool assemblage composed primarily of crudely made choppers, scrapers, and cobble hammerstones.

Pauma Complex sites are typically found on terraces or ridges above a water source such as a stream. They often do not have discernible midden development, but they may have subsurface deposits. While they typically have numerous portable metates and manos, they lack bedrock milling, and mortars and pestles (True and Waugh 1981:101-102).

Major technological change within the Archaic Period in San Diego County appears to have been limited mainly to the introduction of large side-notched and Elko series projectile points. There seems to have been some reorientation in settlement from coastal to inland settings during the latter

portion of this period in northern San Diego County. This settlement shift appears to have occurred around 4,000 years ago and is thought to relate to the final phases of Holocene sea level rise and the resulting siltation of coastal lagoons. Prior to this time, the lagoons had been highly productive sources of shellfish for La Jollan people (Gallegos 1987; Warren et al. 1993).

3.3 Late Prehistoric Period

Near the coast and in the Peninsular Mountains beginning approximately 1,500 years ago, patterns began to emerge that suggest the ethnohistoric Kumeyaay. The Late Prehistoric Period is characterized by higher population densities and elaborations in social, political, and technological systems. Economic systems diversified and intensified during this period, with the continued elaboration of trade networks, the use of shell-bead currency, and the appearance of more labor-intensive but effective technological innovations. The late prehistoric archaeology of the San Diego coast and foothills is characterized by the Cuyamaca Complex. The Cuyamaca Complex is described by the presence of steatite arrow shaft straighteners, steatite pendants, steatite comales (heating stones), Tizon Brownware pottery, ceramic figurines reminiscent of Hohokam styles, ceramic "Yuman bow pipes," ceramic rattles, miniature pottery, various cobble-based tools (e.g., scrapers, choppers, hammerstones), bone awls, manos and metates, mortars and pestles, and Desert Side-notched (more common) and Cottonwood Series projectile points (True 1970).

Other parts of northern San Diego County are also represented by the San Luis Rey Complex (Meighan 1954; True et al. 1974). First described by Meighan (1954) and based on excavations at Pala some 16 miles north-northeast of the study area, San Luis Rey I sites are associated with bedrock milling features and often have recognizable midden soils. The artifact assemblage includes manos and metates, Cottonwood Triangular, and less frequently Desert Side-notched type projectile points, drills, bifacially flaked knives, bone awls, occasional steatite arrow shaft straighteners, and bone and shell ornaments (True and Waugh 1981:87). The Cottonwood Triangular and Desert Side-notched points are both smaller than earlier types, suggesting the introduction of bow-and-arrow technology into the region.

San Luis Rey II consists of the same assemblage with the addition of Tizon Brownware ceramics, red and black pictographs, cremation remains in urns, and historic materials such as glass beads and metal objects. True (1966) demonstrated that the San Luis Rey Complex almost certainly represents the ancestors of the Luiseño.

Meighan argued that ceramics, probably introduced into north San Diego County from the south, appeared around 1750 Common Era (C.E.) and were a product of indigenous diffusion that appeared at about the same time or slightly earlier than the Spanish arrival. In contrast, True et al. (1974) suggested that pottery may have appeared as early as 1200 to 1600 C.E. Later, Griset (1996) obtained 22 accelerator mass spectrometry dates from residue on pottery sherds, and she reviewed and recalibrated a number of others. Griset found four dates earlier than 800 C.E. The earliest pottery date in San Diego County according to Griset's study was from Ystagua at 549 C.E. (1996:251-253). However, Griset's data suggest that pottery was not common in San Diego County until about 1400 C.E. (1996:262). The earliest date for Tizon Brownware in the San Diego region is not long after the advent of Lower Colorado Buff Ware, which was dated as early as 430 C.E. in the vicinity of Blythe (Hildebrand 2003:258-259).

3.4 Ethnohistory

The study area falls along the border of the Luiseño and Kumeyaay tribal territories (ASM Affiliates, Inc. 2014), which can be described as a line following Agua Hedionda Creek, extending northeasterly inland towards Lake Henshaw, north into Riverside County, and west through San Juan Capistrano to the coast (Bean and Shipek 1978). The Kumeyaay historically occupied the area south of Agua Hedionda into what is now Baja California, Mexico, and east into the Imperial Valley. Spanish explorers and missionaries noted that this geopolitical boundary was not static but rather fluid and dynamic (Luomala 1978:593). Because of this fluidity, the San Marcos area could have been inhabited by either the Luiseño or the Kumeyaay during the late Prehistoric and Ethnohistoric periods (ASM Affiliates, Inc. 2014). Work by Gallegos (Gallegos et al. 2002) and Comeau (Comeau et al. 2012) has attributed nearby archaeological resources to the Luiseño. This evidence supports Sparkman's (1908) attribution of the area to the Luiseños.

The Luiseño are the most southwesterly of the Shoshonean or Uto-Aztecan speakers. Historically, the Luiseño social structure was the clan triblet. The triblet was composed of patrilineally related people who were politically and economically autonomous from neighboring triblets. Unlike other Takic-speaking tribes that surrounded them, the Luiseño do not appear to have been organized into exogamous moieties but may have been loosely divided into mountain-oriented groups and ocean-oriented groups (Bean and Shipek 1978). One or more clans would have resided together in a village (Oxendine 1980). A hereditary village chief held a position that controlled economic, religious, and warfare powers (Bean and Shipek 1978). The chief had an assistant and an advisory council of shamans and ritual specialists. These positions were also hereditary, with successors being selected from the advisor's lineage.

Luiseño settlement systems have been carefully reconstructed on the basis of extensive ethnographic and ethnohistoric research (Bean and Shipek 1978; Kroeber 1925; Sparkman 1908; Strong 1929; White 1963). A Luiseño clan controlled one, or possibly more, specified territories, called rancherias. White (1963) suggests that the average inland rancheria had a territory of approximately 30 square miles. He suggested that the Luiseño settlement system consisted of a series of villages or rancherias located on terraces above a valley bottom watercourse (e.g., the San Luis Rey River). Villages were usually located in defensible locations in sheltered canyons or coves, or on the sides of slopes in warm thermal zones, near reliable water sources. The rancheria owned territory in a contiguous strip leading from the valley bottom to upland areas. This vertical pattern of rancheria territory facilitated gathering plant foods throughout the year. In early spring, tubers and berries first ripened along the watercourse below the rancheria. As spring turned to summer, chaparral plants near the rancheria became ripe. Later, those at a higher elevation above the rancheria ripened. In fall, people moved temporarily to higher elevations (e.g., Palomar Mountain) for the acorn harvest (White 1963).

A wide variety of plants growing in the various biotic communities between the coast and mountains were utilized by the Luiseño, including acorns, annual grasses, seeds, yucca, sage, chia, lemonade berry, manzanita, and other wild greens and fruits (Kroeber 1925) These resources become available at different times of the year, prompting moves to different campsites. In addition to plant-associated moves, trips to coastal camps to exploit marine resources such as shellfish, fish, and marine mammals would take place.

According to most ethnographic accounts, acorns were considered the most important food source (Bean and Shipek 1978). Since acorns mature at differing rates between groves, and even within individual groves, movement from place to place would have been necessary to be able to effectively harvest the annual acorn crop. Acorns could be harvested in one of two ways, either gathered from the ground after they had fallen or knocked off the tree with long sticks. After harvesting, acorns could either be processed into meal or stored for winter. Acorns had to be dry to be stored to prevent spoilage. Acorns to be processed were first shelled, then worked lightly with a pestle, and winnowed to remove the thin seed covering. Next, acorns were pounded to a fine flower and leached to remove the tannins. After this, acorn flour was ready to be cooked.

Baskets, both coiled and twined, were used in gathering, preparation, and storage of food (Bean and Shipek 1978). Basket size and shape depended on its use. Pottery vessels were used for cooking and storage. Pottery was made using the paddle and anvil technique and was seldom decorated (Bean and Shipek 1978). Nets and pouches made of cordage and animal skins were used for carrying food and tools.

Animal resources used by the Luiseño included most of the mammals occurring in their territory, except for predator animals and tree squirrels (Bean and Shipek 1978). Reptiles were also avoided as a food source. Birds hunted included quail, ducks, and doves. Larger animals were hunted with bow and arrow, while smaller game was caught using nets, deadfalls, slings, and throwing sticks. Game drives were also used for hunting rabbits and deer. Coastal marine animals exploited included sea mammals, fish, crustaceans, and mollusks (Bean and Shipek 1978). Basketry fish traps, seines, dip nets, bone, and shell hooks were used. Dugout and light balsa canoes were used for near-shore ocean fishing (Bean and Shipek 1978).

3.5 Spanish Period

The Spanish Period in Alta California (1769–1821) represents a time of European exploration and settlement. Military and religious contingents established the San Diego Presidio and the San Diego Mission in 1769, San Carlos Borromeo (Carmel) in 1770, and San Gabriel Arcangel in 1771. The opening of the mission system created the need to link Alta California with Sonora, Mexico. Juan Bautista de Anza of Tubac was commissioned to open up a road across the Colorado Desert to San Gabriel and on to Monterey. Mission San Luis Rey de Francia, the closest mission to the project, was founded on June 13, 1798, by Padre Fermin Lasuén. Two sub-missions, San Antonio de Pala Asistencia and Las Flores Estancia, were established in the early 1800s to support Mission San Luis Rey. The project is on the western end of Los Vallecitos de San Marcos Rancho, which was run by Mission San Luis Rey for cattle grazing.

The Spanish mission system used forced Native American labor to produce goods and provide services needed for European settlement. The mission system also introduced horses, cattle, sheep, and agricultural goods and implements as well as new construction methods and architectural styles. Also, with the arrival of the Spanish came devastating epidemics and very high death rates. According to available mission records, the worst year was 1806 when a measles epidemic spread through southern California. An estimated 33.5 percent of the Indian population along the coast died (Cook 1976:424).

3.6 Mexican Period

The Mexican Period (1821–1848) retained many of the Spanish institutions and laws. While Spanish and Mexican settlement was focused on coastal Alta California, exploration of inland areas continued, often during the course of pursuing neophytes that had run away from the missions. In 1824, Santiago Arguello, an officer of the San Diego Presidio "discovered" San Felipe Valley, which opened the route through present day Warner Springs and Riverside and on to the San Gabriel Mission. This route, which became known as the Sonora Road, soon became the official Mexican mail route (Gudde and Bright 2004; Lawton 1976:58).

The missions were secularized in 1834, opening vast tracts of former mission lands for private use and settlement. Los Vallecitos de San Marcos Rancho was granted to Don José Maria Alvarado in 1834 (Pourade 1969). Cattle ranching dominated the southern California economy, and the hide and tallow trade with New England merchant ships increased during the early part of the Mexican Period. Native American communities continued to decline, particularly those close to the coast. However, some Native Americans found jobs as *vaqueros*, laborers, gardeners, and housekeepers (Rolle 1998:57).

3.7 American Period

The signing of the treaty of Guadalupe Hidalgo in 1848, which signaled the end of the Mexican–American War, gave Alta California, the northern three-quarters of Arizona, New Mexico, a greatly enlarged Texas, and southern parts of Colorado, Nevada, and Utah to the United States (Rolle 1998:91). The treaty guaranteed citizenship to former Mexican citizens if they chose to stay in the new lands of the United States and it promised to respect their property. Native Americans had been granted Mexican citizenship in 1821, but the Americans never recognized their legal claims to U.S. citizenship, to property rights, or to other civil rights. In 1850, California was admitted to the Union as a free state (Phillips 1996:60-61).

On January 24, 1848, gold was discovered by John W. Marshall at Sutter's Fort in the central Sierra Nevada foothills. Sutter and Marshall did their best to keep it a secret, but the news of the discovery was published on March 15 in the *San Francisco Californian* newspaper. The subsequent Gold Rush launched an immigrant tide, which engulfed many of the Spanish and Mexican cultural traditions and eliminated many remaining vestiges of Native American culture. Many Mexican *ranchos* were overrun by forty-niners or dissolved in land claim disputes (Rolle 1998). Native American *Rancherias* were supposedly recognized by the American government in the terms of the Treaty of Guadalupe Hidalgo but not in reality.

The homestead system and the railroad encouraged American settlement in California after the Civil War, but settlement was slow in southern California. Most communities and ranches in northern San Diego and southern Riverside counties were not established until the land booms of the 1880s following completion of the Santa Fe and Southern Pacific railroads linking San Diego, Riverside, and San Bernardino with the East.

3.8 City of San Marcos

By the late 1850s, part of Los Vallecitos de San Marcos had been sold to Cave Couts, who primarily used the parcels to raise livestock. The remainder of the grant, sold to Lorenzo Soto by Jose Alvarado's widow, Lugarda Osuna, was patented by the U.S. Land Commission in 1883 (Carrol 1975:40). Major Gustavus French Merriam soon after established the first permanent European settlement in the North Twin Oaks Valley. On the 160-acre homestead, Merriam began wine and honey production (City of San Marcos 2010).

Not long after Major Merriam's settlement, German and Dutch immigrants began moving into the area in the early 1880s. By 1883, John H. Barham founded the first town in the area, just a few miles south of the Merriam's settlement. Named "Barham Township," the new town site had a post office, a blacksmith, a feed store, and a weekly newspaper by 1884. The San Marcos Land Company purchased nearly all the San Marcos land formerly owned by the Couts family in 1887, dividing the land into planned community tracts, establishing the town of San Marcos (City of San Marcos 2010). The arrival of the Santa Fe Railroad brought more people to the San Marcos area, but its siting outside the town forced the community to move the town center to present-day Mission Road and Pico Avenue. By the mid-1900s, dairies and poultry production became critical to the area's economic development (City of San Marcos 2010).

San Marcos saw another period of rapid growth after 1956 when it established a water connection with the Colorado River water supply. With more water came more opportunities for small businesses. Through the 1960s, the city slowly gained new residents but by the 1970s, San Marcos became the third fastest-growing city in the state with a population of 17,479. During the 1980s, San Marcos almost doubled its population to 33,800. Growth has continued to boom in San Marcos, bringing the city's population to 96,620 based on a 2024 California demographics report (Cubit Planning 2024).

4.0 Background Research

4.1 Records Search

RECON requested a records search at the South Coastal Information Center, San Diego State University, which is a member of the California Historical Resources Information System. The search radius was one mile. No prehistoric or historic cultural resources are recorded on or adjacent to the project area. A total of 31 cultural resources has been documented within one mile of the project boundaries (Confidential Attachment 1; Table 1), including 9 prehistoric period resources and 22 historic period resources. In addition, there are 19 historic addresses listed within the one-mile search radius. A summary of the available site data appears in Table 1.

Table 1 Cultural Resources within One Mile of the Project				
Primary #	Trinomial	Age	Site Type	Recording Events
P-37-005584	CA-SDI-005584	Prehistoric	Lithic scatter; Bedrock milling feature	1977 (Randy Franklin)
P-37-005633	CA-SDI-005633	Prehistoric	Lithic scatter; Ceramic scatter; Bedrock milling feature; Burials; Habitation debris; Other-shell	1977 (Randy Franklin); 2002, 2007 (Delman James, Rich Bark, Brian Glenn, Jerry Sabio, Ted Cooley, Ogden Environmental Services, Inc.)
P-37-008813	CA-SDI-008813	Prehistoric	Lithic scatter; Bedrock milling feature	1981 (Linda Roth)
P-37-008814	CA-SDI-008814	Historic	Trash scatter; Other-burned residence	1981 (Linda Roth)
P-37-008815	CA-SDI-008815	Prehistoric	Lithic scatter	1981 (Linda Roth)
P-37-011663	CA-SDI-011663	Prehistoric	Lithic scatter	1990 (Scott Crull, Ken Smith, Palomar College)
P-37-013009	CA-SDI-013009	Prehistoric	Lithic scatter; Bedrock milling feature	1993 (B. Glenn, C. Schultze, K. Collins, Ogden Environmental Services, Inc.)
P-37-018186		Historic	Single-family property	1999 (P.S. Preservation Services)
P-37-018187		Historic	One-to-three-story commercial building	1999 (P.S. Preservation Services)
P-37-018188		Historic	One-to-three-story commercial building	1999 (P.S. Preservation Services)
P-37-018189		Historic	Industrial building	1999 (P.S. Preservation Services)
P-37-018190		Historic	Industrial building	1999 (P.S. Preservation Services)
P-37-018191		Historic	Industrial building	1999 (P.S. Preservation Services)
P-37-018192		Historic	One-to-three-story commercial building; Single-family property	1999 (P.S. Preservation Services)
P-37-018193		Historic	Single-family property	1999 (P.S. Preservation Services)
P-37-018194		Historic	Single-family property	1999 (P.S. Preservation Services)
P-37-018195		Historic	Single-family property	1999 (P.S. Preservation Services)
P-37-018196		Historic	Single-family property	1999 (P.S. Preservation Services)
P-37-018197		Historic	Single-family property	1999 (P.S. Preservation Services)
P-37-018198		Historic	One-to-three-story commercial building	1999 (P.S. Preservation Services)
P-37-018199		Historic	Industrial building	1999 (P.S. Preservation Services)
P-37-018200		Historic	Single-family property	1999 (P.S. Preservation Services)
P-37-018201		Historic	Single-family property	1999 (P.S. Preservation Services)
P-37-018202		Historic	Single-family property	1999 (P.S. Preservation Services)
P-37-025309	CA-SDI-016787	Prehistoric	Lithic scatter	2003 (Gallegos & Associates)
P-37-030664	CA-SDI-019476	Prehistoric	Lithic scatter	1994 (R. Carrico, D. James, and A. Pigniolo, Ogden Environmental Services, Inc.); 2009 (CalTrans District 11)
P-37-033557		Historic	Roads; Highway	2013 (Larry Tift, ASM Affiliates, Inc.); 2015 (Kent Manchen, Matt DeCarlo, ASM Affiliates, Inc.); 2017 (Haley Chateene, PanGIS); 2017 (A. Foglia, K. Keckeisen, PanGIS, Inc.); 2018 (Sarah Stringer-Bowsher, ASM Affiliates, Inc.)
P-37-036868		Historic	Dam	2016 (Lucas Piek, ASM Affiliates)
P-37-036869		Historic	Dam	2016 (Lucas Piek, ASM Affiliates)

Table 1 Cultural Resources within One Mile of the Project				
Primary #	Trinomial	Age	Site Type	Recording Events
P-37-036870		Prehistoric	Isolate-flake	2016 (Lucas Piek, ASM Affiliates)
P-37-038298		Historic	Single-family property	2019 (Terri Jacquemain, CRM Tech)

Fifty-eight cultural resources studies have been conducted within one mile of the project. One cultural resource investigation appears to have included the project area: Archaeological Survey for the Proposed Widening of South Santa Fe Avenue, Vista, California, conducted in 1974.

4.2 Native American Heritage Commission and Tribal Response

A letter was sent to the Native American Heritage Commission (NAHC) in Sacramento on February 11, 2022, requesting a search of their Sacred Lands File. A response letter from the NAHC was received on March 29, 2022, indicating that their Sacred Lands File search results were positive. The NAHC also provided a list of Native American tribes who may have knowledge of cultural resources within the project APE and vicinity. During tribal consultation with the City, the Rincon Band of Luiseño Indians responded on June 28, 2022, agreeing with RECON's proposed measures found in Section 7.0. The NAHC correspondence and tribal response are in Attachment 1.

Tribal consultation was conducted again, subsequent to MND approval, for the modified project discussed herein. Because the project requires a GPA, the City conducted consultation in accordance with Senate Bill 18 (Government Code §65352.3), which mandates consultation with California Native American tribes for projects requiring a GPA. The City sent opportunity to consult letters on March 18, 2025. In response, the San Luis Rey Band of Mission Indians requested consultation on April 15, 2025; the Rincon Band of Luiseño Indians requested consultation on March 28, 2025; the Pechanga Band of Mission Indians requested consultation on April 23, 2025; and the Pala Band of Mission Indians requested consultation on March 24, 2025. The City sent this Cultural Resources Survey Report on November 14, 2025 to the tribes that requested consultation. As a result of consultation, the City has received a request to ensure that the City's current mitigation measures are incorporated into the environmental document. Detailed mitigation measures can be found in Addendum No. 1 to the Final Initial Study/Environmental Mitigated Negative Declaration for the Santa Fe Flores, LP Project, on file with the City. No additional consultation comments have been received.

Historic aerial photographs and topographic maps by Nationwide Environmental Title Research, LLC available online (at http://www.historicaerials.com) were inspected to identify any previous uses of the property. Aerial photographs from 1938, 1947, and 1953 show the project in agriculture. The 1938 and 1953 aerial photographs exhibit the parcels in fallow agriculture where the 1947 aerial photograph shows the central portion planted possibly with trees. All three aerials support that the agriculture originates from the adjacent property to the west which is supported by the 1949 topographic map. A 1964 aerial photograph shows building development in both parcels with ancillary structures supporting the northern parcel. Both parcels now have independent entrances to their properties off of what would be present-day South Santa Fe Avenue in the south and North Las Flores Drive to the north. The buildings and supporting structures on the parcel to the north were removed between 1989 and 1990. The building on the southern parcel was removed between 2005

and 2009. Also during this time, the present-day alignment for North Las Flores Drive was installed along with the generally west-facing bank of ornamental vegetation which dominates the eastern project boundary. A west-northwest by east-southeast alignment of K-Rails were added to the southern edge of the upper/northern terrace of the northern parcel between 2016 and 2018. Also installed in the upper/northern terrace during this time is an assumed drainage depression with stormwater manhole, culvert, and corrugated vertically placed metal pipe (Nationwide Environmental Title Research, LLC 2024).

5.0 Methods

A total of 2.21 acres of the project area was surveyed by RECON archaeologist Nathanial Yerka on March 10, 2022, accompanied by Native American monitor Vi'i Sialo'i of Saving Sacred Sites. Mr. Yerka surveyed an additional 0.37 acres of the northern portion of APN 217-161-17 in the southwest corner of the project area on November 12, 2024, accompanied by Native American monitor John Chavez of Saving Sacred Sites. Mr. Yerka served as project archaeologist and author and Carmen Zepeda-Herman served as principal investigator. Ms. Zepeda-Herman is a member of the Register of Professional Archaeologists and meets the Secretary of the Interior's Standards for Archaeology and Historic Preservation. The primary goal of this survey was to determine (1) if there are previously unrecorded cultural resources present, and if so, document the resources' locations and what they consist of, and (2) to update conditions of previously recorded cultural resources. The project area was inspected for evidence of archaeological materials such as debris, flaked and ground stone tools, ceramics, milling features, and human remains. Photographs were taken to document the environmental setting and general conditions.

6.0 Report of Findings

The survey did not identify any prehistoric artifacts or features, or any potentially significant historic artifacts or features.

The 2022 field inspection was conducted on foot, in conditions of high clouds, strong daylight, and cool temperatures. Survey transect intervals were approximately seven meters, spaced across the property. The project area is terraced into three generally flat steps with steep south-southwest-facing slopes. The entire surface of both parcels is disturbed. The southern parcel has a high amount of import gravel that links the area as a possible supporting parking area to the business adjacent to the west, with entry/exit to both the business improved parking area, as well as North Las Flores Drive (Photograph 1). Imported topping mulch is placed along a shallow berm that abuts the sidewalk of South Santa Fe Avenue and swings northeast to a manufactured slope with irrigated ornamental vegetation that supports Las Flores Drive. Near the top of the first/lower terrace are two granite imported boulders (Photograph 2). Near the eastern manufactured bank is an installed concrete stormwater culvert. At the southern edge of the second/upper terrace is a west-northwest by east-southeast alignment of K-Rails (Photograph 3). Also on this terrace is a central manufactured depression that is assumed to aid for drainage with stormwater manhole, culvert, and corrugated vertically placed metal pipe (Photograph 4). A significant amount of rodent disturbance occurs along the western boundary; back dirt was checked for cultural material. There is current project area ground surface disturbance in the form of off-highway vehicle and bicycle

PHOTOGRAPH 1
Overview of Project Area from the Southeast Corner, Looking North

PHOTOGRAPH 2
Two Granite Boulders Checked for Cultural Manipulation,
Looking North-Northeast

PHOTOGRAPH 3
Overview of Project Area from Northern Terrace on Eastern Boundary,
Looking Southwest

PHOTOGRAPH 4
Overview of Manufactured Drainage Area on Northern Terrace,
Looking South

activity (Photograph 5; see also Photographs 1 and 3). The project area also exhibits a fair amount of modern rubbish, mostly in the form of broken consumer bottle glass, as well as episodic dumping of furniture (Photograph 6) and dimensional lumber.

The 2024 field inspection was conducted on foot, in conditions of partly cloudy skies, strong daylight, and cool temperatures. The survey focused on the southwestern parcel, which comprises a portion of the lower two of three fully disturbed terraces and exhibits a singular commercial development with associated improved parking area adjacent to the southern boundary. The area to the east surrounding the commercial development exhibits a barrier made up of numerous placed imported boulders (Photograph 7). Several boulders were moved along the alignment of a recent cut-graded road accessing a geotechnical testing location on the middle terrace (Photographs 8 and 9). Other surface disturbances include modern rubbish, rubber tires, a high-visibility traffic barrel, and a five-gallon bucket.

7.0 Management Considerations

The key consideration for the management of cultural resources within the CEQA framework is their eligibility for inclusion on the California Register of Historical Resources (CRHR). A resource must satisfy one or more of the qualifying criteria in order to be considered eligible for listing. In order to be eligible for listing in the CRHR, a resource must satisfy at least one of the following four criteria:

1) It is associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States.

2) It is associated with the lives of persons important to local, California, or national history.

3) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values.

4) It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Cultural and historical resources eligible for listing in the CRHR must meet one of the criteria of significance described above and retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. For the purposes of eligibility for CRHR, integrity is defined as "the authenticity of an historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance" (California Office of Historic Preservation 2005:67).

No significant prehistoric or historic archaeological resources were observed during the survey of the project area. No prehistoric or historic cultural resources were mapped on or immediately adjacent to the property in the record search files. Therefore, the project will have no impact on known prehistoric or historic cultural resources. However, it appears probable that soil has been dumped on a significant portion of the parcel, obscuring the original ground. Also, the project is in an area of alluvial deposition adjacent to San Marcos Creek. Because of these factors, the possibility exists for buried prehistoric archaeological deposits on-site. RECON recommends that all

PHOTOGRAPH 5
Overview of Southern Terrace Showing a Portion of Off-Highway Vehicle Disturbance, Looking South

PHOTOGRAPH 6
Episodic Rubbish Dumping on Northern Terrace, Looking West-Northwest

PHOTOGRAPH 7
Boulder Barrier East of Commercial Development, Looking North-Northeast

PHOTOGRAPH 8
Overview of Recent Cut-Graded Road, Looking Northwest

PHOTOGRAPH 9
Overview of Recent Geotechnical Testing Location

ground-disturbing activities for the project be monitored by a qualified archaeological monitor and a Native American monitor representing the Luiseño community. If archaeological materials are identified during construction activities, work in the immediate area shall cease and an archaeologist meeting the City's Qualifications Standards for Archaeology must evaluate the find. If the discovery proves to be significant under CEQA, a data recovery program shall be implemented. If human remains are found, construction shall halt in the immediate area and procedures set forth in California Public Resources Code Section 5097.98 and State health and Safety Code Section 7050.5 shall be followed. After completion of monitoring, a final report with the monitoring methods and results shall be prepared and submitted to the City.

8.0 Certification and Project Staff

This report was prepared in compliance with the CEQA (Section 21083.2 of the Statutes and Appendix K of the Guidelines) and with policies and procedures of the City of San Marcos. To the best of my knowledge, the statements and information contained in this report are accurate.

Nathanial Yerka
Project Archaeologist/Author

Carmen Zepeda-Herman, M.A., RPA
Principal Investigator

The following individuals participated in the field tasks or preparation of this report.

Carmen Zepeda-Herman	Principal Investigator
Nathanial Yerka	Project Archaeologist/Author
Vi'i Sialo'i	Luiseño Native American Monitor
John Chavez	Luiseño Native American Monitor
Benjamin Arp	GIS Specialist
Jennifer Gutierrez	Production Specialist
Steven Gaughran	Production Specialist

9.0 References Cited

ASM Affiliates, Inc.
2014 Cultural Resources Study for the Mulberry Drive Development Project, San Marcos. Manuscript on file at the South Coastal Information Center, San Diego State University.

Bean, Lowell, and Florence C. Shipek
1978 Luiseño. In *California,* edited by Robert F. Heizer. Handbook of North American Indians, vol. 8, William G. Sturtevant, general editor. Smithsonian Institution, Washington, DC.

California Office of Historic Preservation
2005 *Technical Assistance Series #10: California State Law and Historic Preservation: Statues, Regulations and Administrative Policies Regarding Historic Preservation and Protection of Cultural and Historical Resources*. Sacramento.

Carrol, William
1975 *San Marcos: A Brief History*. Coda Productions, San Marcos, California.

Comeau, Brad, Micah Hale, and Mark Becker
2012 Cultural Resources Survey Report for the Palomar Station Project, San Marcos, San Diego County, California. ASM Affiliates, Inc. Manuscript on file at the South Coastal Information Center, San Diego State University.

Cook, Shelburne F.
1976 *The Population of the California Indians, 1769-1970*. University of California Press, Berkeley.

Cubit Planning
2024 San Marcos Demographic Statistics. Accessed December 3, 2025. https://www.california-demographics.com/san-marcos-demographics.

Gallegos, D. R.
1987 A Review and Synthesis of Environmental and Cultural Material for the Batiquitos Lagoon Region. In *San Dieguito–La Jolla: Chronology and Controversy, edited by Dennis R. Gallegos.* San Diego County Archaeological Society Research Papers 1:23-34.

Gallegos, D.R., M. Guerrero, J. Flenniken, and T. Stopes
2002 Data Recovery Program for Packbell Site CA-SDI-5633, San Marcos, California. Gallegos and Associates, Carlsbad, CA. Manuscript on file at the South Coastal Information Center, San Diego State University.

Griset, Suzanne
1996 *Southern California Brown Ware.* Ph.D. Dissertation, Department of Anthropology, University of California, Davis.

Gudde, Erwin G., and William Bright
2004 *California Place Names: The Origin and Etymology of Current Geographical Names*. University of California Press, Berkeley.

Hildebrand, John
2003 Ceramics Excavated from the Lower Colorado River Region by the North Baja Pipeline Project. In *A View Across the Cultural Landscape of the Lower Colorado Desert: Cultural Resource Investigations for the North Baja Pipeline* Project edited by James H. Cleland and Rebecca McCorkle Apple, pp. 245-260. Document on file with the Southeast Information Center, Imperial Valley College Desert Museum, Ocotillo, California.

Kowta, Makoto
1969 The Sayles Complex: A Late Milling Stone Assemblage from Cajon Pass and the Ecological Implications of Its Scraper Planes. University of California Publications in *Anthropology* 6.

Kroeber, A. L.
1925 *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Smithsonian Institution, Washington.

Lawton, Harry W.
1976 History and Ethnohistory of the Yuha Desert (1769-1865). In *Background to Prehistory of the Yuha Desert Region,* edited by Philip J. Wilke, pp. 43-72. Ballena Press, Ramona, California.

Luomala, Katharine
1978 Tipai-Ipai. In *California,* edited by Robert F. Heizer. Handbook of North American Indians, vol. 8, William G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Meighan, Clement W.
1954 A Late Complex in Southern California Prehistory. *Southwestern Journal of Anthropology* 10:215-227.

Moratto, Michael
2004 *California Archaeology*. Reprint, Coyote Press, Salinas, California.

Nationwide Environmental Title Research, LLC
2024 Historic photographs of the survey area inspected at historicaerials.com. Accessed on December 3, 2024.

Oxendine, Joan
1980 The Luiseno Girls Ceremony. *Journal of California and Great Basin Anthropology* 2 (1) 37-50.

Phillips, George H.
1996 *The Enduring Struggle: Indians in California History*. MTL, Inc., Sparks, Nevada.

Pourade, Richard F.
1969 *Historic Ranchos of San Diego*. A Copley Book, Union-Tribune Publishing, San Diego.

Rogers, Malcolm J.
1938 Archaeological and Geological Investigations of the Culture Levels in an Old Channel of San Dieguito Valley. *Carnegie Institution of Washington Yearbook* 37:344-45.

1939 *Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Desert Areas*. San Diego Museum of Man Papers 3.

1945 An Outline of Yuman Prehistory. *Southwestern Journal of Anthropology* 1(2):167-198. Albuquerque.

1966 *Ancient Hunters of the Far West,* edited by Richard F. Pourade. Union-Tribune. San Diego, California.

Rolle, Andrew
1998 *California: A History*. Harlan Davidson, Wheeling, Illinois.

San Marcos, City of
2010 *History*. Available at http://www.ci.san-marcos.ca.us/index.aspx?page=139. Accessed on January 27, 2015.

Sparkman, Philip S.
1908 The Culture of the Luiseño Indians. *University of California Publications in American Archaeology and Ethnology* 8(4):187-234.

Strong, William
1929 Aboriginal Society in Southern California. *University of California Publications in American Archeology and Ethnology* 26:1-358.

True, D.L.
1958 An Early Complex in San Diego County, California. *American Antiquity* 23(3):255-263.

1966 *Archaeological Differentiation of Shoshonean and Yuman Speaking Groups in Southern California*. Doctoral dissertation, University of California, Los Angeles. University Microfilms, Ann Arbor, Michigan.

1970 *Investigation of a Late Prehistoric Complex in Cuyamaca Rancho State Park, San Diego County, California*. Department of Anthropology Publications, University of California, Los Angeles.

True, D. L., and G. Waugh
1981 Archaeological Investigations in Northern San Diego County, California: Frey Creek. *Journal of California and Great Basin Anthropology* 3(1):84-115.

True, D. L., C. W. Meighan, and H. Crew
1974 *Archaeological Investigations at Molpa, San Diego County, California*. University of California Press, Berkeley, California.

U.S. Department of Agriculture
1973 Soil Survey, San Diego Area, California. Edited by Roy H. Bowman. Soil Conservation Service and Forest Service. December.

U.S. Geological Survey (USGS)
1996 7.5-minute topographic map series, San Marcos Quadrangle, Los Vallecitos de San Marcos Land Grant.

Wallace, William J.
1955 A Suggested Chronology for Southern California Coastal Archaeology. *Southwestern Journal of Anthropology*, Vol. 11, No. 3 (Autumn, 1955), pp. 214-230. University of New Mexico.

Warren, Claude N.
1961 The San Dieguito Complex and Its Place in California Prehistory. *Archaeological Survey Annual Report* (1960-1961). Department of Anthropology and Sociology, University of California, Los Angeles.

1964 *Cultural Change and Continuity on the San Diego Coast*. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Los Angeles.

1966 The San Dieguito Type Site: M. J. Rogers 1938 Excavation on the San Dieguito River. *San Diego Museum of Man Papers* 5.

1967 The San Dieguito Complex: A Review and Hypothesis. *American Antiquity* 32(2):168-185. Society for American Archaeology, Salt Lake City.

Warren, Claude N., Gretchen Siegler, and Frank Dittmer
1993 Paleoindian and Early Archaic Periods in *Historic Properties Background Study* by Brian F. Mooney and Associates. Document on file with the City of San Diego Clean Water Program.

White, Raymond
1963 Luiseno Social Organization. *University of California Publications in American Archaeology and Ethnology* 48(2):91-194.

ATTACHMENT 1

Native American Heritage Commission and Tribal Response

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

PARLIAMENTARIAN
Russell Attebery
Karuk

SECRETARY
Sara Dutschke
Miwok

COMMISSIONER
William Mungary
Paiute/White Mountain Apache

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

COMMISSIONER
Wayne Nelson
Luiseño

COMMISSIONER
Stanley Rodriguez
Kumeyaay

EXECUTIVE SECRETARY
Raymond C. Hitchcock
Miwok/Nisenan

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

March 29, 2022

Carmen Zepeda-Herman
RECON Environmental, Inc.

Via Email to: czepeda@reconenvironmental.com

Re: Santa Fe Flores Project, San Diego County

Dear Ms. Zepeda-Herman:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information submitted for the above referenced project. The results were positive. Please contact the Pechanga Band of Indians on the attached list for information. Please note that tribes do not always record their sacred sites in the SLF, nor are they required to do so. A SLF search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with a project's geographic area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites, such as the appropriate regional California Historical Research Information System (CHRIS) archaeological Information Center for the presence of recorded archaeological sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. Please contact all of those listed; if they cannot supply information, they may recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
San Diego County
3/29/2022

Barona Group of the Capitan Grande
Edwin Romero, Chairperson
1095 Barona Road — Diegueno
Lakeside, CA, 92040
Phone: (619) 443 - 6612
Fax: (619) 443-0681
cloyd@barona-nsn.gov

Campo Band of Diegueno Mission Indians
Ralph Goff, Chairperson
36190 Church Road, Suite 1 — Diegueno
Campo, CA, 91906
Phone: (619) 478 - 9046
Fax: (619) 478-5818
rgoff@campo-nsn.gov

Ewiiaapaayp Band of Kumeyaay Indians
Robert Pinto, Chairperson
4054 Willows Road — Diegueno
Alpine, CA, 91901
Phone: (619) 368 - 4382
Fax: (619) 445-9126
ceo@ebki-nsn.gov

Ewiiaapaayp Band of Kumeyaay Indians
Michael Garcia, Vice Chairperson
4054 Willows Road — Diegueno
Alpine, CA, 91901
Phone: (619) 933 - 2200
Fax: (619) 445-9126
michaelg@leaningrock.net

Iipay Nation of Santa Ysabel
Virgil Perez, Chairperson
P.O. Box 130 — Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 765 - 0845
Fax: (760) 765-0320

Iipay Nation of Santa Ysabel
Clint Linton, Director of Cultural Resources
P.O. Box 507 — Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 803 - 5694
cjlinton73@aol.com

Inaja-Cosmit Band of Indians
Rebecca Osuna, Chairperson
2005 S. Escondido Blvd. — Diegueno
Escondido, CA, 92025
Phone: (760) 737 - 7628
Fax: (760) 747-8568

Jamul Indian Village
Lisa Cumper, Tribal Historic Preservation Officer
P.O. Box 612 — Diegueno
Jamul, CA, 91935
Phone: (619) 669 - 4855
lcumper@jiv-nsn.gov

Jamul Indian Village
Erica Pinto, Chairperson
P.O. Box 612 — Diegueno
Jamul, CA, 91935
Phone: (619) 669 - 4785
Fax: (619) 669-4817
epinto@jiv-nsn.gov

Kwaaymii Laguna Band of Mission Indians
Carmen Lucas,
P.O. Box 775 — Kwaaymii
Pine Valley, CA, 91962 — Diegueno
Phone: (619) 709 - 4207

La Jolla Band of Luiseno Indians
Norma Contreras, Chairperson
22000 Highway 76 — Luiseno
Pauma Valley, CA, 92061
Phone: (760) 742 - 3771

La Posta Band of Diegueno Mission Indians
Javaughn Miller, Tribal Administrator
8 Crestwood Road — Diegueno
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
jmiller@LPtribe.net

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Santa Fe Flores Project, San Diego County.

La Posta Band of Diegueno Mission Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road — Diegueno
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
LP13boots@aol.com

Manzanita Band of Kumeyaay Nation
Angela Elliott Santos, Chairperson
P.O. Box 1302 — Diegueno
Boulevard, CA, 91905
Phone: (619) 766 - 4930
Fax: (619) 766-4957

Mesa Grande Band of Diegueno Mission Indians
Michael Linton, Chairperson
P.O Box 270 — Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 782 - 3818
Fax: (760) 782-9092
mesagrandeband@msn.com

Pala Band of Mission Indians
Shasta Gaughen, Tribal Historic Preservation Officer
PMB 50, 35008 Pala Temecula Rd. — Cupeno, Luiseno
Pala, CA, 92059
Phone: (760) 891 - 3515
Fax: (760) 742-3189
sgaughen@palatribe.com

Pauma Band of Luiseno Indians
Temet Aguilar, Chairperson
P.O. Box 369 — Luiseno
Pauma Valley, CA, 92061
Phone: (760) 742 - 1289
Fax: (760) 742-3422
bennaecalac@aol.com

Pechanga Band of Indians
Mark Macarro, Chairperson
P.O. Box 1477 — Luiseno
Temecula, CA, 92593
Phone: (951) 770 - 6000
Fax: (951) 695-1778
epreston@pechanga-nsn.gov

Pechanga Band of Indians
Paul Macarro, Cultural Resources Coordinator
P.O. Box 1477 — Luiseno
Temecula, CA, 92593
Phone: (951) 770 - 6306
Fax: (951) 506-9491
pmacarro@pechanga-nsn.gov

Rincon Band of Luiseno Indians
Cheryl Madrigal, Tribal Historic Preservation Officer
One Government Center Lane — Luiseno
Valley Center, CA, 92082
Phone: (760) 297 - 2635
crd@rincon-nsn.gov

Rincon Band of Luiseno Indians
Bo Mazzetti, Chairperson
One Government Center Lane — Luiseno
Valley Center, CA, 92082
Phone: (760) 749 - 1051
Fax: (760) 749-5144
bomazzetti@aol.com

San Luis Rey Band of Mission Indians
San Luis Rey, Tribal Council
1889 Sunset Drive — Luiseno
Vista, CA, 92081
Phone: (760) 724 - 8505
Fax: (760) 724-2172
cjmojado@slrmissionindians.org

San Luis Rey Band of Mission Indians
1889 Sunset Drive — Luiseno
Vista, CA, 92081
Phone: (760) 724 - 8505
Fax: (760) 724-2172
cjmojado@slrmissionindians.org

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Santa Fe Flores Project, San Diego County.

Native American Heritage Commission
Native American Contact List
San Diego County
3/29/2022

San Pasqual Band of Diegueno Mission Indians
Allen Lawson, Chairperson
P.O. Box 365 — Diegueno
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
allenl@sanpasqualtribe.org

San Pasqual Band of Diegueno Mission Indians
John Flores, Environmental Coordinator
P. O. Box 365 — Diegueno
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
johnf@sanpasqualtribe.org

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487 — Cahuilla
San Jacinto, CA, 92581 — Luiseno
Phone: (951) 663 - 5279
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Soboba Band of Luiseno Indians
Isaiah Vivanco, Chairperson
P. O. Box 487 — Cahuilla
San Jacinto, CA, 92581 — Luiseno
Phone: (951) 654 - 5544
Fax: (951) 654-4198
ivivanco@soboba-nsn.gov

Sycuan Band of the Kumeyaay Nation
Cody Martinez, Chairperson
1 Kwaaypaay Court — Kumeyaay
El Cajon, CA, 92019
Phone: (619) 445 - 2613
Fax: (619) 445-1927
ssilva@sycuan-nsn.gov

Sycuan Band of the Kumeyaay Nation
Kristie Orosco, Kumeyaay Resource Specialist
1 Kwaaypaay Court — Kumeyaay
El Cajon, CA, 92019
Phone: (619) 445 - 6917

Viejas Band of Kumeyaay Indians
John Christman, Chairperson
1 Viejas Grade Road — Diegueno
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337

Viejas Band of Kumeyaay Indians
Ernest Pingleton, Tribal Historic Officer, Resource Management
1 Viejas Grade Road — Diegueno
Alpine, CA, 91901
Phone: (619) 659 - 2314
epingleton@viejas-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Santa Fe Flores Project, San Diego County.

Rincon Band of Luiseño Indians
CULTURAL RESOURCES DEPARTMENT

One Government Center Lane | Valley Center | CA 92082
(760) 749-1092 | Fax: (760) 749-8901 | rincon-nsn.gov

June 28, 2022

Sent via email: JFarace@san-marcos.net
Mr. Joseph Farace
City of San Marcos
1 Civic Center Drive
San Marcos, CA 92069

Re: GPA21-0008 Santa Fe/Los Flores

Dear Mr. Farace,

This letter is written on behalf of the Rincon Band of Luiseño Indians ("Rincon Band" or "Tribe"), a federally recognized Indian tribe and sovereign government. Thank you for consulting with the Tribe on the above-mentioned project and providing us with project-related documents.

The Rincon Band of Luiseño Indians Tribal Historic Preservation Office (THPO) has reviewed the provided documents and is in agreement with the proposed measures in the RECON Cultural Resources Assessment, which include archaeological and tribal monitoring, a monitoring report, and protocols for discovery of cultural material and human remains. We understand that other Tribes potentially have knowledge particular to this project site and may request additional measures. Please note that the Rincon Band supports all efforts to completely avoid cultural resources as preferred mitigation. We have no further comments regarding this project and can conclude consultation at this time.

We do request that the Rincon Band be notified of any changes in project plans. In addition, we request a copy of the final monitoring report, when available and ask that Rincon be afforded the opportunity to monitor the ground disturbances associated with this project.

The Rincon Band reserves its right to continue to fully participate in the environmental review process and to review and submit additional information during the public review process. If you have additional questions or concerns, please do not hesitate to contact our office at your convenience at (760) 749 1092 ext. 323 or via electronic mail at cmadrigal@rincon-nsn.gov. Thank you for the opportunity to protect our cultural heritage.

Sincerely,

Cheryl Madrigal
Tribal Historic Preservation Officer
Cultural Resources Manager

Bo Mazzetti, Chairman | Tishmall Turner, Vice Chair | Laurie E. Gonzalez, Council Member | John Constantino, Council Member | Joseph Linto, Council Member

CONFIDENTIAL ATTACHMENT

Not for Public Review

ATTACHMENT D.6

GEOTECHNICAL REPORT

Project No. G3355-42-01
November 25, 2025

Santa Fe Flores LP
P.O. Box 903
Ranch Santa Fe, California 92067

Attention: Mr. Paul Mayer

Subject: UPDATE TO GEOTECHNICAL INVESTIGATION
SAN MARCOS RESIDENCES
2972 SOUTH SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

References:
1. (Appendix A) *Geotechnical Investigation, San Marcos Residences, 2972 South Santa Fe Avenue, San Marcos, California*, prepared by Geocon Incorporated, dated August 12, 2024 (Project No. G3355-42-01).
2. (Appendix B) *Permanent Shoring, MSE, and Anchor Plex Wall Recommendations, San Marcos Residences, 2972 South Santa Fe Avenue, San Marcos, California*, prepared by Geocon Incorporated, dated October 17, 2024 (Project No. G3355-42-01).
3. *Tentative Subdivision Map for Condominium Purposes for 2972 & 2982 S. Santa Fe Avenue, San Marcos, California],* prepared by PLSA, undated.

Dear Mr. Mayer:

In accordance with your request, we have prepared this update to the geotechnical investigation for the subject project. Based on information provided and Reference 3, we understand the project consists of constructing 46 townhouse units within 6 buildings. We have updated the geologic map and cross sections in Reference 1 using a CAD file of Reference 1 to show the revised project limits and proposed development (see Figures 1 and 2).

Based on our review of Reference 3, the recommendations contained in References 1 and 2 remain applicable to the design and construction of the proposed project.

Should you have any questions regarding this update letter, or if we may be of further service, please contact the undersigned at your convenience.

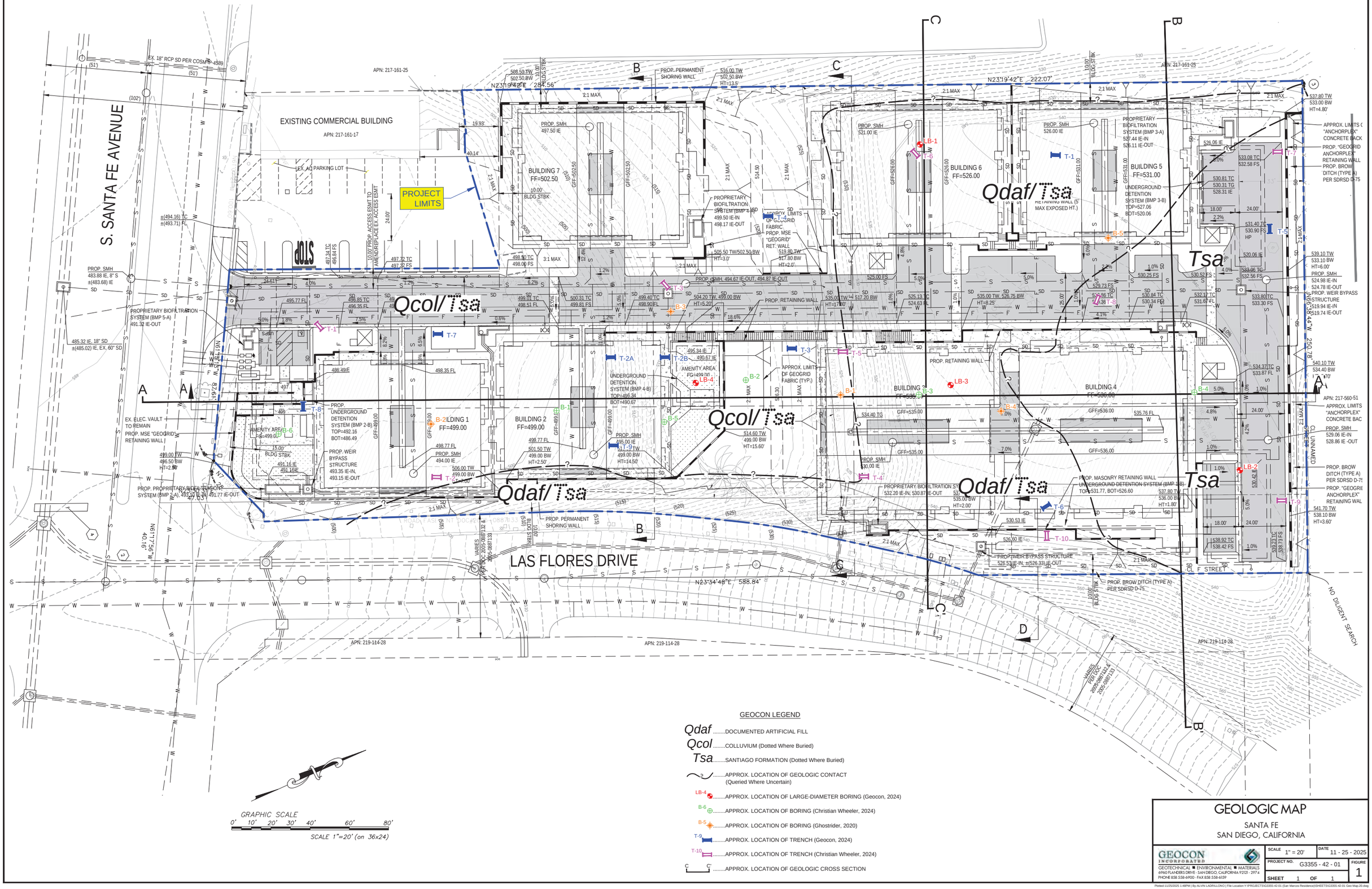
Very truly yours,

GEOCON INCORPORATED

Rodney C. Mikesell
GE 2533

RCM:arm

(e-mail) Addressee



GEOCON LEGEND

- *Qdaf* .....DOCUMENTED ARTIFICIAL FILL
- *Qcol* .....COLLUVIUM (Dotted Where Buried)
- *Tsa* .....SANTIAGO FORMATION (Dotted Where Buried)
- .....APPROX. LOCATION OF GEOLOGIC CONTACT (Queried Where Uncertain)
- LB-4 .....APPROX. LOCATION OF LARGE-DIAMETER BORING (Geocon, 2024)
- B-6 .....APPROX. LOCATION OF BORING (Christian Wheeler, 2024)
- B-5 .....APPROX. LOCATION OF BORING (Ghostrider, 2020)
- T-9 .....APPROX. LOCATION OF TRENCH (Geocon, 2024)
- T-10 .....APPROX. LOCATION OF TRENCH (Christian Wheeler, 2024)
- C C' .....APPROX. LOCATION OF GEOLOGIC CROSS SECTION

GEOLOGIC MAP

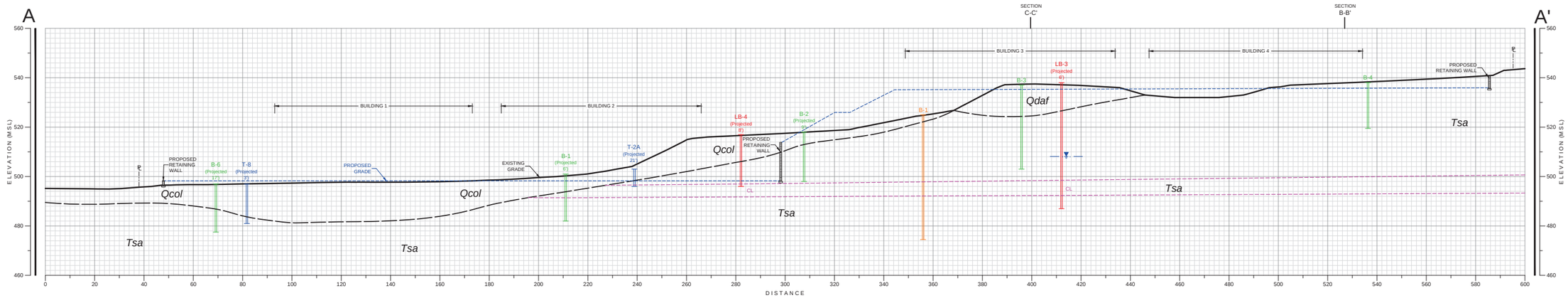
SANTA FE
SAN DIEGO, CALIFORNIA

GEOCON INCORPORATED
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121 - 2974
PHONE 858 558-6900 - FAX 858 558-6159

SCALE	1" = 20'	DATE	11 - 25 - 2025
PROJECT NO.	G3355 - 42 - 01		FIGURE 1
SHEET	1 OF 1		

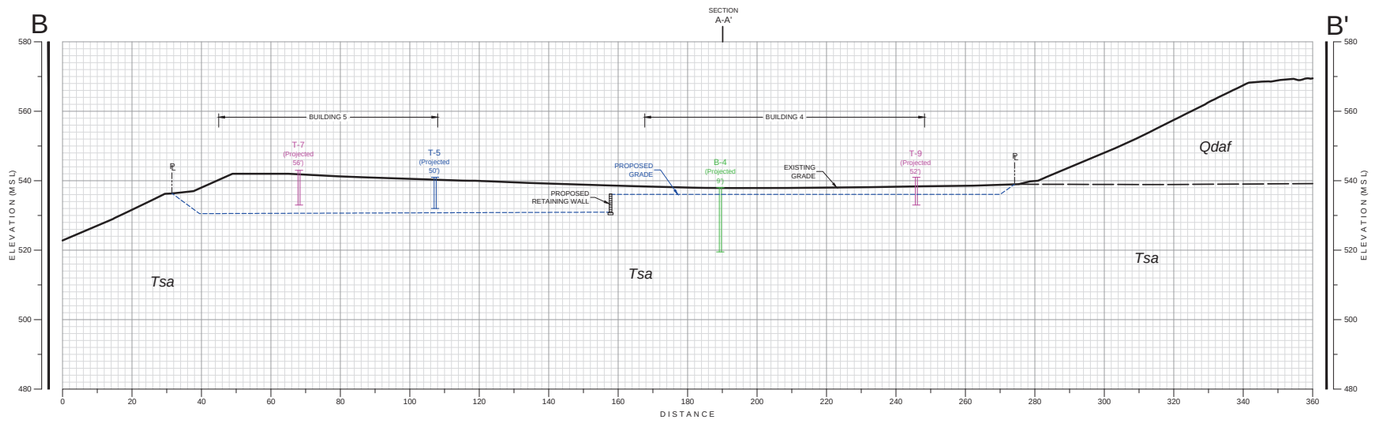
Plotted:11/25/2025 1:48PM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\G3355-42-01 (San Marcos Residence)\SHEETS\G3355-42-01 Geo Map 20.dwg

1559



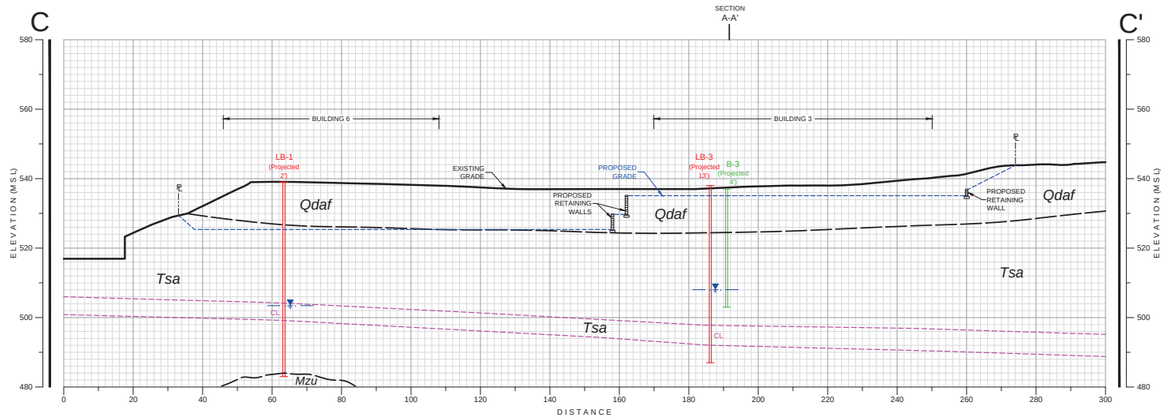
GEOLOGIC CROSS-SECTION A-A'

SCALE: 1" = 20' (Vert. = Horiz.)



GEOLOGIC CROSS-SECTION B-B'

SCALE: 1" = 20' (Vert. = Horiz.)



GEOLOGIC CROSS-SECTION C-C'

SCALE: 1" = 20' (Vert. = Horiz.)

GEOCON LEGEND

- Qdaf ..... DOCUMENTED ARTIFICIAL FILL
- Qcol ..... COLLUVIUM
- Tsa ..... SANTIAGO FORMATION
- Mzu ..... METAVOLCANIC AND METASEDIMENTARY ROCK
- ..... APPROX. LOCATION OF GEOLOGIC CONTACT (Queried Where Uncertain)
- LB-4 ..... APPROX. LOCATION OF LARGE-DIAMETER BORING (Geocon, 2024)
- B-6 ..... APPROX. LOCATION OF BORING (Christian Wheeler, 2024)
- ..... APPROX. LOCATION OF BORING (Ghostrider, 2020)
- T-8 ..... APPROX. LOCATION OF TRENCH (Geocon, 2024)
- T-9 ..... APPROX. LOCATION OF TRENCH (Christian Wheeler, 2024)
- ..... APPROX. LOCATION WHERE SEEPAGE ENCOUNTERED
- CL ..... FRACTURED CLAYSTONE LAYER (Queried Where Uncertain)

GEOLOGIC CROSS SECTION

SANTA FE
SAN DIEGO, CALIFORNIA

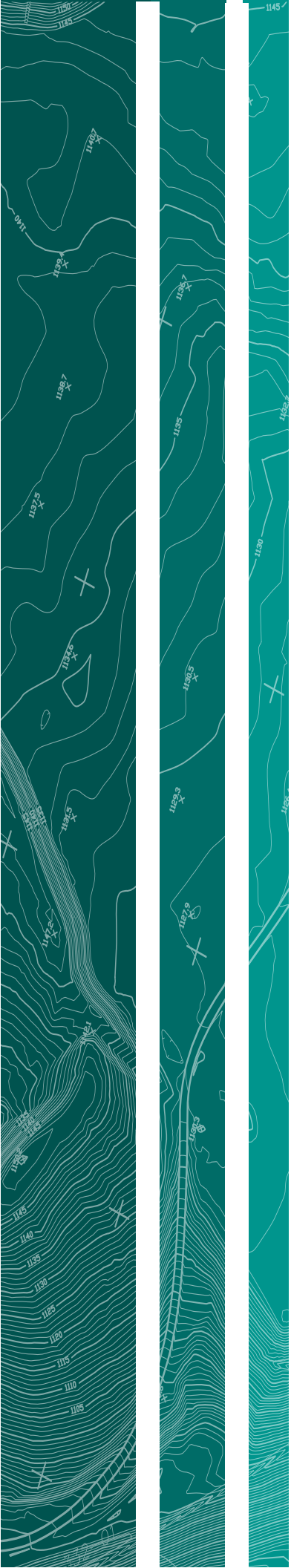
GEOCON INCORPORATED
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121 - 2974
PHONE 858 558-6900 - FAX 858 558-6159

SCALE	1" = 20'	DATE	11 - 25 - 2025
PROJECT NO.	G3355 - 42 - 01	FIGURE	2
SHEET	1 OF 1		

Plotted:11/25/2025 11:10AM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\G3355-42-01 (San Marcos Residence)\SHEETS\G3355-42-01 XSections.20.dwg

1560

APPENDIX A



GEOCON
INCORPORATED

GEOTECHNICAL INVESTIGATION

SAN MARCOS RESIDENCES
2972 SOUTH SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

AUGUST 12, 2024
PROJECT NO. G3355-42-01

PREPARED FOR:

SANTA FE FLORES LP
RANCHO SANTA FE, CALIFORNIA

1562

Project No. G3355-42-01
August 12, 2024

Santa Fe Flores LP
P.O. Box 903
Rancho Santa Fe, California 92067

Attention: Mr. Paul Mayer

Subject: GEOTECHNICAL INVESTIGATION
SAN MARCOS RESIDENCES
2972 SOUTH SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

Dear Mr. Mayer:

In accordance with your request, and in accordance with our proposal (No. SD-24-1066-P-GT, dated June 3, 2024), we herein submit the results of our geotechnical investigation for the subject site. We performed our investigation to evaluate soil and geologic conditions and potential geologic hazards at the site and to provide geotechnical design parameters for the proposed improvements. The accompanying report contains the results of our study with conclusions and recommendations pertinent to geotechnical aspects of the project. The site is suitable for the planned development provided the recommendations in this report are followed.

If you have any questions regarding this report, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON INCORPORATED

Jake P. Shelton
PG 10302

Rupert S. Adams
CEG 2561

Rodney C. Mikesell
GE 2533

PROFESSIONAL GEOLOGIST ★ STATE OF CALIFORNIA ★ RUPERT S. ADAMS NO. 2561 CERTIFIED ENGINEERING GEOLOGIST

REGISTERED PROFESSIONAL ENGINEER ★ RODNEY C. MIKESELL No.2533 GEOTECHNICAL ★ STATE OF CALIFORNIA ★

JPS:RSA:RCM:am

(e-mail) Addressee

TABLE OF CONTENTS

1. PURPOSE AND SCOPE 5

2. SITE AND PROJECT DESCRIPTION 6

3. PREVIOUS INVESTIGATIONS 7

4. GEOLOGIC SETTING 7

5. SOIL AND GEOLOGIC CONDITIONS 7
   5.1. Documented Artificial Fill (Qdaf) 7
   5.2. Colluvium (Qcol) 8
   5.3. Santiago Formation (Tsa) 8
   5.4. Metavolcanic Rock (Mzu) 8

6. GROUNDWATER 8

7. GEOLOGIC HAZARDS 9
   7.1. Ground Rupture 9
   7.2. Seismicity 9
   7.3. Liquefaction 9
   7.4. Landslides 9
   7.5. Tsunamis and Seiches 9
   7.6. Flooding 9

8. CONCLUSIONS AND RECOMMENDATIONS 10
   8.1. General 10
   8.2. Excavation and Soil Characteristics 11
   8.3. Slope Stability 12
   8.4. Subdrains 13
   8.5. Grading Recommendations 13
   8.6. In-Situ Lime-Treated Highly Expansive Soils (Option 2 Grading) 18
   8.7. Temporary Excavation Slopes 19
   8.8. Seismic Design Criteria – 2022 California Building Code 19
   8.9 Foundation and Concrete Slab Recommendations for Expansive Soils (Option 1 Grading) 21
   8.10 Foundation and Concrete Slab Recommendations (Options 2 and 3 Grading) 24
   8.11 Foundations Recommendations – General (Applicable to Grading Options 1 through 3) 27
   8.12 Exterior Concrete Flatwork 29
   8.13. Retaining Walls 31
   8.14. Lateral Loading 34
   8.15 Preliminary Pavement Recommendations 35
   8.16. Storm Water Management 39
   8.17. Site Drainage and Moisture Protection 39
   8.18. Grading and Foundation Plan Review 40

LIMITATIONS AND UNIFORMITY OF CONDITIONS

MAPS AND ILLUSTRATIONS
Figure 1, Geologic Map
Figure 2, Geologic Cross-Sections

APPENDIX A
FIELD INVESTIGATION

APPENDIX B
LABORATORY TESTING

APPENDIX C
BORING LOGS AND LABORATORY TESTING BY OTHERS

APPENDIX D
SLOPE STABILITY ANALYSIS

APPENDIX E
RECOMMENDED GRADING SPECIFICATIONS

LIST OF REFERENCES

GEOTECHNICAL INVESTIGATION

1. PURPOSE AND SCOPE

This report contains the results of our geotechnical investigation performed for the 2.5-acre property located north of South Santa Fe Avenue and west of North Las Flores Drive in San Marcos, California (see Vicinity Map). The purpose of this investigation is to evaluate surface and subsurface soil conditions; general site geology; and to identify geotechnical constraints that may impact the proposed development.

Vicinity Map

The scope of this investigation included reviewing readily available published geologic literature; reviewing previous geotechnical investigation reports prepared for the site (see List of References); drilling four large diameter borings; down-hole logging the large diameter borings; excavating nine exploratory test pits; laboratory analysis of soil samples collected during our field investigation; engineering analysis; and preparing this report. The approximate locations of the current and previous exploratory borings and test pits are depicted on the Geologic Map, Figure 1.

Appendix A contains the exploratory borings and test pit logs and details of the field investigation. Appendix B has the results of our laboratory testing. Appendix C contains boring logs and laboratory testing from previous geotechnical reports prepared for the property.

2. SITE AND PROJECT DESCRIPTION

The property is an approximately 2.5-acre undeveloped parcel, located north of South Santa Fe Avenue and West of North Las Flores Drive in San Marcos, California. It is bordered by commercial/industrial buildings on the north and west sides, and a convenience store at the southwest corner. The property is terraced into three relatively level pads with approximate elevations of 500 feet, 518 feet, and 535 feet Mean Sea Level (MSL).

Based on review of historical aerial photographs, farm and commercial buildings were present on the north and south sides of the property, respectively. The buildings were demolished circa 1990 and 2010. Historical aerial photographs also show several episodes of grading around 1964, 1990, 2005, and 2007. A report prepared by Christian Wheeler documents grading that took place in 2005 and 2007. The existing site conditions are shown in the figure below.

Existing Site Conditions

We understand preliminary plans are to construct six townhome buildings with paved roadways, parking areas, landscaping, hardscape, and utilities. Grading will consist of cuts and fills of approximately 16 feet. Grading will result in a fill over cut slope with a height up to approximately 36 feet. Retaining walls with heights up to approximately 10 feet are planned.

3. PREVIOUS INVESTIGATIONS

As part of this study, we reviewed geotechnical reports prepared by Ghostrider Incorporated (2020), Christian Wheeler Engineering (2022), and Nova Engineering (2016). We have included boring logs and laboratory data from these reports in Appendix C. The geologic interpretation of the site presented in this report may differ from previous reports and supersedes what is presented in the referenced geotechnical reports.

4. GEOLOGIC SETTING

The site is located in the coastal plain within the southern portion of the Peninsular Ranges Geomorphic Province of southern California. The coastal plain of San Diego County is underlain by a thick sequence of sedimentary rocks that range in age from Upper Cretaceous through the Pleistocene. The sedimentary units are deposited on Cretaceous and Jurassic age igneous and metamorphic rock. The San Diego County coastal plain is dissected by the potentially active La Nacion Fault Zone and the active Rose Canyon Fault Zone.

5. SOIL AND GEOLOGIC CONDITIONS

The site is underlain by documented artificial fill, Quaternary-age colluvium, Eocene-age Santiago Formation, and Jurassic-age rock mapped as Metasedimentary and Metavolcanic Rock (Kennedy & Tan, 2007). The soil and geologic units encountered during our investigation are described below, and on the boring logs in Appendix A. The approximate surface and subsurface distribution of soil and geologic units is shown on the Geologic Map (Figure 1) and Geologic Cross-Sections (Figure 2).

5.1. Documented Artificial Fill (Qdaf)

Documented artificial fill was encountered in borings LB-1 and LB-3, and in test pits TP-1, -5, and -6. The fill was placed during past site grading activities documented by Christian Wheeler in 2005 and 2007 (Christian Wheeler, 2022). The fill consisted of soft to stiff, damp to moist, sandy clay and medium dense, moist, clayey sand with varying amounts of gravel and possesses a “high” expansion potential (expansion index of greater than 90 and less than 130). Fill thicknesses ranged from about 1-foot to

13.5 feet. The upper 5 feet of fill is unsuitable in its current condition to support structural fill or settlement- sensitive improvements and will require remedial grading.

5.2. Colluvium (Qcol)

Colluvium was encountered in boring LB-4; and at test pits TP-2, 3, 4, 7, 8, and 9. The thickness of the colluvium ranged from about 4 to 14 feet. The colluvium consists of stiff to hard, damp to moist, sandy clay and possesses a “high” to “very high” expansion potential (expansion index of greater than 90). The upper 5 feet of colluvium is unsuitable in its current condition to support structural fill or settlement- sensitive improvements and will require remedial grading.

5.3. Santiago Formation (Tsa)

Santiago Formation was encountered in test pits TP-1 through TP- 9 at depths between about 1 and 14 feet below surface elevations; and was encountered at the ground surface at boring LB-2. Santiago Formation consists of dense to very dense, weakly to moderately cemented, silty sandstone that excavates to a damp, fine to medium grained, silty sand; and stiff to firm, weakly to moderately indurated, sandy claystone that excavated to damp, sandy clay. Based on previous laboratory testing performed by others, the clayey portion of the Santiago Formation possesses a “very high” expansion potential (expansion index of greater than 130) and may need to be undercut in structural improvement areas depending on the grading option selected (see Section 8.5).

5.4. Metavolcanic Rock (Mzu)

Metavolcanic Rock was encountered in boring LB-1 at a depth of about 55 feet below surface elevation. The rock consisted of highly weathered metavolcanic rock that excavated to a damp, fine to coarse grained silty sand. The rock is suitable to support settlement sensitive improvements.

6. GROUNDWATER

We encountered seepage in borings LB-1, -2, and -3 at depths of 35, 21, and 30 feet, respectively. It is not uncommon for groundwater or shallow seepage to develop where none previously existed. Groundwater and seepage is dependent on seasonal precipitation, irrigation, land use, among other factors, and varies as a result. Proper surface drainage will be important to the performance of the project.

7. GEOLOGIC HAZARDS

7.1. Ground Rupture

The USGS (2016) and Kennedy & Tan (2007) show that there are no mapped Quaternary faults crossing or trending toward the site. The site is not located within a currently established Alquist-Priolo Earthquake Fault Zone (CEG, 2021a). The closest active fault is the Newport-Inglewood-Rose Canyon fault zone located approximately 13 miles to the west. There are no active faults, potentially active faults, inactive faults, presumed inactive faults, or activity unknown faults at the site or trending toward the site. The risk associated with ground rupture hazard is low.

7.2. Seismicity

Considerations important in seismic design include frequency and duration of motion and soil conditions underlying the site. The seismic design of structures should be evaluated in accordance with the 2022 California Building Code currently adopted by the local agency. The risk associated with strong seismic ground motion hazard is high; however, the risk is no greater than that for the site vicinity.

7.3. Liquefaction

Considering the lack of shallow permanent groundwater and the density and age of the underlying geologic units, the risk associated with seismically induced soil liquefaction hazard is low.

7.4. Landslides

We did not observe any evidence of landsliding during our investigation. Kennedy & Tan (2007) show that there are no landslides mapped at the site or in an area that could impact the site. The risk associated with ground movement hazard due to landsliding is low.

7.5. Tsunamis and Seiches

The site is not located within a California Tsunami Hazard Area (CGS, 2021b). There are no lakes or reservoirs located near the site. The risk associated with inundation hazard due to tsunami or seiche is low.

7.6. Flooding

The site is not mapped in an area associated with flood risk (FEMA, 2012). The risk associated with flooding is low.

8. CONCLUSIONS AND RECOMMENDATIONS

8.1. General

8.1.1. It is our opinion that the site is suitable for the planned improvements, provided the recommendations presented herein are implemented during design and construction of the project.

8.1.2. The site is underlain by documented artificial fill, colluvium, Santiago Formation, and Metavolcanic Rock. The fill ranges from approximately 1 to 13.5 feet thick but may be deeper in unexplored areas of the site. Colluvium extends to depths between about 4 and 14 feet below existing grades but may be thicker in unexplored areas of the site.

8.1.3. The fill, colluvium, and clayey portions of the Santiago Formation exhibit a "high" to "very high" expansion potential. Portions of the fill and colluvium will require remedial grading and/or chemical stabilization, i.e., lime treatment.

8.1.4. No significant geologic hazards were observed or are known to exist on the site that would adversely affect site development.

8.1.5. It is our opinion that there are no active, potentially active, or inactive faults traversing the site, based on our review of Kennedy & Tan (2007), CGS (2001a), and USGS (2016).

8.1.6. We encountered seepage in borings LB-1, -2, and -3 at depths of 35, 21, and 30 feet, respectively; however, seepage could be encountered during grading operations in areas not explored, especially during the rainy season.

8.1.7 The existing highly expansive fill, colluvium and Santiago Formation can be reused as compacted fill, provided the appropriate foundation categories for shallow foundations provided herein are used in design. Alternative grading options are presented herein to mitigate the expansion potential of clayey soils, including lime stabilization and replacement of the highly expansive soils with low expansive material. Recommendations for each are presented in the grading section of this report.

8.1.8 If lime treatment is desired, a supplemental study should be performed to determine the actual amount (percentage) of lime to stabilize the near surface clayey materials. Typically,

5 to 6 percent of lime is needed to stabilize the soil.

8.1.9. Depending on the grading option chosen, the planned structures can be supported on a conventional shallow foundation system or post-tensioned system bearing on properly compacted fill soil or Santiago Formation.

8.1.10. Proper drainage should be maintained in order to preserve the engineering properties of the fill. Recommendations for site drainage are provided herein.

8.1.11. Subsurface conditions observed may be extrapolated to reflect general soil/geologic conditions; however, some variations in subsurface conditions between boring and trench locations should be anticipated.

8.2. Excavation and Soil Characteristics

8.2.1. Excavation of the in-situ soil should be possible with moderate to heavy effort using conventional heavy-duty equipment. Excavation of the formational materials will require very heavy effort and may generate oversized material (material greater than 12-inches in dimension) using conventional heavy-duty equipment during the grading operations. Oversized material can be incorporated into landscape use or deep compacted fill areas, if available. The grading and improvement contractors should review this report and evaluate the proper equipment to use for the planned excavations.

8.2.2. The soil encountered in the field investigation is considered “expansive” (expansion index [EI] greater than 20) as defined by 2022 California Building Code (CBC) Section 1803.5.3. The following table presents soil classifications based on the expansion index. Based on laboratory testing and our experience in the site vicinity, we expect the onsite soil possesses a “high” to “very high” expansion potential (EI greater than 90).

EXPANSION CLASSIFICATION BASED ON EXPANSION INDEX

Expansion Index (EI)	ASTM D 4829 Expansion Classification	2022 CBC Expansion Classification
0 – 20	Very Low	Non-Expansive
21 – 50	Low	Expansive
51 – 90	Medium	
91 – 130	High	
Greater Than 130	Very High	

8.2.3. We performed laboratory tests on samples of the site soils to evaluate the percentage of water-soluble sulfate content. Appendix B presents results of the laboratory water-soluble sulfate content tests. The test results indicate the on-site soils at the locations tested possess a "S0" sulfate exposure to concrete structures as defined by 2022 CBC Section 1904 and ACI 318-19 Chapter 19. The presence of water-soluble sulfates is not a visually discernible characteristic; therefore, other soil samples from the site could yield different concentrations. Over time landscaping activities (i.e., addition of fertilizers and other soil nutrients) may affect the concentration.

8.2.4. We tested a soil sample for pH and resistivity and chloride concentrations to aid in evaluating the corrosion potential. Appendix B presents the laboratory test results.

8.2.5. Geocon does not practice in the field of corrosion engineering; therefore, further evaluation by a corrosion engineer may be needed if improvements susceptible to corrosion are planned.

8.3. Slope Stability

8.3.1 We performed slope stability analyses using the two-dimensional computer program GeoStudio created by Geo-Slope International Ltd. Output of the computer program including the calculated factor of safety and the failure surface is presented in Appendix D.

8.3.2 Our calculations indicate the proposed and existing slopes, constructed of on-site materials, should have calculated factors of safety (FOS) of at least 1.5 under static conditions, for both deep-seated failure and shallow sloughing conditions when the recommendations of this report are followed. The results of our slope stability analysis are presented in Appendix D.

8.3.3 We recommend the construction of a stability fill where Santiago Formation or highly expansive soils are exposed on proposed slope faces. The stability fill should have a minimum width of 15 feet measured from the slope face. A typical buttress/stability fill detail is presented in Section 8.5.

8.3.4 All cut slope excavations should be observed during grading by an engineering geologist to verify that soil and geologic conditions do not differ significantly from those anticipated.

8.3.5 Slopes should be landscaped with drought-tolerant vegetation having variable root depths and requiring minimal landscape irrigation. In addition, slopes should be drained and properly maintained to reduce erosion.

8.4. Subdrains

8.4.1. With the exception of subdrains for retaining walls and stability fills, no other subdrains will be required.

8.5. Grading Recommendations

8.5.1. Grading should be performed in accordance with the recommendations provided in this report, the Recommended Grading Specifications contained in Appendix E, and the local Grading Ordinance. Geocon should observe grading operations on a full-time basis and provide compaction testing and observation during the fill placement.

8.5.2. A preconstruction conference should be held at the site with the city inspector, owner, grading and underground contractors, civil engineer, and geotechnical engineer in attendance. Special soil handling and/or the grading plans can be discussed at that time.

8.5.3. Site preparation should begin with the removal of deleterious material, construction debris, and vegetation. The depth of vegetation removal should be such that soil exposed in cut areas or soil to be used as fill is relatively free of organic matter. Material generated during stripping and/or site demolition should be exported from the site. Concrete or asphalt should not be mixed with the fill soil unless approved by the geotechnical engineer.

8.5.4. Abandoned foundations and buried utilities should be removed, and the resultant excavations or trenches backfilled with properly compacted soil as part of the remedial grading.

8.5.5. **Option 1 – Use of On-Site Soil and Foundations for Expansive Soils:** Fill and colluvium should be removed to a depth of at least 5 feet below existing grade in fill areas and 5 feet below proposed grade in areas of cut. In building pad areas, removals must result in at least 2 feet of compacted fill below building foundations. The existing fill and colluvium can be used as compacted fill, provided the recommendations for "Foundations for Expansive Soils" are utilized in design and construction. Where the Santiago Formation is encountered in the excavation, the removal can be terminated (exception where undercutting for a cut to fill

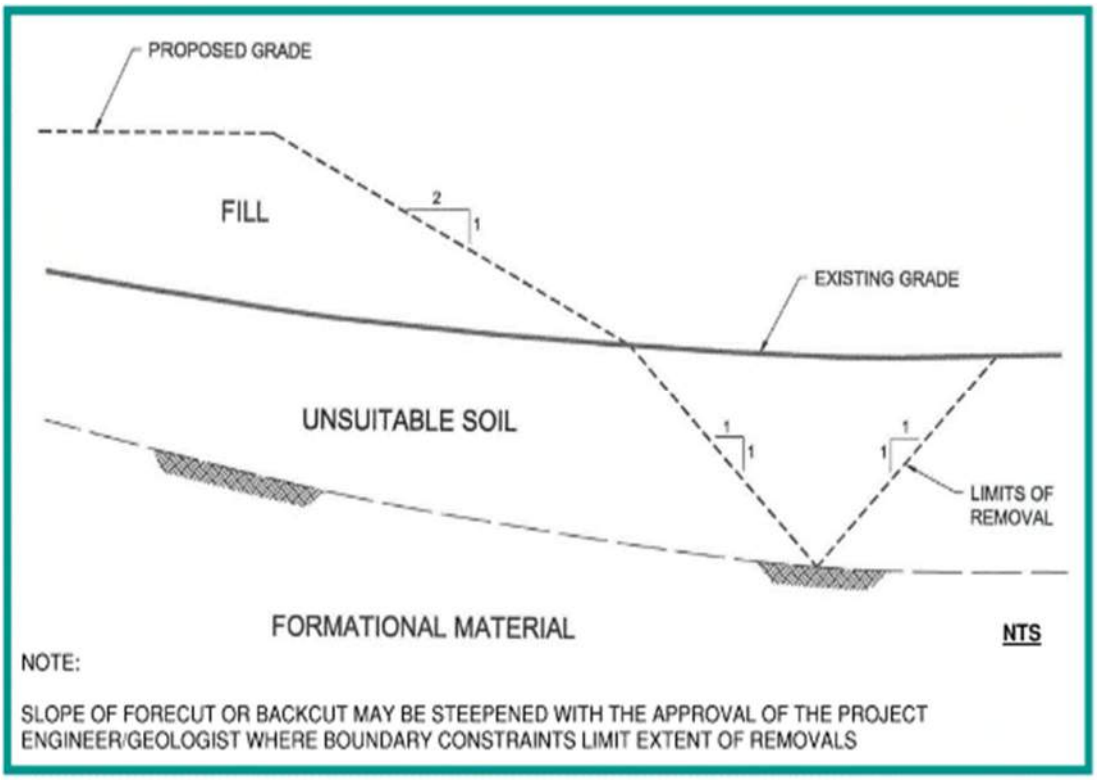
transition is required). Actual removal depths should be determined during grading by a representative of Geocon Incorporated.

8.5.6. **Option 2 – Lime Treatment of On-Site Expansive Soils:** Existing soils (fill, colluvium and Santiago Formation) should be removed to a depth of at least 5 feet below existing or proposed grade, whichever is deeper and replaced with lime treated soil. In building pad areas, the removals and lime treatment must extend to a depth of at least 2 feet below building foundations. For surface improvements outside of building pads, lime treatment should extend to at least 3 feet below finish subgrade. Outside of building pads, the Santiago Formation below 3 feet from subgrade can be left in-place. Additional recommendations for lime treatment are provided in Section 8.6.

8.5.7. **Option 3 – Removal and Replacement of Expansive Soils**: Existing soils (fill, colluvium and Santiago Formation) should be removed to a depth of at least 5 feet below existing or proposed grade, whichever is deeper. In building pad areas, the removals must extend to a depth of at least 2 feet below building foundations. The removals should be replaced with imported soil possessing a "very low" to "medium" expansive potential (Expansion Index of 90 or less). For surface improvements outside of building pads, replacement of imported soil should extend to at least 3 feet below finish subgrade. Outside of building pads, the Santiago Formation below 3 feet from subgrade can be left in-place.

8.5.8. Prior to fill being placed, the existing ground surface should be scarified, moisture conditioned as necessary, and compacted to a depth of at least 12 inches. The site should then be brought to final subgrade elevations with fill compacted in layers. Layers of fill should be about 6 to 8 inches in loose thickness and no thicker than will allow for adequate bonding and compaction. Fill, including backfill and scarified ground surfaces, should be compacted to a dry density of at least 90 percent of the laboratory maximum dry density near to slightly above optimum moisture content in accordance with ASTM Test Procedure D 1557. Fill materials placed below optimum moisture content may require additional moisture conditioning prior to placing fill. Overly wet materials will require drying and/or mixing with drier soils to facilitate proper compaction.

8.5.9. Where not restricted by property lines, protected open space, or exiting improvements, removal of compressible surficial soils should extend beyond the toe of fill slopes a horizontal distance equal to the depth of the remedial removal, in accordance with the typical detail shown below.



8.5.10. Overly wet soils, if encountered, will require drying and/or mixing with drier soils to facilitate proper compaction.

8.5.11. All cleanouts performed during remedial grading should be observed by a representative of Geocon Incorporated prior to placement and compaction of fill. The limits and depth of remedial cleanouts should be surveyed by the Project Civil Engineer.

8.5.12. If Option 1 grading is selected, building pads with cut-fill transitions should be undercut at least 5 feet, sloped 1 percent to the adjacent street or deepest fill, and replaced with properly compacted fill to reduce the potential for differential settlement. The grading should be performed such that the proposed foundation for the structures will bear entirely on either properly compacted fill or on native formational soil. Footings for individual buildings should not be founded on both compacted fill and native formation.

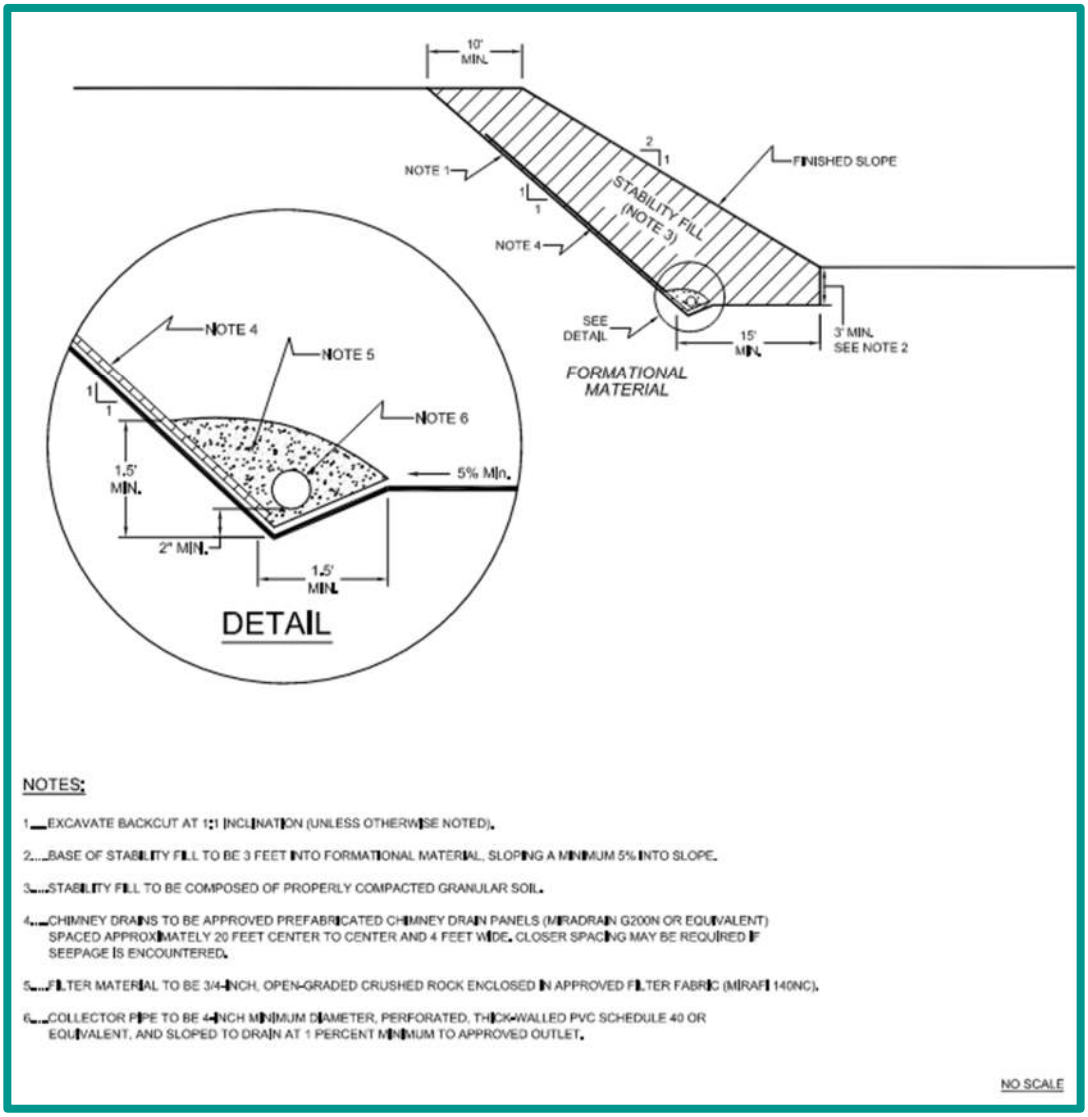
8.5.13. The following table provides a summary of the grading recommendations.

SUMMARY OF GRADING RECOMMENDATIONS

Area	Grading Recommendations
All Improvement Areas	**Option 1**: Remove and recompact the upper 5 feet of fill and colluvium below existing grading in fill areas and 5 feet below proposed grade in cut areas. Foundations for expansive soils should be used in design and construction. **Option 2:** Existing soils (fill, colluvium and Santiago Formation) should be removed to a depth of at least 5 feet below existing or proposed grade, whichever is deeper and replaced with lime treated soil. In surface improvement areas outside of the building pad, the treatment zone can be reduced to 3 feet, although the remedial removal of 5 feet still applies, but can be terminated where the Santiago Formation is encountered below 3 feet. **Option 3:** Replace the upper 5 feet of soils below existing or planned grades (whichever is deeper) with import select soil possessing "very low" to "medium" expansion potential. In surface improvement areas outside of the building pad, the import zone can be reduced to 3 feet, although the remedial removal of 5 feet still applies, but can be terminated where the Santiago Formation is encountered below 3 feet.
Slopes	Cut slopes should be observed during grading by an engineering geologist. Stability fills are required for cut slopes exposing the Santiago Formation. The need for slope stabilization measures should be evaluated during slope excavation.
Building Pads	Footings founded on compacted fill. Undercutting required where cut to fill transition occurs.
Lateral Grading Limits	10 Feet Outside of Building Pads
	5 Feet Outside of Surface Improvement Areas
Exposed Bottoms of Excavations	Scarify Upper 12 Inches

8.5.14. Cut slope excavations including fill slope shear keys should be observed during grading operations to check that soil and geologic conditions do not differ significantly from those expected.

8.5.15. Cut slope excavations exposing the Santiago Formation or highly expansive soils should be constructed in accordance with the stability detail shown below.



8.5.16 Construction of fill slopes should begin with excavation of a fill slope keyway in accordance with the Fill Slope Keyway detail shown in the *Recommended Grading Specifications* in Appendix E.

8.5.17 The outer 15 feet (or a distance equal to the height of the slope, whichever is less) of fill slopes should be composed of properly compacted granular "soil" fill to reduce the potential for surficial sloughing. In general, soils with an Expansion Index of less than 90 or at least 35 percent sand size particles should be acceptable as "granular" fill. Soils of questionable strength to satisfy surficial stability should be tested in the laboratory for acceptable drained shear strength.

8.5.18. Fill slopes should be overbuilt at least 2 feet and cut back or be compacted by backrolling with a loaded sheepsfoot roller during grading at vertical intervals not to exceed 4 feet. The slopes should be track-walked at the completion of each slope with a D8 or larger bulldozer such that the fill is compacted to a dry density of at least 90 percent of the laboratory maximum dry density near to slightly above optimum moisture content to the face of the finished slope.

8.5.19. Imported fill should consist of the characteristics presented in the following table. Geocon Incorporated should be notified of the import soil source and should perform laboratory testing of import soil prior to its arrival at the site to determine its suitability as fill material.

SUMMARY OF IMPORT FILL RECOMMENDATIONS

Soil Characteristic	Values
Expansion Potential	"Very Low" to "Medium" (Expansion Index of 90 or less)
Particle Size	Maximum Dimension Less Than 3 Inches
	Generally Free of Debris

8.6. In-Situ Lime-Treated Highly Expansive Soils (Option 2 Grading)

8.6.1. Existing highly to very highly expansive soils should be removed to the depths discussed in Section 8.5.

8.6.2. Geocon Incorporated should be retained during the overexcavation operations on a full-time basis to identify areas where loose, soft, or dry materials extend deeper than the recommended overexcavation and may require additional remedial grading. The actual depth of removal should be determined during grading operations.

8.6.3. The excavation bottom should be scarified to a depth of 12 inches, moisture conditioned to approximately 3 to 6 percent above optimum moisture content, and recompacted to a minimum relative compaction of 90 percent in accordance with ASTM D 1557.

8.6.4. Soils replaced within the excavation should be treated with lime. A supplemental study will be needed to establish the optimal percentage of lime needed to effectively treat the soil. For preliminary estimates, the soil should then be mixed with approximately 5 percent quick lime by dry weight, uniformly moisture conditioned to 1 to 3 percent above optimum

moisture content, placed in 6- to 8-inch-thick loose layers, and compacted to a relative compaction of at least 90 percent.

8.6.5. A supplemental study, including laboratory water-soluble sulfate content, R-value, and plasticity index testing, will be required to determine the actual percentage of quick lime required to stabilize the expansive soil.

8.6.6. The lime-treated soils should be compacted in accordance with the recommendations contained in Section 24-2 of the 2018 *Caltrans Manual*, Section 301-5 of the 2021 *Standard Specifications for Public Works (Greenbook)*, and the Section 301 of the *2021 City of San Diego Standard Specifications For Public Works Construction (The Whitebook)*.

8.6.7. Due to the recommended lime content and clayey nature of the soils, difficult compaction should be expected. The lime treatment option will substantially reduce the potential for expansion of the soil at the site. Minor expansion-related movement of the hardscape may still occur. Pavement section designs for driveway and parking areas using lime-treated subgrade soils have been included herein.

8.7. Temporary Excavation Slopes

8.7.1. The recommendations included herein are provided for stable excavations. It is the contractor's responsibility to ensure all excavations, temporary slopes, and trenches are properly constructed and maintained in accordance with applicable OSHA guidelines to maintain safety and the stability of the excavations and adjacent improvements. These excavations should not be allowed to become saturated or to dry out. Surcharge loads should not be permitted to a distance equal to the height of the excavation from the top of the excavation. The top of the excavation should be a minimum of 15 feet from the edge of existing improvements. Excavations steeper than those recommended or closer than 15 feet from an existing surface improvement should be shored in accordance with applicable OSHA codes and regulations. Geocon Incorporated should be contacted to provide vertical shoring recommendations, if needed.

8.8. Seismic Design Criteria – 2022 California Building Code

8.8.1. The following table summarizes site-specific design criteria obtained from the 2022 California Building Code (CBC; Based on the 2018 International Building Code [IBC] and ASCE 7-16), Chapter 16 Structural Design, Section 1613 Earthquake Loads. We used SEAOC (2020)

to calculate the seismic design parameters. The short spectral response uses a period of 0.2 second. We evaluated the Site Class based on the discussion in Section 1613.2.2 of the 2022 CBC and Table 20.3-1 of ASCE 7-16. The values presented herein are for the risk-targeted maximum considered earthquake (MCE_R). Sites designated as Site Class D, E and F may require additional analyses if requested by the project structural engineer and client.

2022 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	2022 CBC Reference
Site Class	C	Section 1613.2.2
MCER Ground Motion Spectral Response Acceleration – Class B (short), S_S	0.901g	Figure 1613.2.1(1)
MCER Ground Motion Spectral Response Acceleration – Class B (1 sec), S_1	0.332g	Figure 1613.2.1(2)
Site Coefficient, F_A	1.2	Table 1613.2.3(1)
Site Coefficient, F_V	1.5	Table 1613.2.3(2)
Site Class Modified MCER Spectral Response Acceleration (short), S_{MS}	1.081g	Section 1613.2.3 (Eqn 16-36)
Site Class Modified MCER Spectral Response Acceleration – (1 sec), S_{M1}	0.499g	Section 1613.2.3 (Eqn 16-37)
5% Damped Design Spectral Response Acceleration (short), S_{DS}	0.721g	Section 1613.2.4 (Eqn 16-38)
5% Damped Design Spectral Response Acceleration (1 sec), S_{D1}	0.332g	Section 1613.2.4 (Eqn 16-39)

8.8.2. The following table presents the mapped maximum considered geometric mean (MCE_G) seismic design parameters for projects located in Seismic Design Categories of D through F in accordance with ASCE 7-16.

ASCE 7-16 PEAK GROUND ACCELERATION

Parameter	Value	ASCE 7-16 Reference
Mapped MCEG Peak Ground Acceleration, PGA	0.389g	Figure 22-7
Site Coefficient, F_{PGA}	1.2	Table 11.8-1
Modified MCEG Peak Ground Acceleration, P_{GAM}	0.467g	Section 11.8.3 (Eqn 11.8-1)

8.8.3. Conformance to the criteria in this section for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur in

the event of a large earthquake. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

8.8.4. The project structural engineer and architect should evaluate the appropriate Risk Category and Seismic Design Category for the planned structures. The values presented herein assume a Risk Category II and a Seismic Design Category D. The following table presents a summary of the risk categories in accordance with ASCE 7-16.

ASCE 7-16 RISK CATEGORIES

Risk Category	Building Use	Examples
I	Low risk to Human Life at Failure	Barn, Storage Shelter
II	Nominal Risk to Human Life at Failure (Buildings Not Designated as I, III or IV)	Residential, Commercial and Industrial Buildings
III	Substantial Risk Human Life at Failure	Theaters, Lecture Halls, Dining Halls, Schools, Prisons, Small Healthcare Facilities, Infrastructure Plants, Storage for Explosives/Toxins
IV	Essential Facilities	Hazardous Material Facilities, Hospitals, Fire and Rescue, Emergency Shelters, Police Stations, Power Stations, Aviation Control Facilities, National Defense, Water Storage

8.9 Foundation and Concrete Slab Recommendations for Expansive Soils (Option 1 Grading)

8.9.1 The foundation recommendations herein are for expansive soils (Option 1 Grading). The proposed structures should be supported on a post-tensioned foundation system.

8.9.2 The post-tensioned systems (foundation dimensions and embedment depths, slab thickness and steel placement) should be designed by a structural engineer experienced in post-tensioned slab design and design criteria of the Post-Tensioning Institute (PTI) DC 10.5-12 *Standard Requirements for Design and Analysis of Shallow Post-Tensioned Concrete Foundations on Expansive Soils* or *WRI/CRSI Design of Slab-on-Ground Foundations*, as required by the 2022 California Building Code Section 1808.6.2. Although this procedure was developed for expansive soil conditions, it can also be used to reduce the potential for foundation distress due to differential fill settlement. The post-tensioned design should

incorporate the geotechnical parameters presented in the following table based on the guidelines presented in the PTI DC 10.5 design manual.

POST-TENSIONED FOUNDATION SYSTEM DESIGN PARAMETERS

Post-Tensioning Institute (PTI) DC10.5 Design Parameters	Foundation Category
	IV
Thornthwaite Index	-20
Equilibrium Suction	3.9
Edge Lift Moisture Variation Distance, e_M (Feet)	3.8
Edge Lift, y_M (Inches)	2.19
Center Lift Moisture Variation Distance, e_M (Feet)	7.3
Center Lift, y_M (Inches)	1.05

8.9.3 The foundations for the post-tensioned slabs should be embedded in accordance with the recommendations of the structural engineer. If a post-tensioned mat foundation system is planned, the slab should possess a thickened edge with a minimum width of 12 inches and extend below the clean sand or crushed rock layer.

8.9.4 If the structural engineer proposes a post-tensioned foundation design method other than PTI, DC 10.5:

- The deflection criteria presented herein are still applicable.
- Interior stiffener beams should be used.
- The width of the perimeter foundations should be at least 12 inches.
- The perimeter footing embedment depth should be at least 30-inches. The embedment depth should be measured from the lowest adjacent pad grade.

8.9.5 Our experience indicates post-tensioned slabs may be susceptible to excessive edge lift from tensioning, regardless of the underlying soil conditions. Placing reinforcing steel at the bottom of the perimeter footings and the interior stiffener beams may mitigate this potential. The structural engineer should design the foundation system to reduce the potential of edge lift occurring for the proposed structures.

8.9.6 During the construction of the post-tension foundation system, the concrete should be placed monolithically. Under no circumstances should cold joints form between the

footings/grade beams and the slab during the construction of the post-tension foundation system unless designed by the structural engineer.

8.9.7 Isolated footings outside of the slab area, if present, should have the minimum embedment depth of 30 inches. The use of isolated footings, which are located beyond the perimeter of the building and support structural elements connected to the building, are not recommended. Where this condition cannot be avoided, the isolated footings should be connected to the building foundation system with grade beams in both directions. In addition, consideration should be given to connecting patio slabs, which exceed 5 feet in width, to the building foundation to reduce the potential for future separation to occur.

8.9.8 Interior stiffening beams should be incorporated into the design of the foundation system in accordance with the PTI design procedures.

8.9.9 Special subgrade presaturation is not deemed necessary prior to placing concrete; however, the exposed foundation and slab subgrade soil should be moisture conditioned, as necessary, to maintain a moist condition as would be expected in any such concrete placement.

8.9.10 The following table provides additional foundation design recommendations.

ADDITIONAL FOUNDATION RECOMMENDATIONS

Parameter	Value
Allowable Bearing Capacity	2,000 psf
Bearing Capacity Increase	500 psf per Foot of Depth
	300 psf per Foot of Width
Maximum Allowable Bearing Capacity	4,000 psf
Estimated Total Settlement	1 Inch
Estimated Differential Settlement	1 Inch in 40 Feet

8.9.11 The bearing capacity values presented herein are for dead plus live loads and may be increased by one-third for transient loads due to wind or seismic forces.

8.9.12 Geocon Incorporated should be consulted to provide additional design parameters as required by the structural engineer.

8.10 Foundation and Concrete Slab Recommendations (Options 2 and 3 Grading)

8.10.1 The foundation recommendations herein assume grading under either Option 2 or 3 is performed and the buildings are underlain by "very low" to "medium" expansive soils (EI of 90 or less).

8.10.2 The proposed structure can be supported on a shallow foundation system founded entirely on properly compacted fill. Foundations for the structure should consist of continuous strip footings and isolated spread footings. The following table provides a summary of the foundation design recommendations.

SUMMARY OF FOUNDATION RECOMMENDATIONS

Parameter	Value
Minimum Continuous Foundation Width, W_C	12 inches
Minimum Isolated Foundation Width, W_I	24 inches
Minimum Foundation Depth, D	24 Inches Below Lowest Adjacent Grade
Minimum Concrete Reinforcement	4 No. 5 Bars, 2 at the Top and 2 at the Bottom
Allowable Bearing Capacity (Compacted Fill)	2,000 psf
Bearing Capacity Increase	500 psf per Foot of Depth
	300 psf per Foot of Width
Maximum Allowable Bearing Capacity (Compacted fill)	4,000 psf
Estimated Total Static Settlement	1-Inch
Estimated Differential Static Settlement	¾ Inch in 40 Feet
Footing Size Used for Settlement	6-Foot Square
Design Expansion Index	90 or less

8.10.3 The bearing capacity values presented herein are for dead plus live loads and may be increased by one-third for transient loads due to wind or seismic forces.

8.10.4 We should observe the foundation excavations prior to the placement of reinforcing steel to check that the exposed soil conditions are similar to those expected and that they have been extended to the appropriate bearing strata. Foundation modifications may be required if unexpected soil conditions are encountered.

8.10.5 Geocon Incorporated should be consulted to provide additional design parameters as required by the structural engineer.

8.10.6 Interior concrete slabs for the structures should be constructed in accordance with the table below.

MINIMUM INTERIOR CONCRETE-SLAB-ON-GRADE RECOMMENDATIONS

Parameter	Value
Minimum Concrete Slab Thickness	5 inches
Minimum Concrete Reinforcement	No. 3 Bars 18 Inches on Center, Both Directions
Typical Slab Underlayment	3 to 4 Inches of Sand/Gravel/Base
Design Expansion Index	90 or less

8.10.7 The concrete-slab-on-grade recommendations are based on soil support characteristics only. The project structural engineer should evaluate the structural requirements of the concrete slabs for supporting expected loads.

8.10.8 As an alternative to the conventional foundation recommendations, consideration should be given to the use of post-tensioned concrete slab and foundation systems for the support of the proposed structures. The post-tensioned systems should be designed by a structural engineer experienced in post-tensioned slab design and design criteria of the Post-Tensioning Institute (PTI) DC10.5 as required by the 2022 California Building Code Section 1808.6.2. Although this procedure was developed for expansive soil conditions, we understand it can also be used to reduce the potential for foundation distress due to differential fill settlement. The post-tensioned design should incorporate the geotechnical parameters presented in the following table based on the guidelines presented in the PTI, DC10.5 design manual.

POST-TENSIONED FOUNDATION SYSTEM DESIGN PARAMETERS

Post-Tensioning Institute (PTI) DC10.5 Design Parameters	Value
Thornthwaite Index	-20
Equilibrium Suction	3.9
Edge Lift Moisture Variation Distance, e_M (feet)	4.9
Edge Lift, y_M (inches)	1.58
Center Lift Moisture Variation Distance, e_M (feet)	9.0
Center Lift, y_M (inches)	0.66

8.10.9 The foundations for the post-tensioned slabs should be embedded in accordance with the recommendations of the structural engineer. If a post-tensioned mat foundation system is planned, the slab should possess a thickened edge with a minimum width of 12 inches and extend below the clean sand or crushed rock layer.

8.10.10 If the structural engineer proposes a post-tensioned foundation design method other than the 2022 CBC (PTI DC10.5):

- The criteria presented in the above Table are still applicable.
- Interior stiffener beams should be used.
- The width of the perimeter foundations should be at least 12 inches.
- The perimeter footing embedment depths should be at least 24 inches. The embedment depths should be measured from the lowest adjacent pad grade.

8.10.11 Our experience indicates post-tensioned slabs are susceptible to excessive edge lift, regardless of the underlying soil conditions. Placing reinforcing steel at the bottom of the perimeter footings and the interior stiffener beams may mitigate this potential. Current PTI design procedures primarily address the potential center lift of slabs but, because of the placement of the reinforcing tendons in the top of the slab, the resulting eccentricity after tensioning reduces the ability of the system to mitigate edge lift. The structural engineer should design the foundation system to reduce the potential of edge lift occurring for the proposed structures.

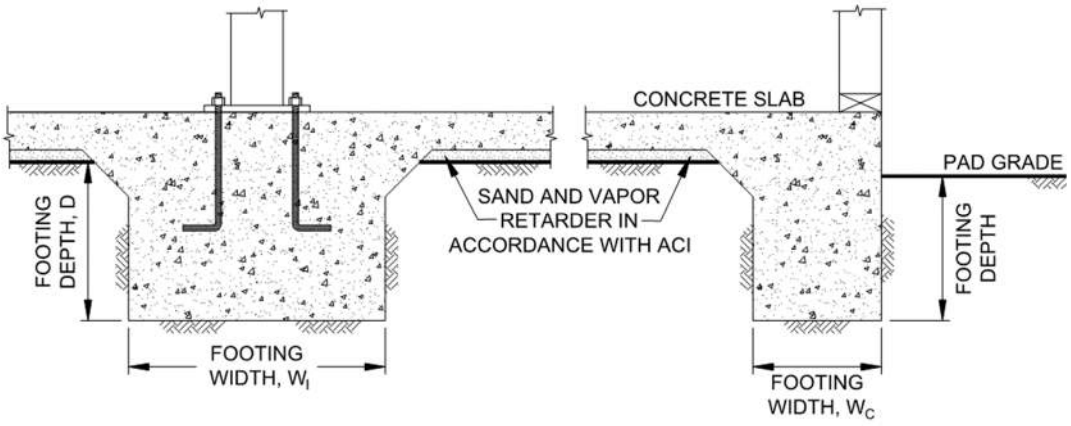
8.10.12 During the construction of the post-tension foundation system, the concrete should be placed monolithically. Under no circumstances should cold joints form between the footings/grade beams and the slab during the construction of the post-tension foundation system unless designed by the project structural engineer.

8.10.13 Isolated footings, if present, should have the minimum embedment depth and width recommended for conventional foundations. The use of isolated footings, which are located beyond the perimeter of the building and support structural elements connected to the building, are not recommended. Where this condition cannot be avoided, the isolated footings should be connected to the building foundation system with grade beams in both directions.

8.10.14 Consideration should be given to using interior stiffening beams and connecting isolated footings and/or increasing the slab thickness.

8.11 Foundations Recommendations – General (Applicable to Grading Options 1 through 3)

8.11.1. The foundations should be embedded in accordance with the recommendations herein and the Wall/Column Footing Dimension Detail. The embedment depths should be measured from the lowest adjacent pad grade for both interior and exterior footings. Footings should be deepened such that the bottom outside edge of the footing is at least 7 feet horizontally from the face of the slope (unless designed with a post-tensioned foundation system as discussed herein).



Wall/Column Footing Dimension Detail

8.11.2 Slabs that may receive moisture-sensitive floor coverings or may be used to store moisture-sensitive materials should be underlain by a vapor retarder. The vapor retarder design should be consistent with the guidelines presented in the American Concrete Institute's (ACI) *Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials* (ACI 302.2R-06). The vapor retarder used should be specified by the project architect or developer based on the type of floor covering that will be installed and if the structure will possess a humidity controlled environment.

8.11.3 The project foundation engineer, architect, or developer should determine the thickness of the slab bedding. It is common to have 3 to 4 inches of sand in the southern California region. We should be contacted to provide recommendations if the bedding sand is thicker than 6 inches.

8.11.4 The foundation design engineer should provide appropriate concrete mix design criteria and curing measures to assure proper curing of the slab. The foundation design engineer should present the concrete mix design and proper curing methods on the foundation plans. It is critical that the foundation contractor understands and follows the specifications presented on the foundation plans.

8.11.5 Special subgrade presaturation is not deemed necessary prior to placing concrete; however, the exposed foundation and slab subgrade soil should be moisture conditioned, as necessary, to maintain a moist condition as would be expected in any such concrete placement.

8.11.6 Where buildings or other improvements are planned near the top of a slope 3:1 (horizontal:vertical) or steeper, special foundation and/or design considerations are recommended due to the tendency for lateral soil movement to occur.

- For fill slopes less than 20 feet high or cut slopes regardless of height, footings should be deepened such that the bottom outside edge of the footing is at least 7 feet horizontally from the face of the slope.
- When located next to a descending 3:1 (horizontal:vertical) fill slope or steeper, the foundations should be extended to a depth where the minimum horizontal distance is equal to H/3 (where H equals the vertical distance from the top of the fill slope to the base of the fill soil) with a minimum of 7 feet but need not exceed 40 feet. The horizontal distance is measured from the outer, deepest edge of the footing to the face of the slope. A post-tensioned slab and foundation system or mat foundation system can be used to reduce the potential for distress in the structures associated with strain softening and lateral fill extension. Specific design parameters or recommendations for either of these alternatives can be provided once the building location and fill slope geometry have been determined.
- If swimming pools are planned, Geocon Incorporated should be contacted for a review of specific site conditions.
- Swimming pools located within 7 feet of the top of cut or fill slopes are not recommended. Where such a condition cannot be avoided, the portion of the swimming pool wall within 7 feet of the slope face be designed assuming that the adjacent soil provides no lateral support. This recommendation applies to fill slopes up to 30 feet in height, and cut slopes regardless of height. For swimming pools located near the top of fill slopes greater than 30 feet in height, additional recommendations may be required and Geocon Incorporated should be contacted for a review of specific site conditions.

- Although other improvements, which are relatively rigid or brittle, such as concrete flatwork or masonry walls, may experience some distress if located near the top of a slope, it is generally not economical to mitigate this potential. It may be possible, however, to incorporate design measures which would permit some lateral soil movement without causing extensive distress. Geocon Incorporated should be consulted for specific recommendations.

8.11.7 The recommendations of this report are intended to reduce the potential for cracking of slabs and foundations due to expansive soil (if present), differential settlement of fill soil with varying thicknesses. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade placed on such conditions may still exhibit some cracking due to soil movement and/or shrinkage. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. Their occurrence may be reduced by limiting the slump of the concrete, proper concrete placement and curing, and by the placement of crack control joints at periodic intervals, in particular, where re-entrant slab corners occur.

8.11.8 Concrete slabs should be provided with adequate crack-control joints, construction joints and/or expansion joints to reduce unsightly shrinkage cracking. The design of joints should consider criteria of the American Concrete Institute when establishing crack-control spacing. Additional steel reinforcing, concrete admixtures and/or closer crack control joint spacing should be considered where concrete-exposed finished floors are planned.

8.11.9 Geocon Incorporated should be consulted to provide additional design parameters as required by the structural engineer.

8.11.10 We should observe the foundation excavations prior to the placement of reinforcing steel to check that the exposed soil conditions are similar to those expected and that they have been extended to the appropriate bearing strata. If unexpected soil conditions are encountered, foundation modifications may be required.

8.12 Exterior Concrete Flatwork

8.12.1 Exterior concrete flatwork not subject to vehicular traffic should be constructed in accordance with the recommendations presented in the following table. The recommended steel reinforcement would help reduce the potential for cracking. Even if these recommendations are followed, concrete flatwork placed on expansive soils could potential heave resulting in panel uplift and cracking.

MINIMUM CONCRETE FLATWORK RECOMMENDATIONS

Expansion Index, EI	Minimum Steel Reinforcement* Options	Minimum Thickness
EI ≤ 90	6x6-W2.9/W2.9 (6x6-6/6) welded wire mesh	4 inches
	No. 3 Bars 18 inches on center, Both Directions	
EI> 90	No. 4 Bars 18 inches on center, Both Directions	5 Inches
	8 inch Thickened Edge that tapers back to 5 inches at a horizontal distance of 2 feet	

*In excess of 8 feet square.

8.12.2 The subgrade soil should be properly moisturized and compacted prior to the placement of steel and concrete. The subgrade soil should be compacted to a dry density of at least 90 percent of the laboratory maximum dry density near to slightly above optimum moisture content in accordance with ASTM D 1557.

8.12.3 Where concrete is placed on expansive soils, the subgrade should be moisture conditioned to 5 to 8 percent above optimum moisture content and compacted to at least 88 percent relative compaction. The subgrade moisture content should be maintained until concrete is placed. The concrete should not be allowed to dry prior to placing concrete.

8.12.4 Concrete flatwork adjacent to landscape areas is not recommended for Option 1 grading. Where this cannot be avoided, the sidewalk should have a turn down edge that extends at least 12 inches into the subgrade.

8.12.5 Even with the incorporation of the recommendations of this report, the exterior concrete flatwork has a potential to experience some uplift due to expansive soil beneath grade. The steel reinforcement should overlap continuously in flatwork to reduce the potential for vertical offsets within flatwork. Additionally, flatwork should be structurally connected to the curbs, where possible, to reduce the potential for offsets between the curbs and the flatwork. Periodic maintenance should be expected due to the presence of expansive soils.

8.12.6 Concrete flatwork should be provided with crack control joints to reduce and/or control shrinkage cracking. Crack control spacing should be determined by the project structural engineer based upon the slab thickness and intended usage. Criteria of the American Concrete Institute (ACI) should be taken into consideration when establishing crack control spacing. Subgrade soil for exterior slabs not subjected to vehicle loads should be compacted

in accordance with criteria presented in the grading section prior to concrete placement. Subgrade soil should be properly compacted and the moisture content of subgrade soil should be verified prior to placing concrete. Base materials will not be required below concrete improvements.

8.12.7 Where exterior flatwork abuts the structure at entrant or exit points, the exterior slab should be dowelled into the structure's foundation stemwall. This recommendation is intended to reduce the potential for differential elevations that could result from differential settlement or minor heave of the flatwork. Dowelling details should be designed by the project structural engineer.

8.12.8 The recommendations presented herein are intended to reduce the potential for cracking of exterior slabs as a result of differential movement. However, even with the incorporation of the recommendations presented herein, slabs-on-grade will still crack. The occurrence of concrete shrinkage cracks is independent of the soil supporting characteristics. Their occurrence may be reduced and/or controlled by limiting the slump of the concrete, the use of crack control joints and proper concrete placement and curing. Crack control joints should be spaced at intervals no greater than 12 feet. Literature provided by the Portland Concrete Association (PCA) and American Concrete Institute (ACI) present recommendations for proper concrete mix, construction, and curing practices, and should be incorporated into project construction.

8.13. Retaining Walls

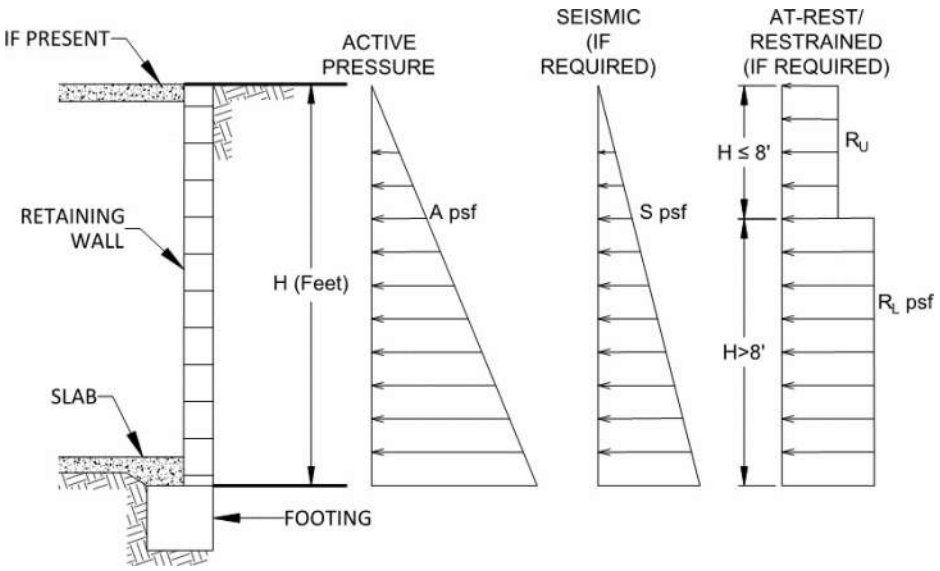
8.13.1. Walls that are allowed to rotate more than 0.001H (where H equals the height of the retaining portion of the wall) at the top of the wall should be designed using the values presented on the following table. Soil with an expansion index (EI) greater than 50 should not be used as backfill soil behind retaining walls. **Soil with an expansion index of 50 or less will need to be imported**.

RETAINING WALL DESIGN RECOMMENDATIONS

Parameter	Value
Active Soil Pressure, A (Level Backfill)	35 pcf EFD* H ft
Active Soil Pressure, A (2:1 max Sloping Backfill)	50 pcf EFD* H ft
Seismic Pressure, S	15H psf
At-Rest/Restrained Walls Additional Uniform Pressure (0 to 8 Feet High)	7H psf
At-Rest/Restrained Walls Additional Uniform Pressure (8+ Feet High)	13H psf
Expansion Index for Imported Soil	EI $\leq$ 50

*H equals the height of the retaining portion of the wall in feet.
EFD = equivalent fluid density

8.13.2. The project retaining walls should be designed as shown in the Retaining Wall Loading Diagram.



Retaining Wall Loading Diagram

8.13.3. Where walls are restrained from movement at the top (at-rest condition), an additional uniform pressure should be applied to the wall.

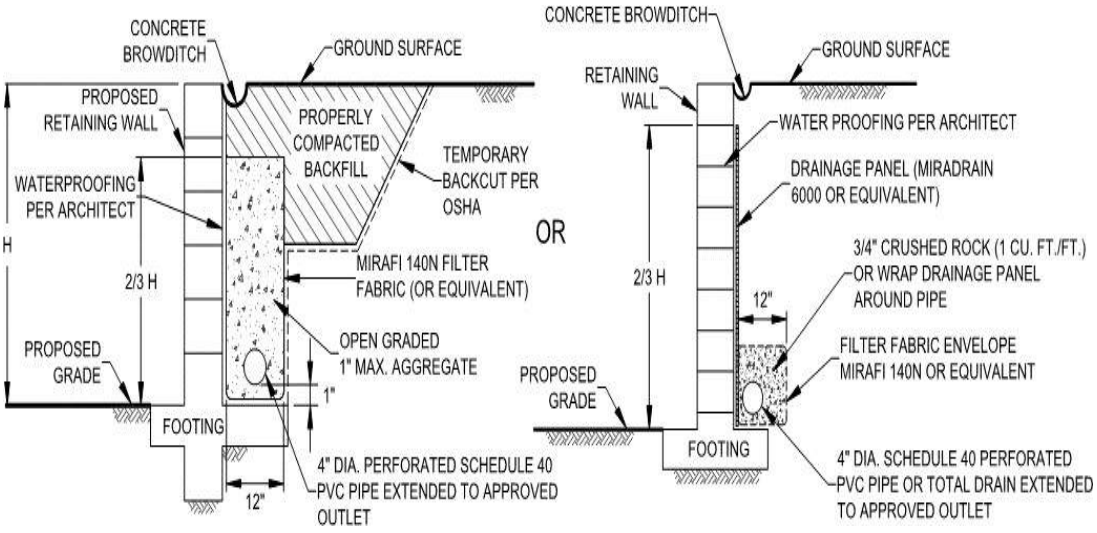
8.13.4. The structural engineer should determine the Seismic Design Category for the project in accordance with Section 1613 of the 2022 CBC or Section 11.6 of ASCE 7-16. For structures assigned to Seismic Design Category of D, E, or F, retaining walls that support more than 6 feet of backfill should be designed with seismic lateral pressure in accordance with Section

1803.5.12 of the 2022 CBC. The seismic load is dependent on the retained height where H is the height of the wall, in feet, and the calculated loads result in pounds per square foot (psf) exerted at the base of the wall and zero at the top of the wall.

8.13.5. Retaining walls should be designed to ensure stability against overturning sliding, and excessive foundation pressure. Where a keyway is extended below the wall base with the intent to engage passive pressure and enhance sliding stability, it is not necessary to consider active pressure on the keyway.

8.13.6. Drainage openings through the base of the wall (weep holes) should not be used where the seepage could be a nuisance or otherwise adversely affect the property adjacent to the base of the wall.

8.13.7. The recommendations herein assume a properly compacted, granular (EI of 50 or less), free-draining backfill soil and that no hydrostatic forces or imposed surcharge load. The retaining wall should be properly drained as shown in the Typical Retaining Wall Drainage Detail. If conditions different than those described are expected, or if specific drainage details are desired, Geocon should be contacted for additional recommendations.



Typical Retaining Wall Drainage Detail

8.13.8. In general, wall foundations should be designed in accordance with the following table. The proximity of the foundation to the top of a slope steeper than 3:1 could impact the allowable soil bearing pressure. Therefore, retaining wall foundations should be deepened such that

the bottom outside edge of the footing is at least 7 feet horizontally from the face of the slope.

SUMMARY OF RETAINING WALL FOUNDATION RECOMMENDATIONS

Parameter	Value
Minimum Retaining Wall Foundation Width	12 inches
Minimum Retaining Wall Foundation Depth	24 Inches (Option 1 Grading)
	12 inches (Option 2 and 3 Grading)
Minimum Concrete Reinforcement	Per Structural Engineer
Allowable Bearing Capacity	2,000 psf
Bearing Capacity Increase	500 psf per Foot of Depth
	300 psf per Foot of Width
Maximum Allowable Bearing Capacity	4,000 psf
Estimated Total Settlement	1 Inch
Estimated Differential Settlement	1 Inch in 40 Feet

8.13.9. The recommendations presented herein are applicable for the design of rigid concrete or masonry retaining walls. Should other types of walls (such as mechanically stabilized earth [MSE] walls) be planned, Geocon should be consulted for additional recommendations.

8.13.10. Soil contemplated for use as retaining wall backfill, including imported soils, should be identified in the field prior to backfill. At that time, Geocon should be provided samples for laboratory testing to evaluate its suitability. Modified lateral earth pressures may be necessary if the backfill soil does not meet the required expansion index or shear strength.

8.13.11. City or regional standard wall designs, if used, are based on a specific active lateral earth pressure and/or soil friction angle. In this regard, on-site soil to be used as backfill may or may not meet the values for standard wall designs. Geocon should be consulted to assess the suitability of the on-site soil for use as wall backfill if standard wall designs are used

8.14. Lateral Loading

8.14.1. The following table should be used to help design the proposed structures and improvements to resist lateral loads for the design of footings or shear keys. The allowable passive pressure assumes a horizontal surface extending at least 5 feet, or three times the

surface generating the passive pressure, whichever is greater. The upper 12 inches of material in areas not protected by floor slabs or pavement should not be included in design for passive resistance.

SUMMARY OF LATERAL LOAD DESIGN RECOMMENDATIONS

Parameter	Value
Passive Pressure Fluid Density	300 pcf
Passive Pressure Fluid Density Adjacent to and/or on Descending Slopes	150 pcf
Coefficient of Friction (Concrete and Soil)	0.35
Coefficient of Friction (Along Vapor Barrier)	0.2 to 0.25*

*Per manufacturer's recommendations.

8.14.2. The passive and frictional resistant loads can be combined for design purposes. The lateral passive pressures may be increased by one-third when considering transient loads due to wind or seismic forces.

8.15 Preliminary Pavement Recommendations

8.15.1 We calculated the flexible pavement sections in general conformance with the *Caltrans Method of Flexible Pavement Design* (Highway Design Manual, Section 608.4) using an estimated Traffic Index (TI) of 5.0, 5.5, 6.0, and 7.0 for parking stalls, driveways, medium truck traffic areas, and heavy truck traffic areas, respectively. The project civil engineer should review the pavement designations to determine appropriate locations for pavement thickness. The final pavement sections should be based on the R-Value of the subgrade soil encountered at final subgrade elevation. We have assumed an R-Value of 5 for untreated, subgrade soils, 15 for imported subgrade soils with an expansion index less than 90, 50 for lime-treated subgrade soils, and 78 for base materials, for the purposes of this preliminary analysis. The table below presents the preliminary flexible pavement sections.

PRELIMINARY FLEXIBLE PAVEMENT SECTION

Location	Assumed Traffic Index	Assumed Subgrade R-Value	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
Parking Stalls for Automobiles and Light-Duty Vehicles	5.0	5	3	10
		15	3	8
		50	3	4
Driveways for Automobiles and Light-Duty Vehicles	5.5	5	3	12
		15	3	10
		50	3	4
Medium Truck Traffic Areas	6.0	5	3.5	13
		15	3.5	11
		50	3.5	4
Driveways for Heavy Truck Traffic	7.0	5	4	16
		15	4	13
		50	4	5

8.15.2 Prior to placing base materials, the upper 12 inches of the subgrade soil should be scarified, moisture conditioned as necessary, and recompacted to a dry density of at least 95 percent of the laboratory maximum dry density near to slightly above optimum moisture content as determined by ASTM D 1557. Similarly, the base material should be compacted to a dry density of at least 95 percent of the laboratory maximum dry density near to slightly above optimum moisture content. Asphalt concrete should be compacted to a density of at least 95 percent of the laboratory Hveem density in accordance with ASTM D 2726.

8.15.3 Aggregate base should conform to Section 26-1.02B of the *Standard Specifications for The State of California Department of Transportation (Caltrans)* with a ¾-inch maximum size aggregate. Asphalt concrete should conform to Section 203-6 of the *Standard Specifications for Public Works Construction (Greenbook)*.

8.15.4 We calculated the rigid pavement section in general conformance with the procedure recommended by the American Concrete Institute report ACI 330-21 *Commercial Concrete Parking Lots and Site Paving Design and Construction – Guide.* The table below provides the traffic categories and design parameters used for the calculations for 20-year design life.

TRAFFIC CATEGORIES

Traffic Category	Description	Reliability (%)	Slabs Cracked at End of Design Life (%)
A	Car Parking Areas and Access Lanes	60	15
B	Entrance and Truck Service Lanes	60	15
E	Heavy Truck Traffic	75	15

8.15.5 We used the parameters presented in the table below to calculate the pavement design sections. We should be contacted to provide updated design sections, if necessary.

RIGID PAVEMENT DESIGN PARAMETERS

Design Parameter	Design Value
Modulus of Subgrade Reaction, k	50 pci
Modulus of Rupture for Concrete, M_R	500 psi
Concrete Compressive Strength	3,000 psi
Concrete Modulus of Elasticity, E	3,150,000 psi

8.15.6 Based on the criteria presented herein, the PCC pavement sections should have a minimum thickness as presented in the table below.

RIGID PAVEMENT RECOMMENDATIONS

Traffic Category	Trucks Per Day	Portland Cement Concrete, T (Inches)
A = Car Parking Areas and Access Lanes	< 10	5.5
B = Entrance and Truck Service Lanes	< 10	6
E = Heavy Truck Traffic	< 10	7

8.15.7 For Option 2 and 3 Grading, the PCC vehicular pavement should be placed over subgrade soil that is compacted to a dry density of at least 95 percent of the laboratory maximum dry density near to slightly above optimum moisture content. Under Option 1 Grading, the subgrade should be moisture conditioned to a minimum of 5 percent above optimum moisture content and compacted to at least 90 percent relative compaction.

8.15.8 The trash-truck pad should be large enough such that all wheels are on the concrete pad during the loading operations.

8.15.9 Adequate joint spacing based on ACI guidelines should be incorporated into the design and construction of the rigid pavement.

8.15.10 Under Grading Option 1, the slabs should be reinforced with No. 4 steel bars spaced 18 inches on center and positioned near the slab midpoint. Reinforcing steel will not be necessary within the concrete pavement for Grading Options 2 and 3. .

8.15.11 Perimeter curbs adjacent to landscape areas should extend at least 6 inches below the bottom of the pavement aggregate base. In lieu of extending the perimeter curb, an impermeable liner should be installed.

8.15.12 Concrete flatwork should be structurally connected to the curbs to help reduce potential offsets between the curbs and the flatwork.

8.15.13 To control the location and spread of concrete shrinkage cracks, crack-control joints should be included in the design of the concrete-pavement slab. Crack-control joints should be sealed with an appropriate sealant to prevent the migration of water through the control joint to the subgrade materials. The depth of the crack-control joints should be in accordance with ACI guidelines.

8.15.14 Construction joints should be provided at the interface between areas of concrete placed at different times during construction. The project structural engineer should provide details for load transfer.

8.15.15 Concrete curb/gutter should be placed on soil subgrade compacted to a dry density of at least 90 percent of the laboratory maximum dry density near to slightly above optimum moisture content. Cross-gutters should be placed on subgrade soil compacted to a dry density of at least 95 percent of the laboratory maximum dry density near to slightly above optimum moisture content(Option 2 and 3 Grading). Under Option 1 Grading, the subgrade should be moisture conditioned to a minimum of 5 percent above optimum moisture content and compacted to at least 90 percent relative compaction. Base materials should not be placed below the curb/gutter, or cross-gutters so water is not able to migrate from the adjacent parkways to the pavement sections. Where flatwork is located directly adjacent

to the curb/gutter, the concrete flatwork should be structurally connected to the curbs to help reduce the potential for offsets between the curbs and the flatwork.

8.16. Storm Water Management

8.16.1. If storm water management devices are not properly designed and constructed, there is a risk for distress to improvements and property located hydrologically down gradient or adjacent to these devices. Factors such as the amount of water being detained, its residence time, and soil permeability have an important effect on seepage transmission and the potential adverse impacts that may occur if the storm water management features are not properly designed and constructed.

8.17. Site Drainage and Moisture Protection

8.17.1. Adequate site drainage is critical to reduce the potential for differential soil movement, erosion and subsurface seepage. Under no circumstances should water be allowed to pond adjacent to footings. The site should be graded and maintained such that surface drainage is directed away from structures in accordance with 2022 CBC 1804.4 or other applicable standards. In addition, surface drainage should be directed away from the top of slopes into swales or other controlled drainage devices. Roof and pavement drainage should be directed into conduits that carry runoff away from the proposed structure.

8.17.2. In the case of basement walls or building walls retaining landscaping areas, a water-proofing system should be used on the wall and joints, and a Miradrain drainage panel (or similar) should be placed over the waterproofing. The project architect or civil engineer should provide detailed specifications on the plans for all waterproofing and drainage.

8.17.3. Underground utilities should be leak free. Utility and irrigation lines should be checked periodically for leaks and detected leaks should be repaired promptly. Detrimental soil movement could occur if water is allowed to infiltrate the soil for prolonged periods of time.

8.17.4. Landscaping planters adjacent to paved areas are not recommended due to the potential for surface or irrigation water to infiltrate the pavement's subgrade and base course. Area drains to collect excess irrigation water and transmit it to drainage structures or impervious above-grade planter boxes can be used. In addition, where landscaping is planned adjacent to the pavement, construction of a cutoff wall along the edge of the pavement that extends

at least 6 inches below the bottom of the base material should be considered.

8.18. Grading and Foundation Plan Review

8.18.1. Geocon Incorporated should review the grading and building foundation plans for the project prior to final design submittal to evaluate if additional analyses and/or recommendations are required.

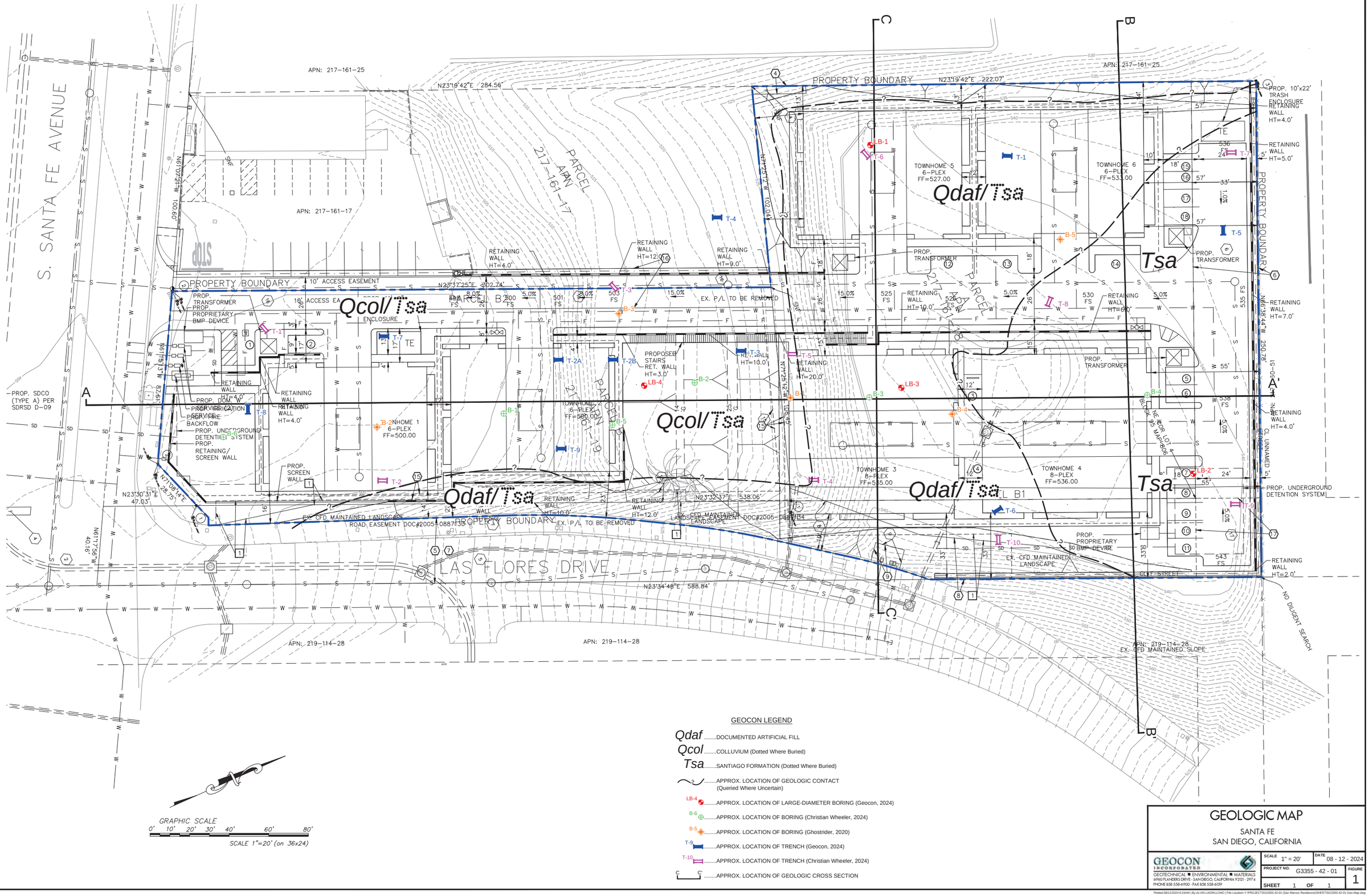
LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The firm that performed the geotechnical investigation for the project should be retained to provide testing and observation services during construction to provide continuity of geotechnical interpretation and to check that the recommendations presented for geotechnical aspects of site development are incorporated during site grading, construction of improvements, and excavation of foundations. If another geotechnical firm is selected to perform the testing and observation services during construction operations, that firm should prepare a letter indicating their intent to assume the responsibilities of project geotechnical engineer of record. A copy of the letter should be provided to the regulatory agency for their records. In addition, that firm should provide revised recommendations concerning the geotechnical aspects of the proposed development, or a written acknowledgement of their concurrence with the recommendations presented in our report. They should also perform additional analyses deemed necessary to assume the role of Geotechnical Engineer of Record.

2. The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geocon should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by Geocon.

3. This report is issued with the understanding that it is the responsibility of the owner or his representative to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

4. The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.



GEOCON LEGEND

- *Qdaf* ..... DOCUMENTED ARTIFICIAL FILL
- *Qcol* ..... COLLUVIUM (Dotted Where Buried)
- *Tsa* ..... SANTIAGO FORMATION (Dotted Where Buried)
- ..... APPROX. LOCATION OF GEOLOGIC CONTACT (Queried Where Uncertain)
- LB-4 ..... APPROX. LOCATION OF LARGE-DIAMETER BORING (Geocon, 2024)
- B-6 ..... APPROX. LOCATION OF BORING (Christian Wheeler, 2024)
- B-5 ..... APPROX. LOCATION OF BORING (Ghostrider, 2020)
- T-9 ..... APPROX. LOCATION OF TRENCH (Geocon, 2024)
- T-10 ..... APPROX. LOCATION OF TRENCH (Christian Wheeler, 2024)
- C C' ..... APPROX. LOCATION OF GEOLOGIC CROSS SECTION

GEOLOGIC MAP

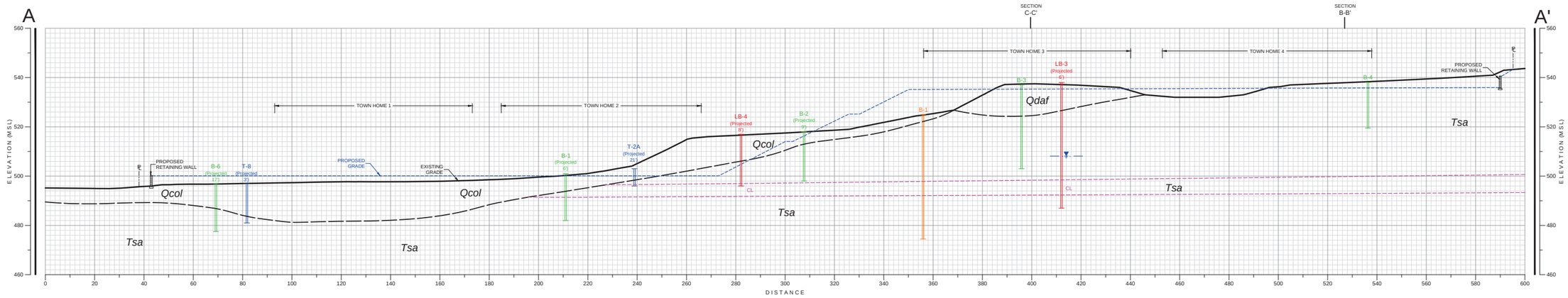
SANTA FE
SAN DIEGO, CALIFORNIA

GEOCON INCORPORATED
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121 - 2974
PHONE 858 558-6900 - FAX 858 558-6159

SCALE	DATE
1" = 20'	08 - 12 - 2024
PROJECT NO.	FIGURE
G3355 - 42 - 01	1
SHEET 1 OF 1	

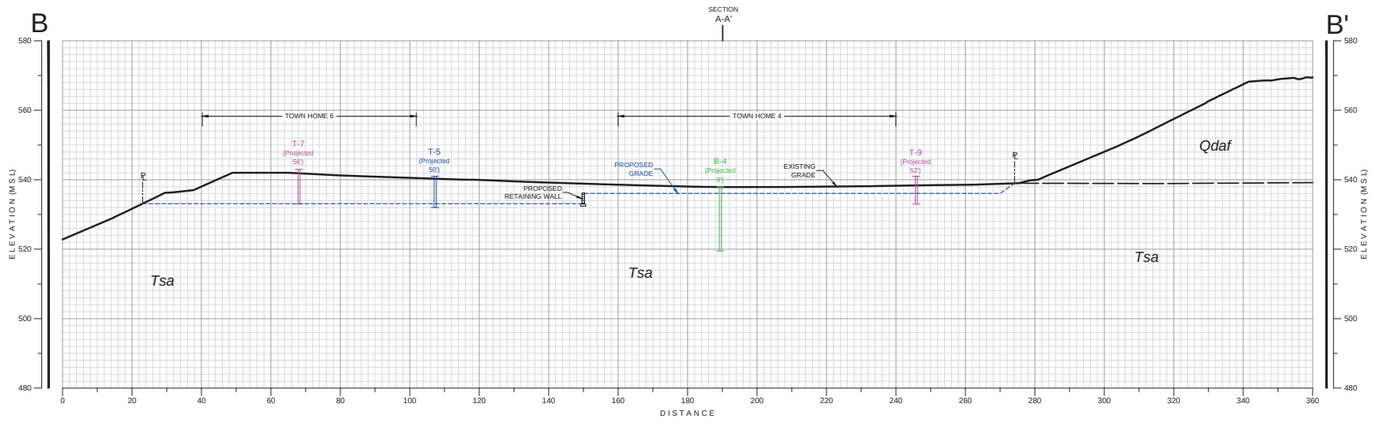
Plotted:08/12/2024 6:24AM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\G3355-42-01 (San Marcos Residence)\SHEETS\G3355-42-01 Geo Map.dwg

1603



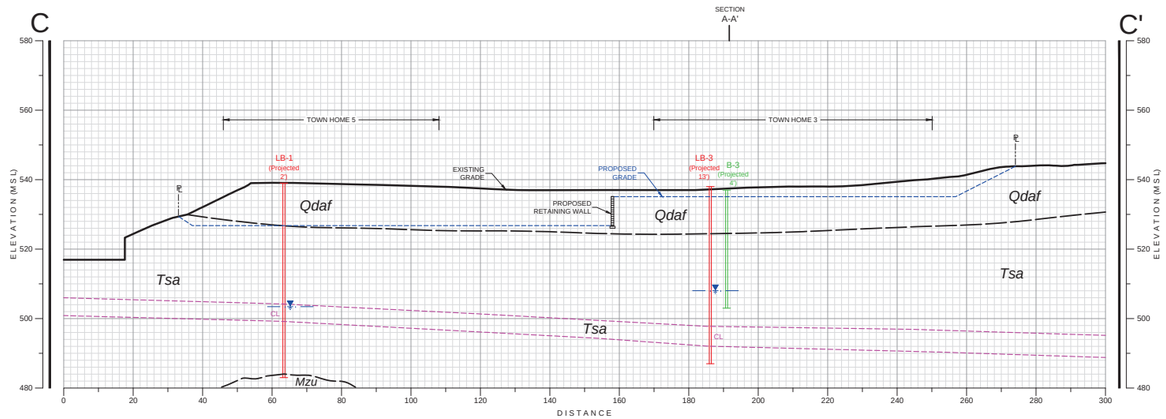
GEOLOGIC CROSS-SECTION A-A'

SCALE: 1" = 20' (Vert. = Horiz.)



GEOLOGIC CROSS-SECTION B-B'

SCALE: 1" = 20' (Vert. = Horiz.)



GEOLOGIC CROSS-SECTION C-C'

SCALE: 1" = 20' (Vert. = Horiz.)

GEOCON LEGEND

- Qdaf ..... DOCUMENTED ARTIFICIAL FILL
- Qcol ..... COLLUVIUM
- Tsa ..... SANTIAGO FORMATION
- Mzu ..... METAVOLCANIC AND METASEDIMENTARY ROCK
- ..... APPROX. LOCATION OF GEOLOGIC CONTACT (Queried Where Uncertain)
- LB-4 ..... APPROX. LOCATION OF LARGE-DIAMETER BORING (Geocon, 2024)
- B-6 ..... APPROX. LOCATION OF BORING (Christian Wheeler, 2024)
- ..... APPROX. LOCATION OF BORING (Ghostrider, 2020)
- T-8 ..... APPROX. LOCATION OF TRENCH (Geocon, 2024)
- T-9 ..... APPROX. LOCATION OF TRENCH (Christian Wheeler, 2024)
- ..... APPROX. LOCATION WHERE SEEPAGE ENCOUNTERED
- CL ..... FRACTURED CLAYSTONE LAYER (Queried Where Uncertain)

GEOLOGIC CROSS SECTION

SANTA FE
SAN DIEGO, CALIFORNIA

GEOCON INCORPORATED
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121 - 2974
PHONE 858.558-6900 - FAX 858.558-6159

SCALE	1" = 20'
DATE	08 - 12 - 2024
PROJECT NO.	G3355 - 42 - 01
FIGURE	2
SHEET	1 OF 1

Plotted:08/12/2024 8:22AM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\G3355-42-01 (San Marcos Residence)\SHEETS\G3355-42-01 XSections.dwg

1604

APPENDIX A

APPENDIX A
FIELD INVESTIGATION

We performed our field investigation on July 1st and 2nd, 2024. Our investigation consisted of drilling four large diameter borings using a truck-mounted drill rig equipped with a bucket auger, down-hole logging of the large diameter borings, and excavating nine exploratory test pits using a backhoe excavator equipped with 36-inch bucket. The large diameter borings were excavated to depths between about 20 and 55 feet, and the test pits were excavated to depths between about 4 to 16 feet. A geologist logged the subsurface conditions of the site and collected samples for testing. The approximate locations of the exploratory borings and test pits are shown in Figure 1.

The soil conditions encountered in the borings were visually examined, classified, and logged in general conformance with the American Society for Testing and Materials (ASTM) Practice for Description and Identification of Soils (Visual-Manual Procedure D 2488). Exploratory boring and test pit logs are presented herein. The logs depict the various soil types encountered and indicate the depths at which samples were obtained.

PROJECT NO. G3355-42-01

BORING LB 1

ELEV. (MSL.) **539'** DATE COMPLETED **07/01/2024**

EQUIPMENT **EZ BORE 140** BY: **K. HAASE**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				CL	**DOCUMENTED ARTIFICIAL FILL (Qdaf)** Stiff, damp to moist, dark grayish brown to dark brown, Sandy CLAY; trace roots			
4				CH	Very stiff, moist, dark brown, Fat CLAY			
6	LB1-1					PUSH	108.4	22.5
8					-Gravel and cobble up to 6-inches in diameter; subangular to subrounded			
10	LB1-2					1	111.7	19.8
14				CL	**SANTIAGO FORMATION (Tsa)** Very stiff to hard, moist, olive gray, fine-grained Sandy CLAYSTONE; moderately indurated, mottled orange			
16	LB1-3					3		
16				SC	Medium dense, moist, yellowish brown, Clayey SANDSTONE; moderately weathered, abundant shells and calcium carbonate, oxidized contact with above unit			
18				ML	Hard, moist, olive to olive gray, SILTSTONE; abundant fractures with sand and gypsum infill			
20	LB1-4			CL	Hard, moist, light reddish gray, CLAYSTONE; abundant fractures with gypsum infill	3		
22				ML	Hard, moist, olive, fine-grained Sandy SILTSTONE; abundant fractures with oxidized sand infill and gypsum			
24					-Becomes gray			
24	LB1-5					2	104.8	20.6
26				SC	Very dense, moist, yellowish brown, Clayey, fine-grained SANDSTONE; moderately cemented, calcium carbonate staining			
28				CL	Very stiff, moist, brown to dark brown, CLAYSTONE; abundant fractures with yellow sand infill and gypsum, oxidized sand fractures			

Figure A-1,
Log of Boring LB 1, Page 1 of 2

G3355-42-01 BORING.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. G3355-42-01

BORING LB 1

ELEV. (MSL.) **539'** DATE COMPLETED **07/01/2024**

EQUIPMENT **EZ BORE 140** BY: **K. HAASE**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30	LB1-6			SM	Very dense, moist, light grayish brown, Silty, fine-grained SANDSTONE; yellow mottling, some gypsum filled fractures	6	105.6	20.0
32								
34								
36	LB1-7		▽	CL	Very stiff to hard, moist to wet, brown, CLAYSTONE; abundant fractures with yellow oxidation and gypsum, seepage along fractures, fissured with waxy parting surfaces	5		
38								
40	LB1-8			ML	Hard, moist to wet, olive, SILTSTONE; well cemented, abundant fracturing	5		
42								
44								
46	LB1-9				-Abundant yellow oxidation and gypsum filled fractures	8		
48					-Becomes gray			
50	LB1-10				-Becomes light olive	8		
52								
54								
56	LB1-11				**Igneous Rock (Metavolcanic and Metasedimentary Rock; Mzu):** Weak, highly weathered, brown, METAVOLCANIC ROCK	8		
					BORING TERMINATED AT 56 FEET Seepage encountered below 35 feet Caving not encountered			

G3355-42-01 BORING.GPJ

Figure A-1,
Log of Boring LB 1, Page 2 of 2

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ▽ ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. G3355-42-01

BORING LB 2

ELEV. (MSL.) **539'** DATE COMPLETED **07/01/2024**

EQUIPMENT **EZ BORE 140** BY: **K. HAASE**

DEPTH IN FEET	SAMPLE NO.	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0		SM	**SANTIAGO FORMATION (Tsa)** Dense to very dense, moist, light grayish brown, Silty, fine-grained SANDSTONE			
2		SC	Very dense, moist, brown to olive brown, Clayey, fine-grained SANDSTONE			
4						
6	LB2-1			4		
8		CL	Very stiff to hard, moist, olive, CLAYSTONE; abundant high angle fractures with yellow oxidized infill and gypsum infill			
10	LB2-2			3		
12			-Abrupt contact			
		CL	Stiff, moist, yellowish brown, Sandy CLAYSTONE; abundant calcium and shells; moderately indurated			
14		ML	Firm to stiff, moist. olive, Sandy SILTSTONE; with reddish brown mottling			
16	LB2-3		-Becomes grayish brown; abundant fractures; laminated	1		
18						
20	LB2-4		▽	2		
		CL	Firm, moist to wet, yellowish brown, CLAYSTONE; seepage			
22		ML	Hard, moist to wet, grayish brown, SILTSTONE; abundant oxidized fractures			
		CL	At 23.75 feet: 1/2" to 1" thick olive, CLAYSTONE; fissured, no apparent remolding, continuous around hole (Bearing 325º,<50º DDD)			
24		CL	Hard, moist to wet, brown, CLAYSTONE; abundant fractures with oxidized infill and gypsum infill; seepage intensifies below			
26	LB2-5			3		
28						

G3355-42-01 BORING.GPJ

Figure A-2,
Log of Boring LB 2, Page 1 of 2

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ▽ ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. G3355-42-01

BORING LB 2

ELEV. (MSL.) **539'** DATE COMPLETED **07/01/2024**

EQUIPMENT **EZ BORE 140** BY: **K. HAASE**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30	LB2-6			CL		8		
32								
34				CL	Hard, moist to wet, brown, CLAYSTONE; abundant fractures with yellow oxidized and gypsum infill			
36	LB2-7					8		
38				ML	Hard, moist to wet, bluish gray, SILTSTONE			
40	LB2-8					10		
					BORING TERMINATED AT 41 FEET Seepage encountered below 21 feet Caving not encountered			

Figure A-2,
Log of Boring LB 2, Page 2 of 2

G3355-42-01 BORING.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. G3355-42-01

BORING LB 3

ELEV. (MSL.) **538'** DATE COMPLETED **07/02/2024**

EQUIPMENT **EZ BORE 140** BY: **K. HAASE**

DEPTH IN FEET	SAMPLE NO.	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0		SC	**DOCUMENTED ARTIFICIAL FILL (Qdaf)** Medium dense, moist, brown to dark brown, Clayey SAND; gravel and cobble up to 8-inches in diameter			
4		CL	Stiff, moist, brown, Sandy CLAY; some gravel			
6	LB3-1			2	110.9	16.4
10	LB3-2	CH	Very stiff, moist, dark brown, CLAY	1	107.7	20.4
12		CL	**SANTIAGO FORMATION (Tsa)** Very stiff, moist, light olive, fine-grained Sandy CLAYSTONE; with silt; orange and yellow mottling; disturbed during grading			
14		ML	Hard, moist, olive brown, SILTSTONE			
	LB3-3		Abrupt contact	4	101.4	22.4
16		CL	Stiff, moist, yellowish brown, Sandy CLAYSTONE; abundant calcium and shells			
		CL	-Concretion			
18		CL	Hard, moist, olive to yellowish brown, fine-grained, Sandy CLAYSTONE; orange mottling; massive			
20	LB3-4	ML	Soft, damp, gray, CLAYSTONE; few parting surfaces with gypsum; no apparent remolding	3	94.6	27.6
22			Hard, moist, gray, SILTSTONE; abundant fractures with oxidized infill and gypsum At 21.7 feet: 6-inch thick concretion			
24						
	LB3-5			5		
26		SM	Very dense, moist, gray, Silty, fine-grained SANDSTONE; orange mottling			
28		ML	Stiff, moist, brown, SILTSTONE; abundant fractures with oxidized infill and gypsum			

Figure A-3,
Log of Boring LB 3, Page 1 of 2

G3355-42-01 BORING.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. G3355-42-01

BORING LB 3

ELEV. (MSL.) **538'** DATE COMPLETED **07/02/2024**

EQUIPMENT **EZ BORE 140** BY: **K. HAASE**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30	LB3-6			ML	-Seepage below 30 feet	5		
32					-Large fracture with gypsum; increase in seepage			
34								
36	LB3-7				-Becomes light gray; weathered	6		
38				SM ML	Medium dense, moist, light olive, Silty, fine-grained SANDSTONE; yellow mottling Hard, moist to wet, brown to olive, SILTSTONE			
40	LB3-8			CL	Hard, moist to wet, olive, CLAYSTONE; abundant fractures with orange mottling and gypsum; low and high angle fractures, weakly fissured; few pockets of soft clay	6		
42	LB3-11				Hard, wet (heavy seepage), gray to yellowish brown mottled, CLAYSTONE; moderately to highly fissured with numerous polished and striated parting surfaces; some soft clay			
44								
46	LB3-9					6		
48				ML	Hard, moist to wet, gray, SILTSTONE			
50	LB3-10					5		
					BORING TERMINATED AT 51 FEET Seepage encountered below 30 feet Caving not encountered			

Figure A-3,
Log of Boring LB 3, Page 2 of 2

G3355-42-01 BORING.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. G3355-42-01

BORING LB 4

ELEV. (MSL.) **517'** DATE COMPLETED **07/02/2024**

EQUIPMENT **EZ BORE 140** BY: **K. HAASE**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
				CL	**DOCUMENTED ARTIFICIAL FILL (Qdaf)** Stiff, moist, dark brown, Sandy CLAY			
2								
4	LB4-1					1		
6	LB4-2 LB4-3					3		
8	LB4-4					2		
10	LB4-5					1		
				CL	**SANTIAGO FORMATION (Tsa)** Very stiff, moist, grayish olive, Sandy CLAYSTONE			
12								
14								
	LB4-6			SM	Very dense, moist, olive, Silty, fine-grained SANDSTONE	2		
16								
18								
20	LB4-7			CL	Hard, moist, brown, CLAYSTONE	3		
					BORING TERMINATED AT 21 FEET Seepage not encountered Caving not encountered			

Figure A-4,
Log of Boring LB 4, Page 1 of 1

G3355-42-01 BORING.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. G3355-42-01

TRENCH T 1

ELEV. (MSL.) **540'** DATE COMPLETED **07/01/2024**

EQUIPMENT **Backhoe Excavator** BY: **J. SHELTON**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				CL	**UNDOCUMENTED FILL (Qudf)** Firm to stiff, damp to moist, brown to olive brown, Sandy CLAY; blocky -Becomes less weathered, moist, lithic fragments of Santiago Formation			
2					-Gravel and cobble up to 5" in diameter (metavolcanic clasts)			
4	T1-1				-Becomes very stiff, moist to wet, trace orange mottling, silty clay; trace cobble			
6								
8								
10				CL	**SANTIAGO FORMATION (Tsa)** Stiff to hard, moist, olive brown, Sandy CLAYSTONE; weakly to moderately indurated			
					TRENCH TERMINATED AT 10 FEET Groundwater or seepage not encountered Backfilled on 07/01/2024			

G3355-42-01 TRENCH.GPJ

Figure A-1,
Log of Trench T 1, Page 1 of 1

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. G3355-42-01

TRENCH T 2A

ELEV. (MSL.) **503'** DATE COMPLETED **07/01/2024**

EQUIPMENT **Backhoe Excavator** BY: **J. SHELTON**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				CL	**COLLUVIUM (Qcol)** Soft to stiff, damp, brown, Sandy, lean CLAY; some calcium carbonate, trace plant roots			
2								
4								
				CL	**SANTIAGO FORMATION (Tsa)** Stiff to hard, damp to moist, light brown to orangish brown, Sandy CLAYSTONE; weakly to moderately indurated, some calcium carbonate, fissile, waxy in texture -Becomes olive green, some gypsum infilled fractures, slightly polished			
6					TRENCH TERMINATED AT 7 FEET Groundwater or seepage not encountered Backfilled on 07/01/2024			

Figure A-2,
Log of Trench T 2A, Page 1 of 1

G3355-42-01 TRENCH.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. G3355-42-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 2B ELEV. (MSL.) 515' DATE COMPLETED 07/01/2024 EQUIPMENT Backhoe Excavator BY: J. SHELTON	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0	T2B-1			CL	**COLLUVIUM (Qcol)** Soft, damp, brown, Sandy, lean CLAY; some calcium carbonate; trace plant roots			
2								
4								
6					-Becomes stiff			
8								
10								
12					TRENCH TERMINATED AT 12 FEET Groundwater or seepage not encountered Backfilled on 07/01/2024			

Figure A-3,
Log of Trench T 2B, Page 1 of 1

G3355-42-01 TRENCH.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. G3355-42-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 3 ELEV. (MSL.) 520' DATE COMPLETED 07/01/2024 EQUIPMENT Backhoe Excavator BY: J. SHELTON	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				CL	**COLLUVIUM (Qcol)** Soft, dry to damp, brown, Sandy, lean CLAY			
2								
4	T3-1			CL	**SANTIAGO FORMATION (Tsa)** Stiff to hard, damp, light olive brown, Sandy CLAYSTONE; weakly to moderately indurated, abundant calcium carbonate, fissile			
6								
					TRENCH TERMINATED AT 7.5 FEET Groundwater or seepage not encountered Backfilled on 07/01/2024			

Figure A-4,
Log of Trench T 3, Page 1 of 1

G3355-42-01 TRENCH.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. G3355-42-01

TRENCH T 4

ELEV. (MSL.) **520** DATE COMPLETED **07/01/2024**

EQUIPMENT **Backhoe Excavator** BY: **J. SHELTON**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				CL	**COLLUVIUM (Qcol)** Soft, damp, brown, Sandy, lean CLAY; some calcium carbonate; some plant debris			
2								
4				CL	**SANTIAGO FORMATION (Tsa)** Stiff to hard, damp, light brown to orangish brown, Sandy CLAYSTONE; weakly to moderately indurated; 4"-5" thick sea shell bed, abundant calcium carbonate			
6								
8					-Abundant gypsum infilled fractures -Becomes olive green			
10					TRENCH TERMINATED AT 10 FEET Groundwater or seepage not encountered Backfilled on 07/01/2024			

Figure A-5,
Log of Trench T 4, Page 1 of 1

G3355-42-01 TRENCH.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. G3355-42-01

TRENCH T 5

ELEV. (MSL.) **541'** DATE COMPLETED **07/01/2024**

EQUIPMENT **Backhoe Excavator** BY: **J. SHELTON**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				CL	**UNDOCUMENTED FILL (Qudf)** Soft, dry to damp, brown, Sandy, lean CLAY			
2				CL	**SANTIAGO FORMATION (Tsa)** Stiff to hard, damp, brown to olive green, Sandy CLAYSTONE; weakly to moderately indurated, fissile, waxy			
4	T5-1							
6								
8					-Abundant sea shells			
					TRENCH TERMINATED AT 9 FEET Groundwater or seepage not encountered Backfilled on 07/01/2024			

Figure A-6,
Log of Trench T 5, Page 1 of 1

G3355-42-01 TRENCH.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. G3355-42-01

TRENCH T 6

ELEV. (MSL.) **539** DATE COMPLETED **07/01/2024**

EQUIPMENT **Backhoe Excavator** BY: **J. SHELTON**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				CL	**UNDOCUMENTED FILL (Qudf)** Stiff, damp, brown, Sandy, lean CLAY			
2								
4								
6				CL	**SANTIAGO FORMATION (Tsa)** Stiff to hard, damp, olive green, Sandy CLAYSTONE; weakly to moderately indurated, fissile, waxy			
8					TRENCH TERMINATED AT 8 FEET Groundwater or seepage not encountered Backfilled on 07/01/2024			

Figure A-7,
Log of Trench T 6, Page 1 of 1

G3355-42-01 TRENCH.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. G3355-42-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 7 ELEV. (MSL.) 498' DATE COMPLETED 07/01/2024 EQUIPMENT Backhoe Excavator BY: J. SHELTON MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	T7-1			CL	**COLLUVIUM (Qcol)** Soft, dry to damp, brown, Sandy, lean CLAY			
2					-Some calcium carbonate			
4								
6								
8	T7-2			CL	**SANTIAGO FORMATION (Tsa)** Stiff, damp, orange brown to olive green, Sandy CLAYSTONE; weakly indurated, abundant gypsum			
10					-Waxy in appearance -Becomes olive green			
12					TRENCH TERMINATED AT 12 FEET Groundwater or seepage not encountered Backfilled on 07/01/2024			

Figure A-8,
Log of Trench T 7, Page 1 of 1

G3355-42-01 TRENCH.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. G3355-42-01

TRENCH T 8

ELEV. (MSL.) **497'** DATE COMPLETED **07/01/2024**

EQUIPMENT **Backhoe Excavator** BY: **J. SHELTON**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				CL	**COLLUVIUM (Qcol)** Soft, dry to damp, brown, Sandy, lean CLAY; some calcium carbonate			
2					-Becomes dark brown			
4								
6								
8								
10					-Becomes mottled olive green and orange brown; some gravel (resembles crushed aggregate)			
12								
14				CL	**SANTIAGO FORMATION (Tsa)** Stiff, damp, olive green to orange brown, Sandy CLAYSTONE; weakly indurated, some gypsum			
16					TRENCH TERMINATED AT 16 FEET Groundwater or seepage not encountered Backfilled on 07/01/2024			

Figure A-9,
Log of Trench T 8, Page 1 of 1

G3355-42-01 TRENCH.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. G3355-42-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**TRENCH T 9** ELEV. (MSL.) **503'** DATE COMPLETED **07/01/2024** EQUIPMENT **Backhoe Excavator** BY: **R. ADAMS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				CL	**COLLUVIUM (Qcol)** Soft, damp, brown to grayish brown, Sandy CLAY; porous with abundant caliche throughout			
2								
4				CL	**SANTIAGO FORMATION (Tsa)** Stiff to hard, damp, gray to yellowish gray, interbedded CLAYSTONE and Silty CLAYSTONE; fissile with gypsum veins, along parting surfaces, some infilled fractures. few pockets of soft clay. no notable well developed remolded zone or parting surfaces but occasional weakly striated surfaces observed, highly weathered			
6								
8					TRENCH TERMINATED AT 8 FEET Groundwater or seepage not encountered Backfilled on 07/01/2024			

Figure A-10,
Log of Trench T 9, Page 1 of 1

G3355-42-01 TRENCH.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

APPENDIX B

APPENDIX B
LABORATORY TESTING

Laboratory tests were performed in accordance with generally accepted test methods of the American Society for Testing and Materials (ASTM) or other suggested procedures. Selected samples were tested for *in-situ* dry density and moisture content, maximum dry density and optimum moisture content, direct shear, consolidation, expansion potential, grain size distribution, plasticity index, soluble sulfate content, chloride content, and pH resistivity. The results of our laboratory tests are presented in the following tables and graphs.

SUMMARY OF LABORATORY MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT TEST RESULTS ASTM D 1557-02

Sample No.	Description	Maximum Dry Density (pcf)	Optimum Moisture Content (% dry wt.)
T1-1	Brown to olive brown, Sandy CLAY	113.6	17.0
T2B-1	Brown, Sandy, lean CLAY	109.2	16.4

SUMMARY OF LABORATORY EXPANSION INDEX TEST RESULTS ASTM D 4829-03

Sample No.	Geologic Unit	Moisture Content		Dry Density (pcf)	Expansion Index	Expansion Classification
		Before Test (%)	After Test (%)			
T1-1	Qdaf	13.6	31.4	97.5	121	High
T2B-1	Qcol	15.1	37.3	91.4	147	Very High
T5-1	Qcol	15.5	42.8	90.8	224	Very High
T7-1	Qcol	14.5	35.1	94.7	138	Very High

SUMMARY OF LABORATORY WATER-SOLUBLE SULFATE TEST RESULTS CALIFORNIA TEST NO. 417

Sample No.	Water-Soluble Sulfate (%)	Sulfate Exposure
T1-1	0.053	S0
T2-1	0.070	S0
T5-1	0.057	S0

SUMMARY OF LABORATORY WATER-SOLUBLE CHLORIDE ION CONTENT TEST RESULTS AASHTO TEST NO. T 291

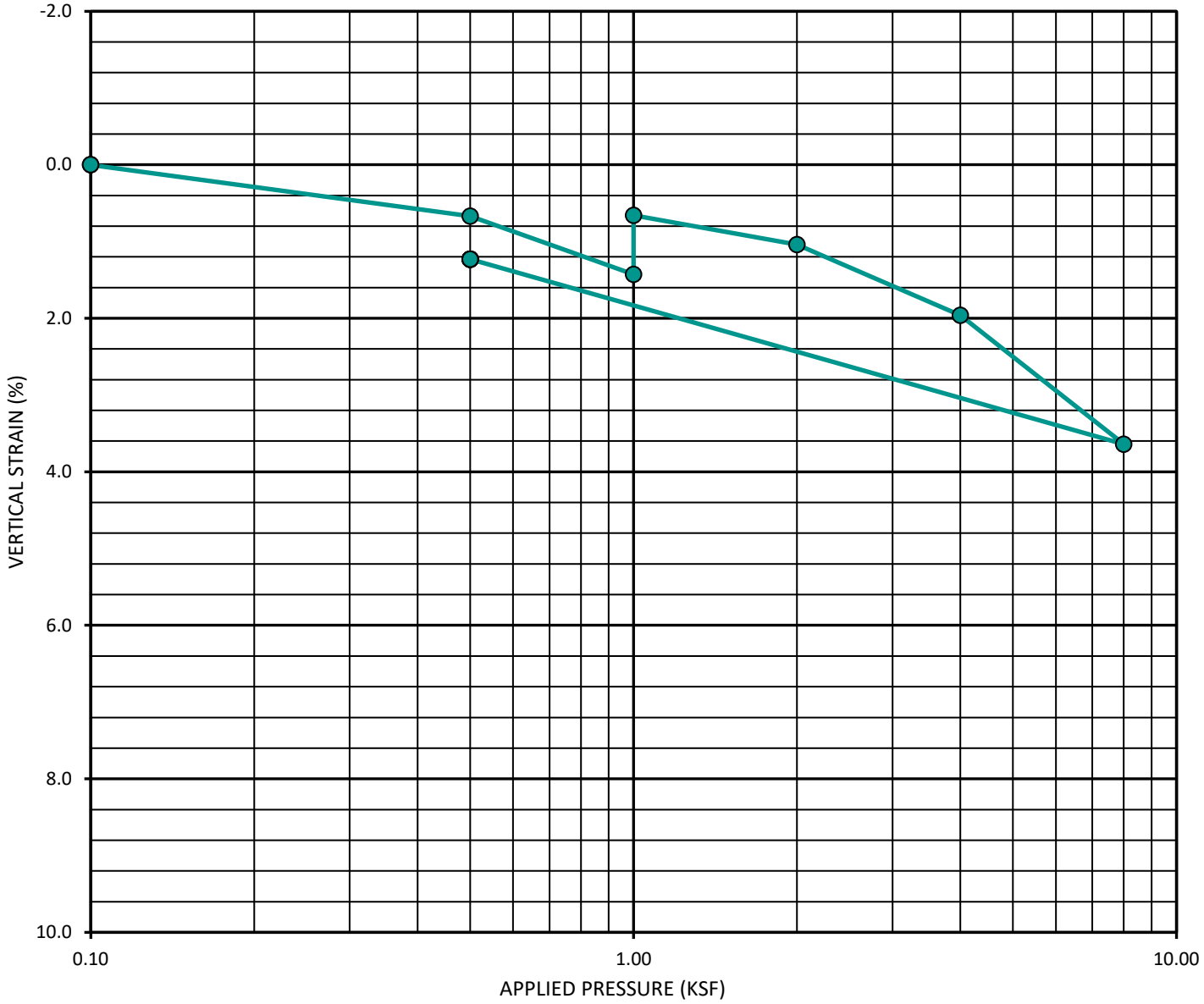
Sample No.	Chloride Ion Content ppm (%)
T1-1	0.026
T2-1	0.040
T5-1	0.071

SAMPLE NO.: **LB1-2**

SAMPLE DEPTH (FT): **10**

GEOLOGIC UNIT: **Qdaf**

TEST INFORMATION	
INITIAL DRY DENSITY (PCF):	111.7
INITIAL WATER CONTENT (%):	19.8%
SAMPLE SATURATED AT (KSF):	1.0
INITIAL SATURATION (%):	100+



GEOCON
INCORPORATED
GEOTECHNICAL CONSULTANTS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974
PHONE 858 558-6900 - FAX 858 558-6159

CONSOLIDATION CURVE - ASTM D 2435

SAN MARCOS RESIDENCES

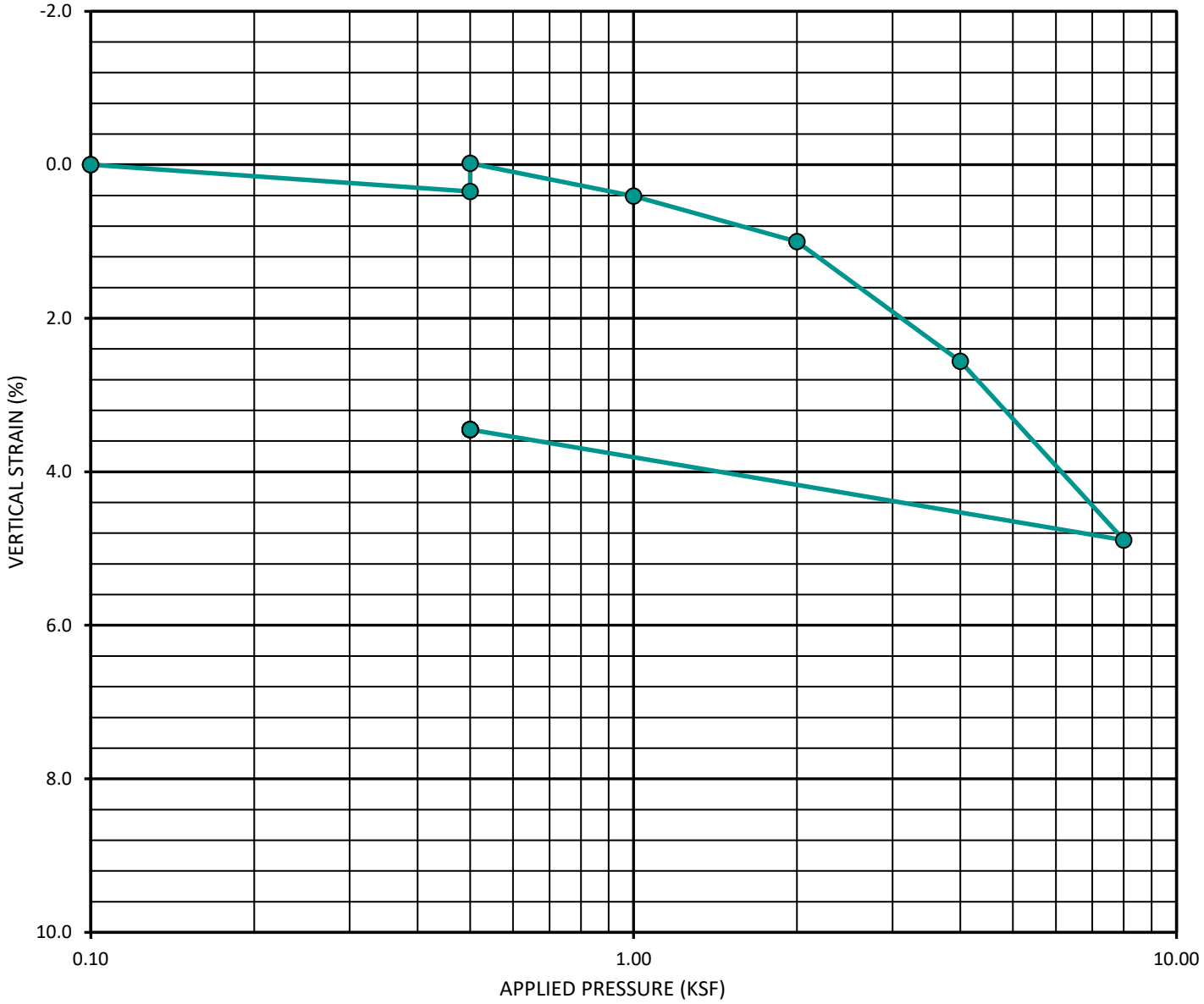
PROJECT NO.: G3355-42-01

SAMPLE NO.: **LB3-1**

SAMPLE DEPTH (FT): **5**

GEOLOGIC UNIT: **Qdaf**

TEST INFORMATION	
INITIAL DRY DENSITY (PCF):	110.9
INITIAL WATER CONTENT (%):	16.4%
SAMPLE SATURATED AT (KSF):	0.5
INITIAL SATURATION (%):	87.9%



GEOCON
INCORPORATED
GEOTECHNICAL CONSULTANTS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974
PHONE 858 558-6900 - FAX 858 558-6159

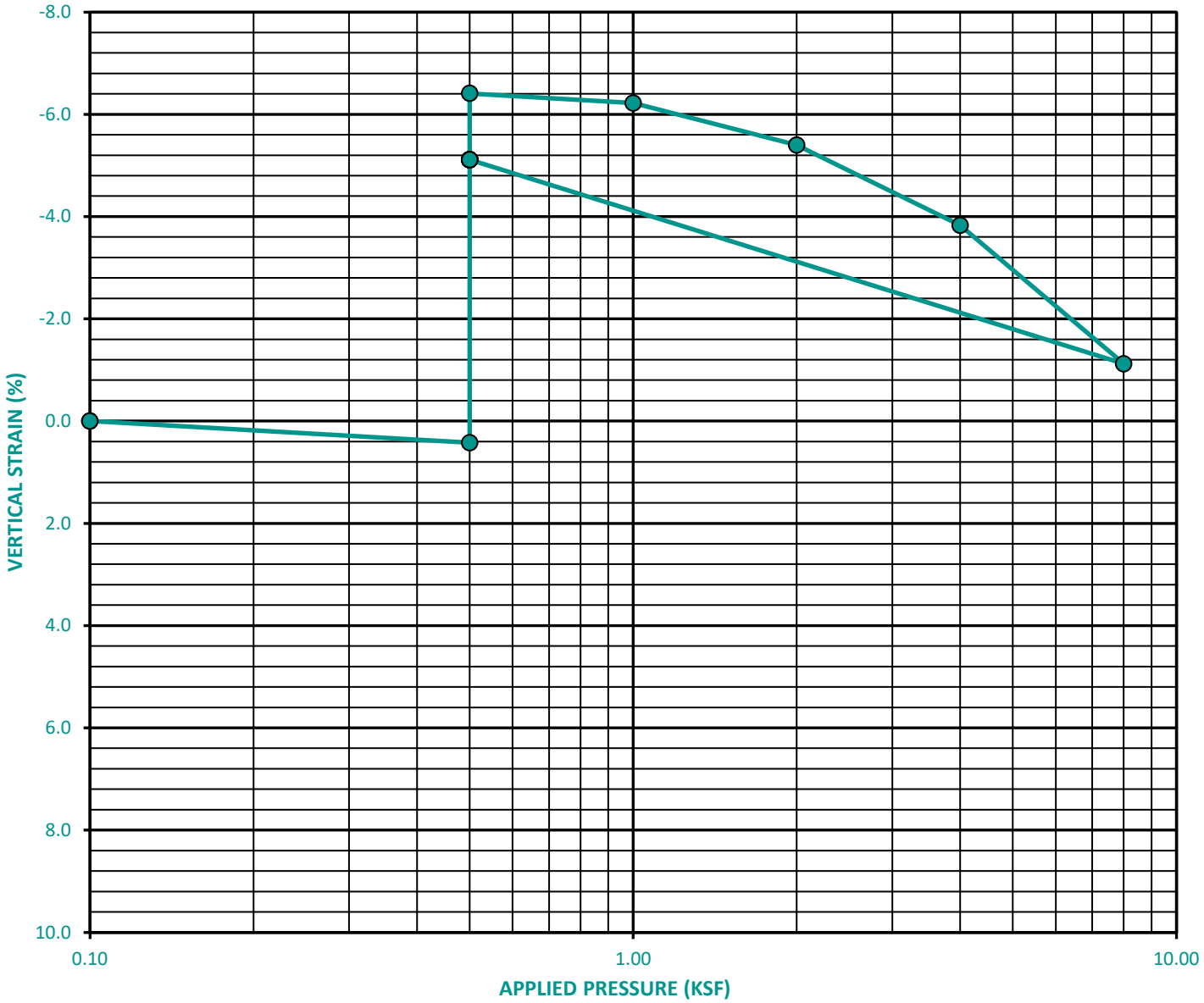
CONSOLIDATION CURVE - ASTM D 2435

SAN MARCOS RESIDENCES

PROJECT NO.: G3355-42-01

SAMPLE NO.:	LB4-2	**GEOLOGIC UNIT:**	Qdaf
SAMPLE DEPTH (FT):	5.5		

TEST INFORMATION	
INITIAL DRY DENSITY (PCF):	102.7
INITIAL WATER CONTENT (%):	21.5%
SAMPLE SATURATED AT (KSF):	.5
INITIAL SATURATION (%):	92.7%



CONSOLIDATION CURVE - ASTM D 2435

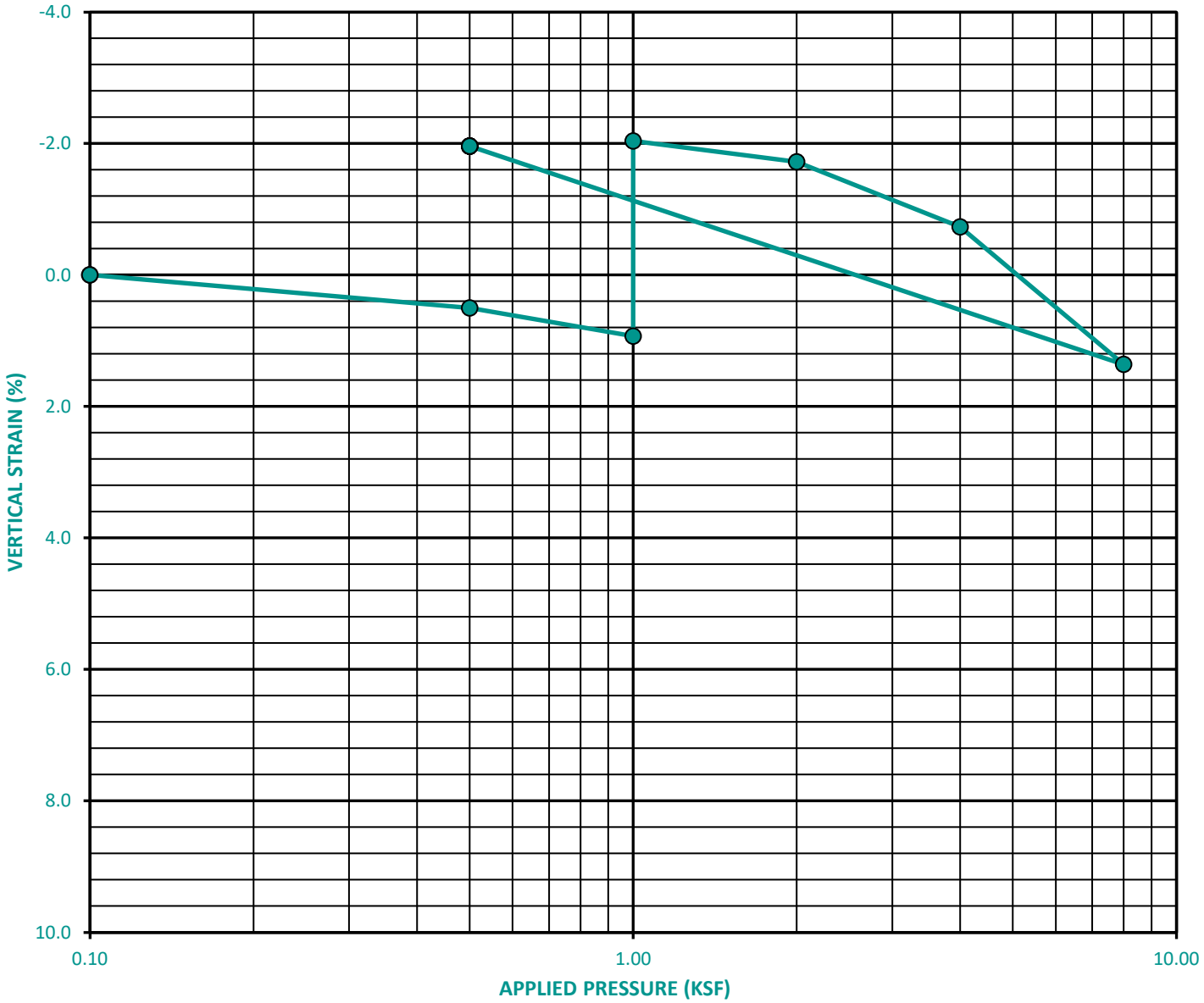
GEOCON
INCORPORATED
GEOTECHNICAL CONSULTANTS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974
PHONE 858 558-6900 - FAX 858 558-6159

SAN MARCOS RESIDENCES

PROJECT NO.: G3355-42-01

SAMPLE NO.:	LB4-4	**GEOLOGIC UNIT:**	Qdaf
SAMPLE DEPTH (FT):	7.5		

TEST INFORMATION	
INITIAL DRY DENSITY (PCF):	101.4
INITIAL WATER CONTENT (%):	22.8%
SAMPLE SATURATED AT (KSF):	1.0
INITIAL SATURATION (%):	95.1%



GEOCON
INCORPORATED
GEOTECHNICAL CONSULTANTS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974
PHONE 858 558-6900 - FAX 858 558-6159

CONSOLIDATION CURVE - ASTM D 2435

SAN MARCOS RESIDENCES

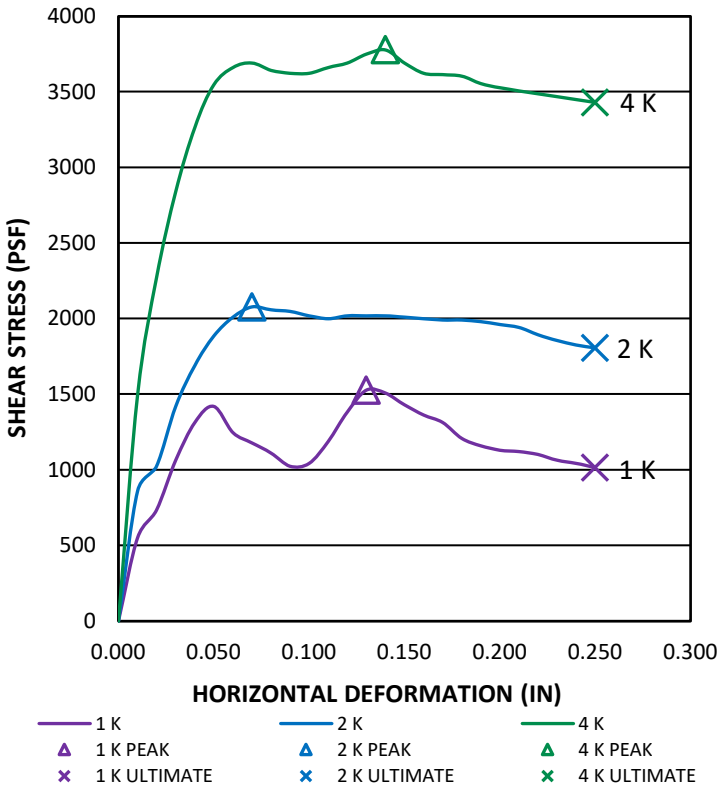
PROJECT NO.: G3355-42-01

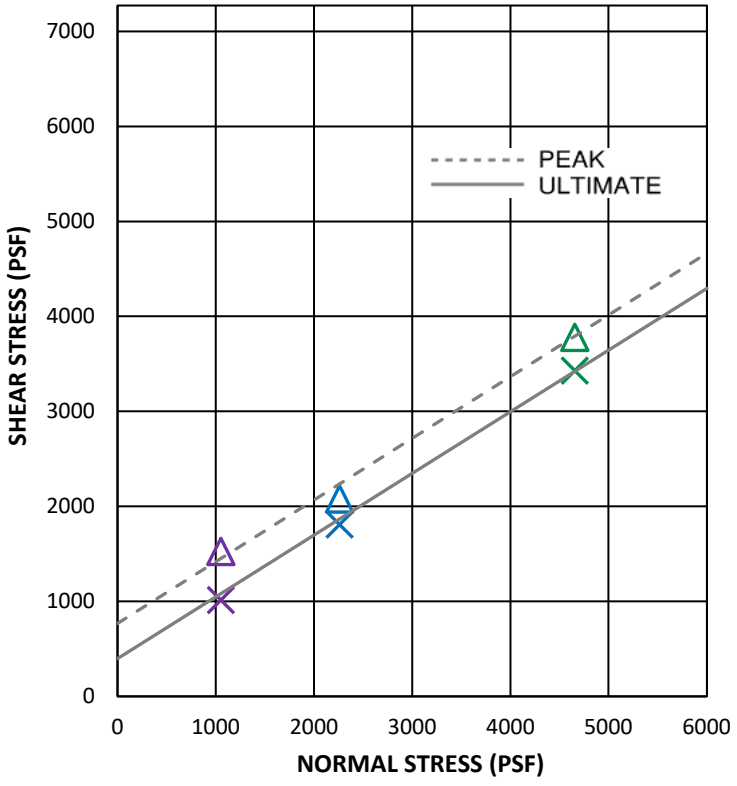
SAMPLE NO.:	**LB1-5**	GEOLOGIC UNIT:	**Tsa**
SAMPLE DEPTH (FT):	**25**	NATURAL/REMOLDED:	**N**

INITIAL CONDITIONS				
NORMAL STRESS TEST LOAD	**1 K**	**2 K**	**4 K**	**AVERAGE**
ACTUAL NORMAL STRESS (PSF):	1053.8	2261.4	4657.4	--
WATER CONTENT (%):	21.0	20.9	19.9	20.6
DRY DENSITY (PCF):	103.0	104.7	106.5	104.8

AFTER TEST CONDITIONS				
NORMAL STRESS TEST LOAD	**1 K**	**2 K**	**4 K**	**AVERAGE**
WATER CONTENT (%):	23.6	23.5	22.6	23.2
PEAK SHEAR STRESS (PSF):	1527	2077	3778	--
ULT.-E.O.T. SHEAR STRESS (PSF):	1014	1807	3430	--

RESULTS		
PEAK	COHESION, C (PSF)	770
	FRICTION ANGLE (DEGREES)	33
ULTIMATE	COHESION, C (PSF)	400
	FRICTION ANGLE (DEGREES)	33





GEOCON
INCORPORATED
GEOTECHNICAL CONSULTANTS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974
PHONE 858 558-6900 - FAX 858 558-6159

DIRECT SHEAR - AASHTO T-236

SAN MARCOS RESIDENCES

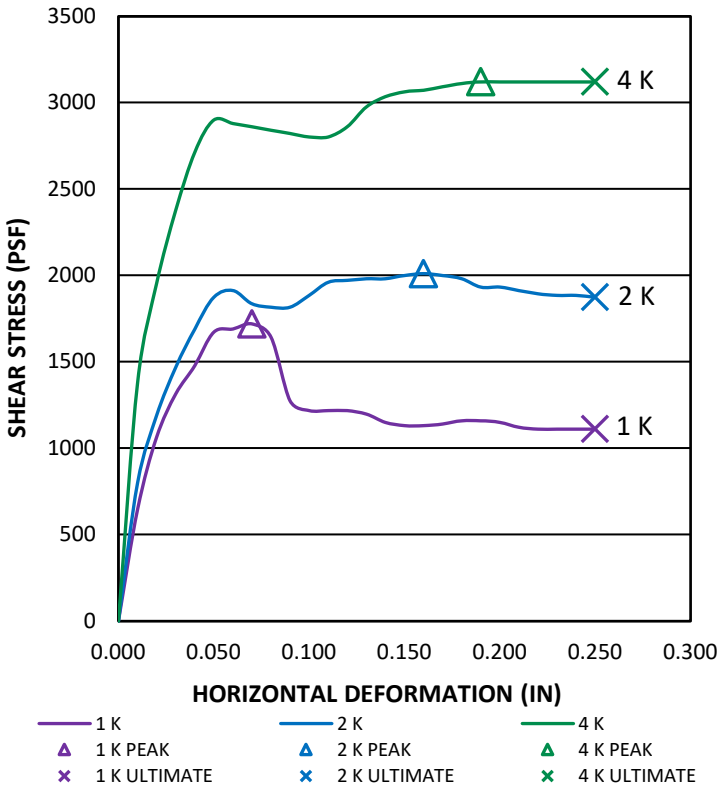
PROJECT NO.: G3355-42-01

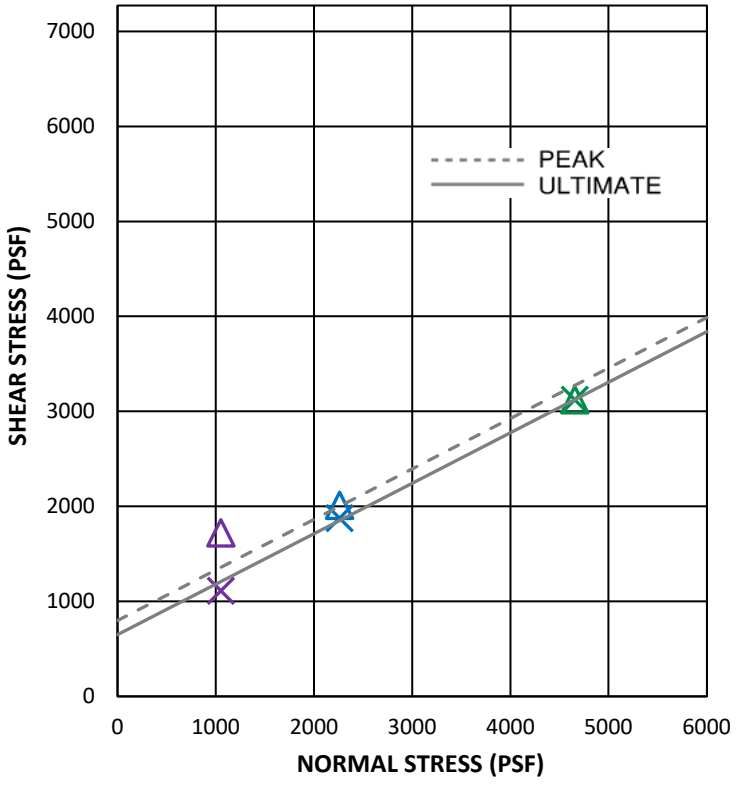
SAMPLE NO.:	**LB1-6**	GEOLOGIC UNIT:	**Tsa**
SAMPLE DEPTH (FT):	**30**	NATURAL/REMOLDED:	**N**

INITIAL CONDITIONS				
NORMAL STRESS TEST LOAD	**1 K**	**2 K**	**4 K**	**AVERAGE**
ACTUAL NORMAL STRESS (PSF):	1053.8	2261.4	4657.4	--
WATER CONTENT (%):	20.9	20.4	18.8	20.0
DRY DENSITY (PCF):	105.1	104.9	106.7	105.6

AFTER TEST CONDITIONS				
NORMAL STRESS TEST LOAD	**1 K**	**2 K**	**4 K**	**AVERAGE**
WATER CONTENT (%):	21.9	23.0	22.2	22.4
PEAK SHEAR STRESS (PSF):	1720	2010	3121	--
ULT.-E.O.T. SHEAR STRESS (PSF):	1111	1874	3121	--

RESULTS		
PEAK	COHESION, C (PSF)	800
	FRICTION ANGLE (DEGREES)	28
ULTIMATE	COHESION, C (PSF)	650
	FRICTION ANGLE (DEGREES)	28





GEOCON
INCORPORATED
GEOTECHNICAL CONSULTANTS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974
PHONE 858 558-6900 - FAX 858 558-6159

DIRECT SHEAR - AASHTO T-236

SAN MARCOS RESIDENCES

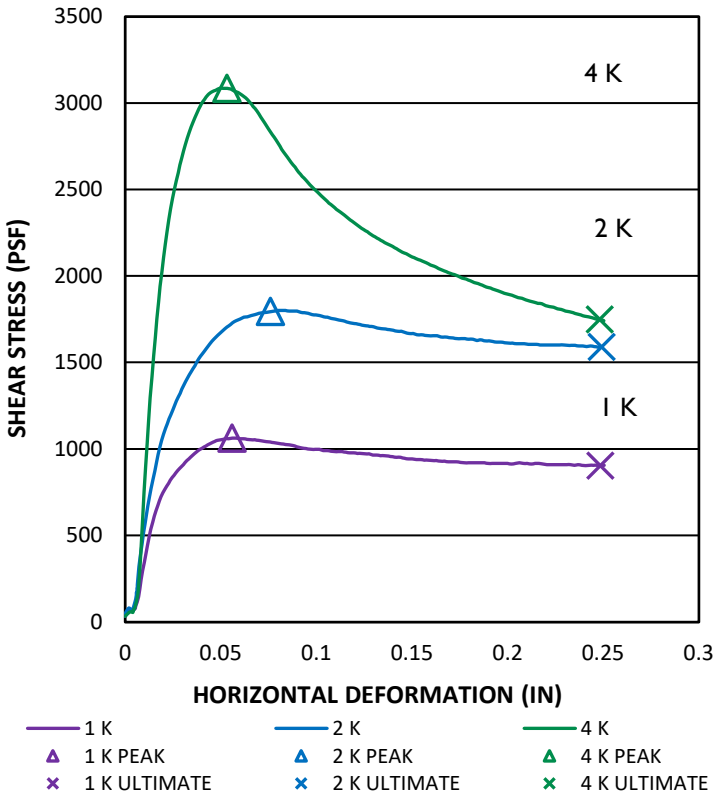
PROJECT NO.: G3355-42-01

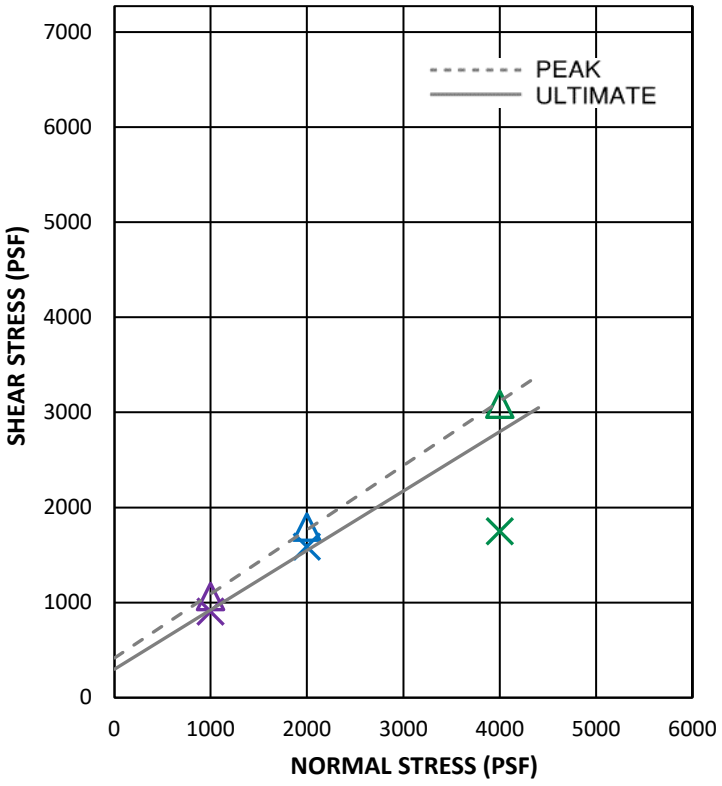
SAMPLE NO.:	**LB1-7**	GEOLOGIC UNIT:	**Tsa**
SAMPLE DEPTH (FT):	**35**	NATURAL/REMOLDED:	**N**

INITIAL CONDITIONS				
NORMAL STRESS TEST LOAD	**1 K**	**2 K**	**4 K**	**AVERAGE**
ACTUAL NORMAL STRESS (PSF):	1000	2000	4000	--
WATER CONTENT (%):	27.0	24.5	29.0	26.8
DRY DENSITY (PCF):	94.8	98.0	93.0	95.3

AFTER TEST CONDITIONS				
NORMAL STRESS TEST LOAD	**1 K**	**2 K**	**4 K**	**AVERAGE**
WATER CONTENT (%):	28.8	27.1	30.6	28.8
PEAK SHEAR STRESS (PSF):	1063	1794	3085	--
ULT.-E.O.T. SHEAR STRESS (PSF):	904	1589	1749	--

RESULTS		
PEAK	COHESION, C (PSF)	420
	FRICTION ANGLE (DEGREES)	34
ULTIMATE	COHESION, C (PSF)	300
	FRICTION ANGLE (DEGREES)	32





GEOCON
INCORPORATED
GEOTECHNICAL CONSULTANTS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974
PHONE 858 558-6900 - FAX 858 558-6159

AASHTO T-236

SAN MARCOS RESIDENCES

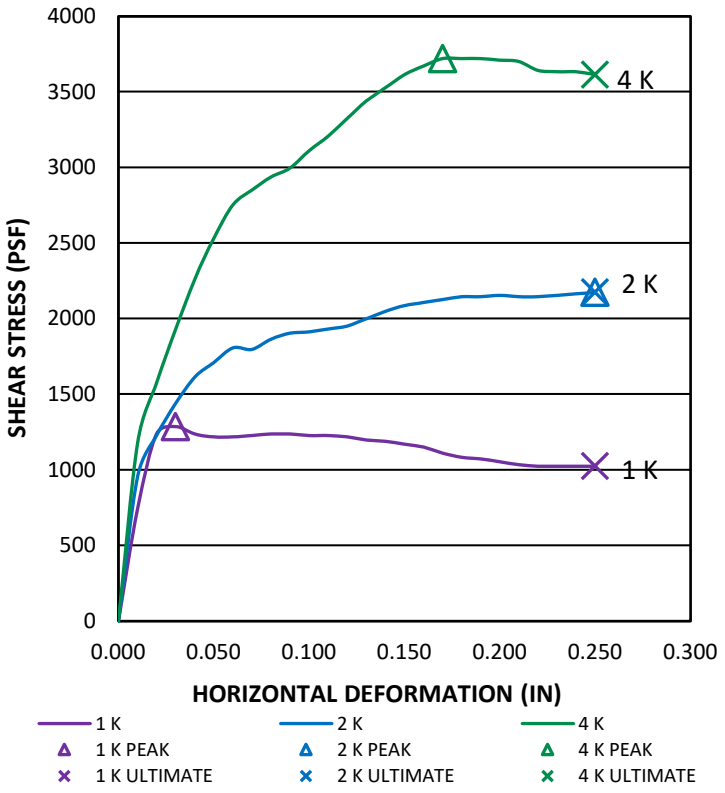
PROJECT NO.: G3355-42-01

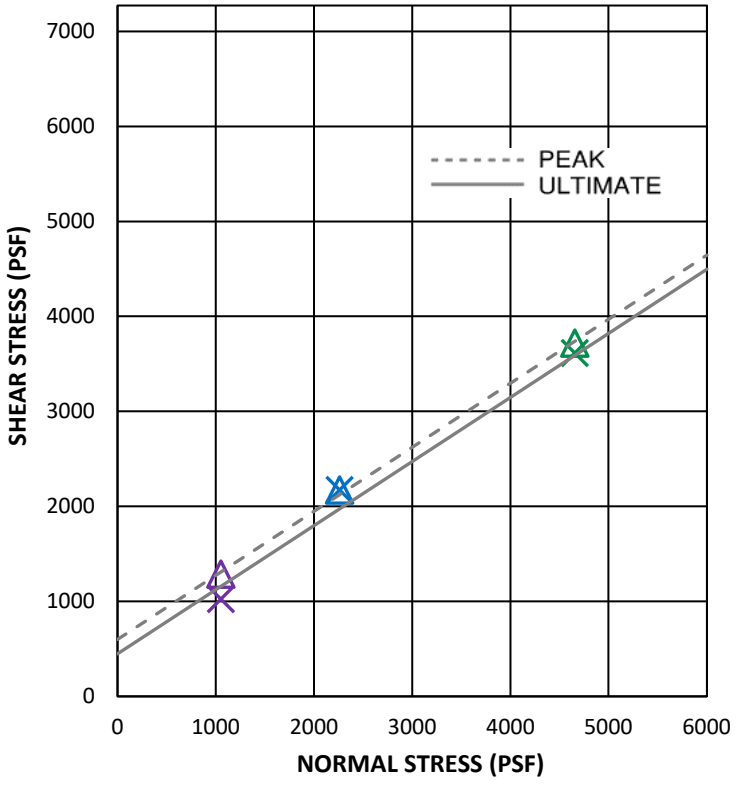
SAMPLE NO.:	**LB3-3**	GEOLOGIC UNIT:	**Tsa**
SAMPLE DEPTH (FT):	**15**	NATURAL/REMOLDED:	**N**

INITIAL CONDITIONS				
NORMAL STRESS TEST LOAD	**1 K**	**2 K**	**4 K**	**AVERAGE**
ACTUAL NORMAL STRESS (PSF):	1053.8	2261.4	4657.4	--
WATER CONTENT (%):	21.9	22.8	22.5	22.4
DRY DENSITY (PCF):	103.2	101.0	100.2	101.4

AFTER TEST CONDITIONS				
NORMAL STRESS TEST LOAD	**1 K**	**2 K**	**4 K**	**AVERAGE**
WATER CONTENT (%):	24.3	25.4	25.5	25.0
PEAK SHEAR STRESS (PSF):	1285	2174	3720	--
ULT.-E.O.T. SHEAR STRESS (PSF):	1024	2174	3614	--

RESULTS		
PEAK	COHESION, C (PSF)	600
	FRICTION ANGLE (DEGREES)	34
ULTIMATE	COHESION, C (PSF)	450
	FRICTION ANGLE (DEGREES)	34





GEOCON
INCORPORATED
GEOTECHNICAL CONSULTANTS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974
PHONE 858 558-6900 - FAX 858 558-6159

DIRECT SHEAR - AASHTO T-236

SAN MARCOS RESIDENCES

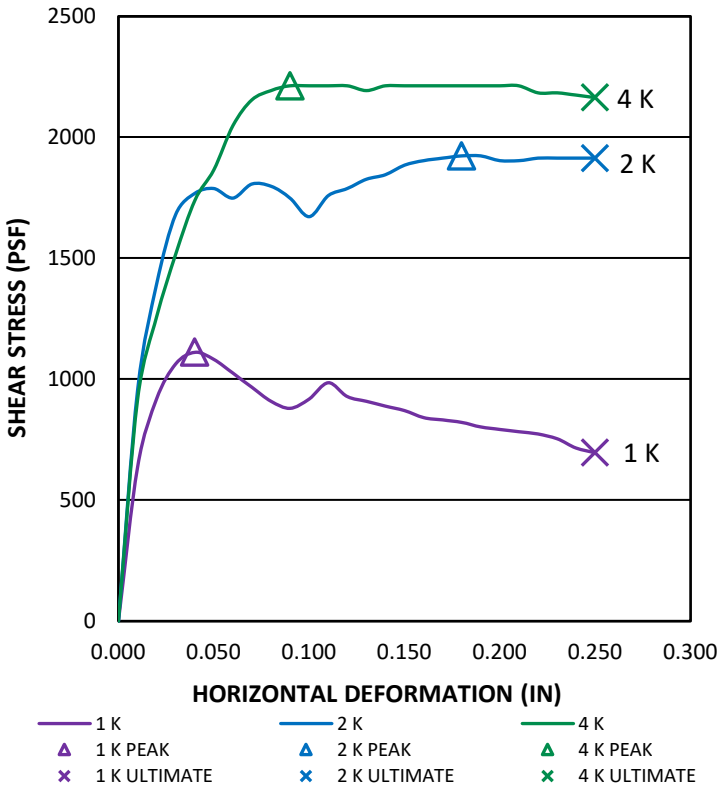
PROJECT NO.: G3355-42-01

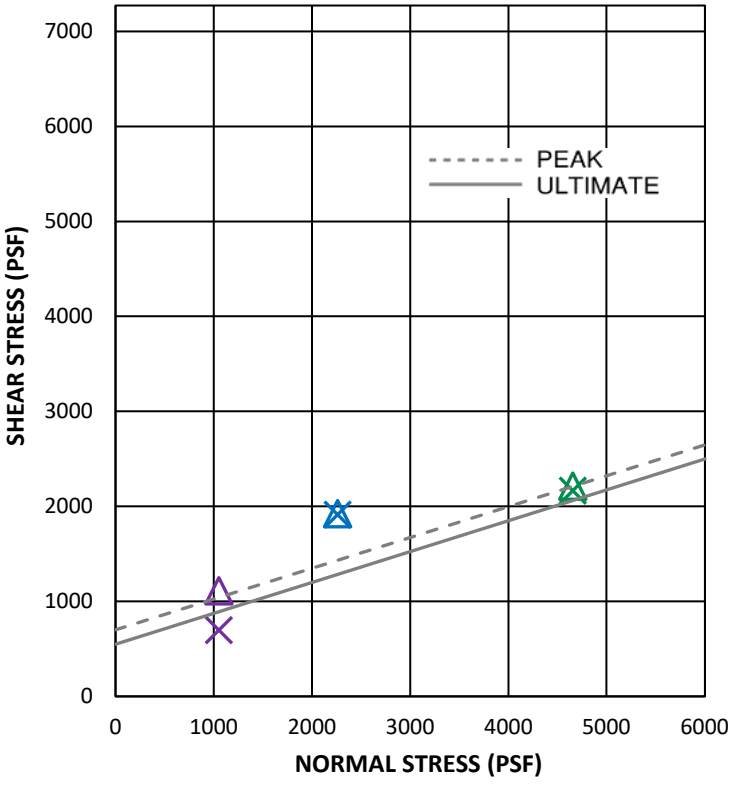
SAMPLE NO.:	**LB3-4**	GEOLOGIC UNIT:	**Tsa**
SAMPLE DEPTH (FT):	**20**	NATURAL/REMOLDED:	**N**

INITIAL CONDITIONS				
NORMAL STRESS TEST LOAD	**1 K**	**2 K**	**4 K**	**AVERAGE**
ACTUAL NORMAL STRESS (PSF):	1053.8	2261.4	4657.4	--
WATER CONTENT (%):	27.9	26.4	28.4	27.6
DRY DENSITY (PCF):	93.6	96.8	93.4	94.6

AFTER TEST CONDITIONS				
NORMAL STRESS TEST LOAD	**1 K**	**2 K**	**4 K**	**AVERAGE**
WATER CONTENT (%):	29.6	28.2	31.1	29.7
PEAK SHEAR STRESS (PSF):	1111	1923	2213	--
ULT.-E.O.T. SHEAR STRESS (PSF):	696	1913	2164	--

RESULTS		
PEAK	COHESION, C (PSF)	700
	FRICTION ANGLE (DEGREES)	18
ULTIMATE	COHESION, C (PSF)	550
	FRICTION ANGLE (DEGREES)	18





GEOCON
INCORPORATED
GEOTECHNICAL CONSULTANTS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974
PHONE 858 558-6900 - FAX 858 558-6159

DIRECT SHEAR - AASHTO T-236

SAN MARCOS RESIDENCES

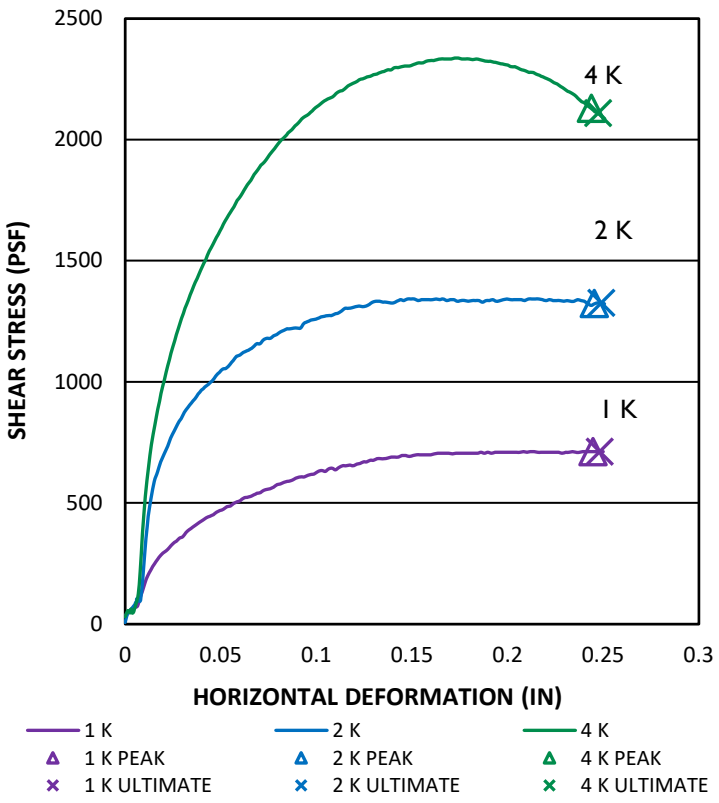
PROJECT NO.: G3355-42-01

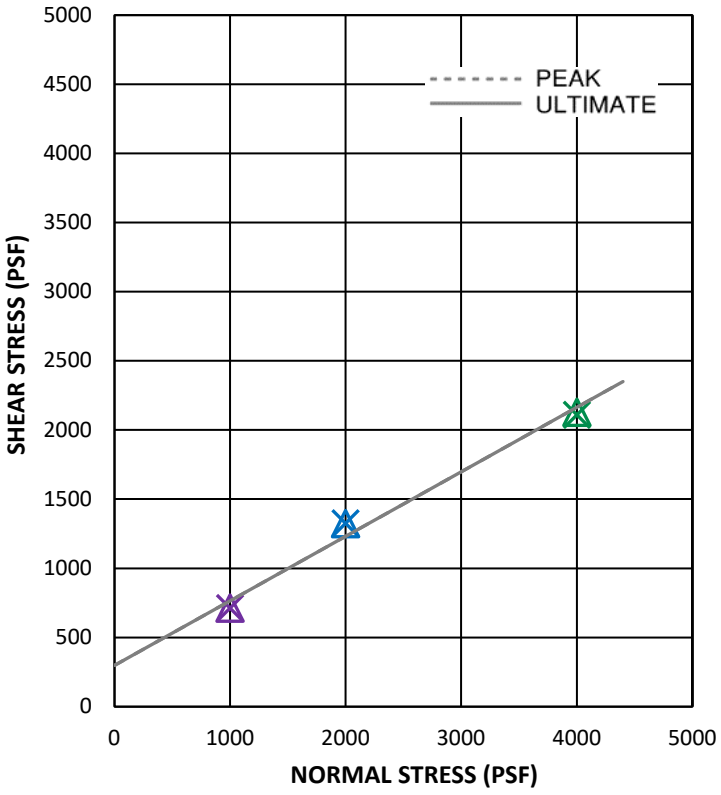
SAMPLE NO.:	**LB3-11**	GEOLOGIC UNIT:	**Tsa**
SAMPLE DEPTH (FT):	**42.5-43.5**	NATURAL/REMOLDED:	**R**

INITIAL CONDITIONS				
NORMAL STRESS TEST LOAD	**1 K**	**2 K**	**4 K**	**AVERAGE**
ACTUAL NORMAL STRESS (PSF):	1000	2000	4000	--
WATER CONTENT (%):				
DRY DENSITY (PCF):				

AFTER TEST CONDITIONS				
NORMAL STRESS TEST LOAD	**1 K**	**2 K**	**4 K**	**AVERAGE**
WATER CONTENT (%):				
PEAK SHEAR STRESS (PSF):	712	1323	2129	--
ULT.-E.O.T. SHEAR STRESS (PSF):	712	1326	2110	--

RESULTS		
PEAK	COHESION, C (PSF)	300
	FRICTION ANGLE (DEGREES)	25
ULTIMATE	COHESION, C (PSF)	300
	FRICTION ANGLE (DEGREES)	25





GEOCON
INCORPORATED
GEOTECHNICAL CONSULTANTS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974
PHONE 858 558-6900 - FAX 858 558-6159

DIRECT SHEAR - AASHTO T-236 (FULLY SOFTENED)

SAN MARCOS RESIDENCES

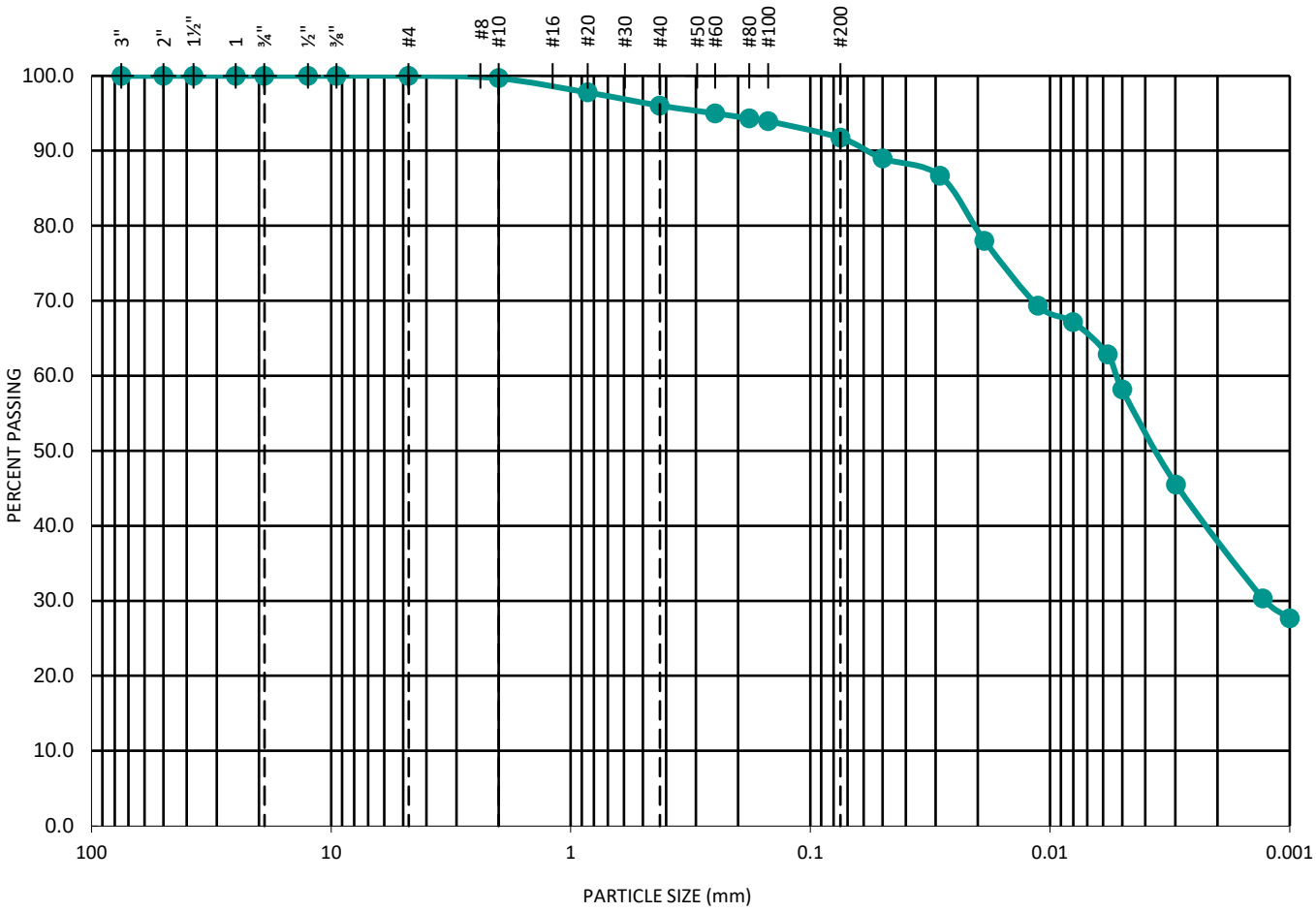
PROJECT NO.: G3355-42-01

SAMPLE NO.: **LB3-11** GEOLOGIC UNIT: **Tsa**

SAMPLE DEPTH (FT.): **42.5-43.5**

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

U.S. STANDARD SIEVE SIZE



TEST DATA					
D_{10} (mm)	D_{30} (mm)	D_{60} (mm)	C_c	C_u	SOIL DESCRIPTION
--	0.00126	0.00529	--	--	Sandy, lean CLAY

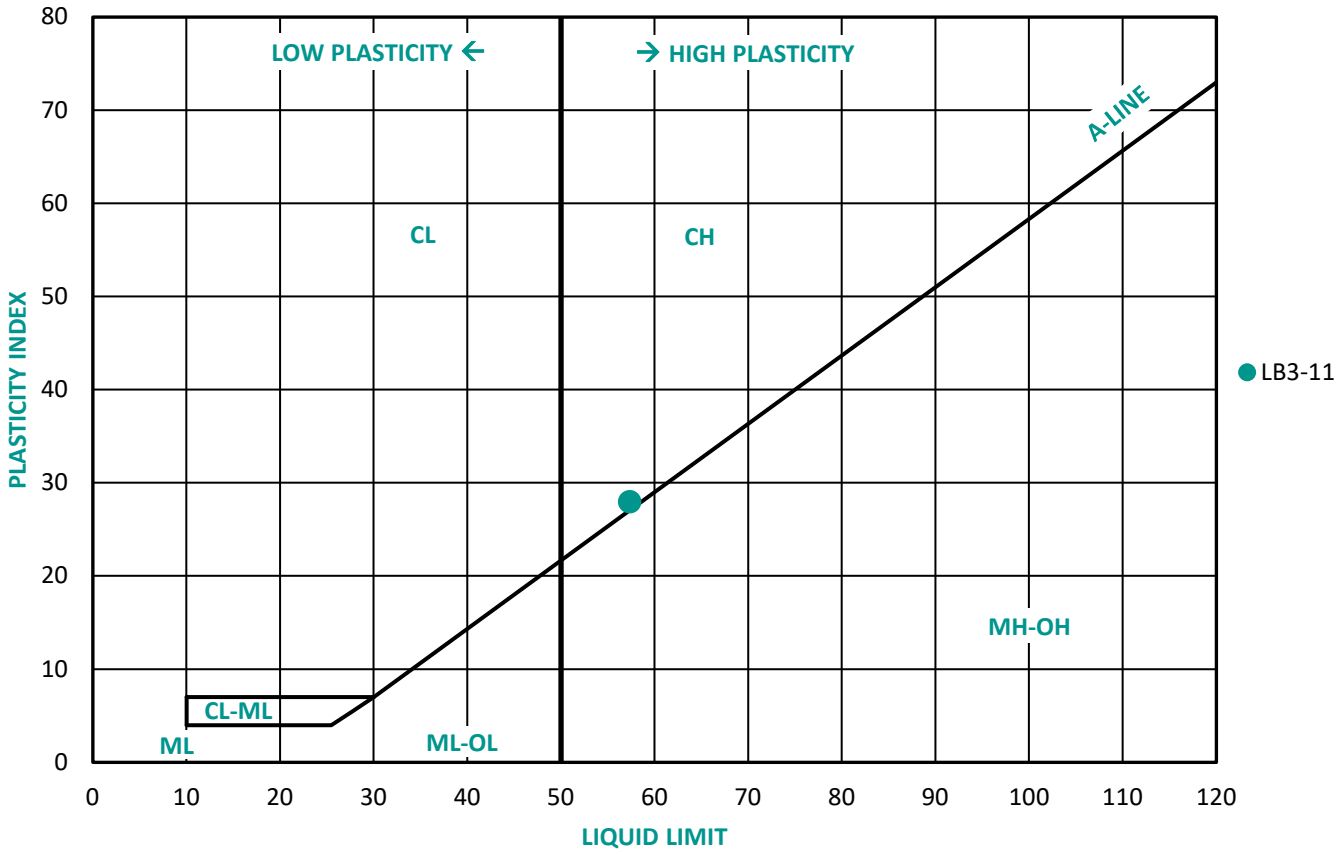
GEOCON INCORPORATED
GEOTECHNICAL CONSULTANTS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974
PHONE 858 558-6900 - FAX 858 558-6159

SIEVE ANALYSES - ASTM D 135 & D 422

SAN MARCOS RESIDENCES

PROJECT NO.: G3355-42-01

TEST RESULTS					
SAMPLE NO.	GEOLOGIC UNIT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	SOIL TYPE
LB3-11	Tsa	57	29	28	CH



SOIL TYPE DESCRIPTION	
CH	High-Plasticity Clay
CL	Low-Plasticity Clay
ML	Low-Plasticity Silt
CL-ML	Low-Plasticity Clay to Low-Plasticity Silt
MH-OH	High-Plasticity Silt to High-Plasticity, Organic Silt
ML-OL	Low-Plasticity Silt to Low-Plasticity, Organic Silt

GEOCON
INCORPORATED
GEOTECHNICAL CONSULTANTS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974
PHONE 858 558-6900 - FAX 858 558-6159

PLASTICITY INDEX - ASTM D 4318

SAN MARCOS RESIDENCES

PROJECT NO.: G3355-42-01

APPENDIX C

APPENDIX C

BORING LOGS AND LABORATORY TESTING
NOVA ENGINEERING (2016),
GHOSTRIDER INCORPORATED (2020),
AND CHRISTIAN WHEELER ENGINEERING (2022)

FOR

SAN MARCOS RESIDENCES
2972 SOUTH SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

PROJECT NO. G3355-42-01

Appendix A

Subsurface Explorations

LOG OF TEST BORING B-1

Date Logged:	8/29/22	Equipment:	IR A-300
Logged By:	AJC	Auger Type:	8 inch Hollow Stem
Existing Elevation:	501'	Drive Type:	140lbs/30 inches
Proposed Elevation:	±500'	Depth to Water:	Unknown

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk
SPT	Standard Penetration Test	DR	Drive Ring
ST	Shelby Tube		
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential	SD	Sample Density

DEPTH (ft)	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0	CH	**Slopewash (Qsw):** Brown, dry, medium stiff, FAT CLAY with reddish iron staining, upper 18" disturbed.							
		Moist, very stiff.	34	Cal		14.6	105.8		
		Very moist, greenish-gray to yellowish-brown.							
5			29	Cal		25.0	95.7		
	CL	**Santiago Formation (Tsa):** Greenish-gray to purplish-gray, moist, hard, SILTY CLAY with precipitate deposits and crystals in fractures.	50/5"	Cal					
10									
		Greenish-gray, some iron staining.	50/5"	Cal					
15									
			50/4"	Cal					
20		Terminated at 19 feet. No groundwater or seepage encountered.							
25									
30									

Notes:

Symbol Legend

- ▽ Groundwater Level During Drilling
- ▼ Groundwater Level After Drilling
- ⁘ Apparent Seepage
- * No Sample Recovery
- ** Non-Representative Blow Count (rocks present)

SAN MARCOS RESIDENCES
2972-2982 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

DATE:	DECEMBER 2022	JOB NO.:	2220399.01
BY:	SD	APPENDIX:	A-1

CHRISTIAN WHEELER ENGINEERING

LOG OF TEST BORING B-2

Date Logged:	8/29/22	Equipment:	IR A-300
Logged By:	AJC	Auger Type:	8 inch Hollow Stem
Existing Elevation:	518'	Drive Type:	140lbs/30 inches
Proposed Elevation:	512'	Depth to Water:	Unknown

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk
SPT	Standard Penetration Test	DR	Drive Ring
ST	Shelby Tube		
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential	SD	Sample Density

DEPTH (ft)	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0	CH	**Slopewash (Qsw):** Greenish-brown to yellowish-brown, dry, medium stiff, FAT CLAY with some gravels. Expansion Index = 158 (Very High)							SA
		Moist, very stiff.							EI
									MD
		Very moist, greenish-gray to yellowish-brown.							PI
									SO4
5									DS
	CH	**Santiago Formation (Tsa):** Olive gray, moist, hard, FAT CLAY with precipitate deposits, reddish-orange staining.	50/4"	Cal		16.1	109.2		
	CL	Greenish-gray to yellowish-brown, very moist, hard, SILTY CLAY with orangish iron staining.							
10		Orange iron staining.	50/4"	Cal		21.4	99.1		
15		Yellow iron staining.	50/4"	Cal					
		Purplish-gray, precipitate deposits and crystals in fractures.	50/2.5"	Cal					
20		Terminated at 20 feet. No groundwater or seepage encountered.							
25									
30									

Notes:

Symbol Legend

- ▽ Groundwater Level During Drilling
- ▼ Groundwater Level After Drilling
- ⁘ Apparent Seepage
- * No Sample Recovery
- ** Non-Representative Blow Count (rocks present)

SAN MARCOS RESIDENCES
2972-2982 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

DATE:	DECEMBER 2022	JOB NO.:	2220399.01
BY:	SD	APPENDIX:	A-2

CHRISTIAN WHEELER ENGINEERING

LOG OF TEST BORING B-3

Date Logged:	8/29/22	Equipment:	IR A-300
Logged By:	AJC	Auger Type:	8 inch Hollow Stem
Existing Elevation:	537'	Drive Type:	140lbs/30 inches
Proposed Elevation:	532'	Depth to Water:	Unknown

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk
SPT	Standard Penetration Test	DR	Drive Ring
ST	Shelby Tube		
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential	SD	Sample Density

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0			CL	**Documented Artificial Fill (Qdaf):** Light brown, dry to damp, stiff, SILTY CLAY.							
				Very stiff, moist.	32	Cal					
				Gravels from 4' to 6'.							
5					50/3"**	Cal		10.5	105.4		
				Stiff, greenish-gray to dark brown.							
					22	Cal		19.3	104.7		
10											
				Dark brown, very moist, stiff, SANDY CLAY with trace organics.							
			CH	**Santiago Formation (Tsa):** Greenish-gray to yellowish-brown, moist, hard, FAT CLAY with reddish-orangish iron staining, precipitate deposits and crystals in fractures.	50/5½"	Cal					
15											
					58	Cal					
20				Abundant precipitates, crystals in fractures and reddish-orange iron staining.	50/4"	Cal					
25			CL	Purplish-gray to greenish-gray, very moist, hard, SILTY CLAY.	50/5½"	Cal					
30				Continued on A-4							

Notes:

Symbol Legend

- ▽ Groundwater Level During Drilling
- ▼ Groundwater Level After Drilling
- Apparent Seepage
- * No Sample Recovery
- ** Non-Representative Blow Count (rocks present)

SAN MARCOS RESIDENCES
2972-2982 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

DATE:	DECEMBER 2022	JOB NO.:	2220399.01
BY:	SD	APPENDIX:	A-3

CHRISTIAN WHEELER ENGINEERING

LOG OF TEST BORING B-3 (cont.)

Date Logged:	8/29/22	Equipment:	IR A-300
Logged By:	AJC	Auger Type:	8 inch Hollow Stem
Existing Elevation:	537'	Drive Type:	140lbs/30 inches
Proposed Elevation:	532'	Depth to Water:	Unknown

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk
SPT	Standard Penetration Test	DR	Drive Ring
ST	Shelby Tube		
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential	SD	Sample Density

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
30			CL	**Santiago Formation (Tsa):** Purplish-gray to greenish-gray, very moist, hard, SILTY CLAY with reddish-orangish iron staining and precipitate deposits and crystals in fractures.	50/5"	Cal					
35				Terminated at 34 feet. No groundwater or seepage encountered.							
40											
45											
50											
55											
60											

Notes:

Symbol Legend

- ▽ Groundwater Level During Drilling
- ▼ Groundwater Level After Drilling
- Apparent Seepage
- * No Sample Recovery
- ** Non-Representative Blow Count (rocks present)

SAN MARCOS RESIDENCES
2972-2982 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

DATE:	DECEMBER 2022	JOB NO.:	2220399.01
BY:	SD	APPENDIX:	A-4

CHRISTIAN WHEELER ENGINEERING

LOG OF TEST BORING B-4

Date Logged:	8/29/22	Equipment:	IR A-300
Logged By:	AJC	Auger Type:	8 inch Hollow Stem
Existing Elevation:	538'	Drive Type:	140lbs/30 inches
Proposed Elevation:	532'	Depth to Water:	Unknown

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk
SPT	Standard Penetration Test	DR	Drive Ring
ST	Shelby Tube		
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential	SD	Sample Density

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0			CL	**Santiago Formation (Tsa):** Greenish-gray to yellowish-brown, dry, stiff, SILTY CLAY with precipitate deposits and crystal in fractures and yellowish iron staining.							
				Moist, very stiff.							
				Highly weathered from 0' to 3'.							
5				Hard.							
					50/5"	Cal		18.9	105.4		DS
				Very moist.							
10					93	Cal		24.6	95.1		
15					50/5"	Cal					
					50/3"	Cal*					
20				Terminated at 18.5 feet. No groundwater or seepage encountered.							
25											
30											

Notes:

Symbol Legend

- ▽ Groundwater Level During Drilling
- ▼ Groundwater Level After Drilling
- ⁘ Apparent Seepage
- * No Sample Recovery
- ** Non-Representative Blow Count (rocks present)

SAN MARCOS RESIDENCES
2972-2982 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

DATE:	DECEMBER 2022	JOB NO.:	2220399.01
BY:	SD	APPENDIX:	A-5

CHRISTIAN WHEELER ENGINEERING

LOG OF TEST BORING B-5

Date Logged:	8/29/22	Equipment:	IR A-300
Logged By:	AJC	Auger Type:	8 inch Hollow Stem
Existing Elevation:	516'	Drive Type:	140lbs/30 inches
Proposed Elevation:	512'	Depth to Water:	Unknown

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk
SPT	Standard Penetration Test	DR	Drive Ring
ST	Shelby Tube		
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential	SD	Sample Density

DEPTH (ft)	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0	CH	**Slopewash (Qsw):** Medium brown, moist, stiff, FAT CLAY.							
		Very stiff.							
5			37	Cal		17.8	104.1		Con
		Very moist.							
10			50/4"**	Cal		23.4	104.1		Con
	CL	**Santiago Formation (Tsa):** Greenish-gray to yellowish-brown, moist, hard, SILTY CLAY with precipitate deposits in fractures, abundant reddish-orange iron staining.	65	Cal					
15		Yellowish iron staining.							
			50/5"	Cal					
20		Terminated at 19 feet. No groundwater or seepage encountered.							
25									
30									

Notes:

Symbol Legend

- ▽ Groundwater Level During Drilling
- ▼ Groundwater Level After Drilling
- ⁘ Apparent Seepage
- * No Sample Recovery
- ** Non-Representative Blow Count (rocks present)

SAN MARCOS RESIDENCES
2972-2982 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

DATE:	DECEMBER 2022	JOB NO.:	2220399.01
BY:	SD	APPENDIX:	A-6

CHRISTIAN WHEELER ENGINEERING

LOG OF TEST BORING B-6

Date Logged:	8/29/22	Equipment:	IR A-300
Logged By:	AJC	Auger Type:	8 inch Hollow Stem
Existing Elevation:	497'	Drive Type:	140lbs/30 inches
Proposed Elevation:	±500'	Depth to Water:	Unknown

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk
SPT	Standard Penetration Test	DR	Drive Ring
ST	Shelby Tube		
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential	SD	Sample Density

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0			CH	**Slopewash (Qsw):** Dark brown, moist, stiff, FAT CLAY with reddish iron staining, disturbed from 0' to 2'.							
				Very stiff.	43	Cal		16.1	107.0		
5					50	Cal					
10			CL	**Santiago Formation (Tsa):** Olive gray, moist, very stiff, SILTY CLAY with abundant white precipitate deposits and crystals in fractures, reddish-orangish iron staining, moderately weathered from 10' to 16'. Below 16' slightly weathered.	47	Cal					
15				Olive gray, moist, hard.	65	Cal					
					69	Cal					
20				Terminated at 19.5 feet. No groundwater or seepage encountered.							
25											
30											

Notes:

Symbol Legend

- ▽ Groundwater Level During Drilling
- ▼ Groundwater Level After Drilling
- ⁹⁹ Apparent Seepage
- * No Sample Recovery
- ** Non-Representative Blow Count (rocks present)

SAN MARCOS RESIDENCES
2972-2982 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

DATE:	DECEMBER 2022	JOB NO.:	2220399.01
BY:	SD	APPENDIX:	A-7

CHRISTIAN WHEELER ENGINEERING

LOG OF TEST TRENCH T-1

Date Logged:	8/29/22	Equipment:	Cat 430 Backhoe
Logged By:	DJF	Auger Type:	24" Bucket
Existing Elevation:	496.5'	Drive Type:	N/A
Finish Elevation:	±496'	Depth to Water:	N/A

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk
SPT	Standard Penetration Test	DR	Drive Ring
ST	Shelby Tube		
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential	SD	Sample Density

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0			CH	**Slopewash (Qsw):** Brown, dry, medium stiff, FAT CLAY, upper 12" disturbed with AC debris, reddish iron staining.							
1				Dark brown, very moist, stiff, with reddish iron staining.							
2											
3				Very stiff.							
4						CK		18.0	93.5		
5											
6											
7											
8											
9				Reddish-brown to olive gray, mottled.							
10						CK					
11											
12			CL	**Santiago Formation (Tsa):** Olive gray, very moist, very stiff, SILTY CLAY with orangish iron staining and abundant gypsum crystals in fractures, highly weathered.							
13						CK					
14				Terminated at 14 feet. No groundwater or seepage encountered.							
15											

Notes:

Symbol Legend

- ▽ Groundwater Level During Drilling
- ▼ Groundwater Level After Drilling
- ⁘ Apparent Seepage
- * No Sample Recovery
- ** Non-Representative Blow Count (rocks present)

SAN MARCOS RESIDENCES
2972-2982 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

DATE:	DECEMBER 2022	JOB NO.:	2220399.01
BY:	SD	APPENDIX:	A-8

CHRISTIAN WHEELER ENGINEERING

LOG OF TEST TRENCH T-2

Date Logged:	8/29/22	Equipment:	Cat 430 Backhoe
Logged By:	DJF	Auger Type:	24" Bucket
Existing Elevation:	500'	Drive Type:	N/A
Finish Elevation:	±500'	Depth to Water:	N/A

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk
SPT	Standard Penetration Test	DR	Drive Ring
ST	Shelby Tube		
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential	SD	Sample Density

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0			SM	**Artificial Fill (Qaf):** Light grayish-brown, damp, loose to medium dense, very fine- to coarse-grained, SILTY SAND with gravels.							
2			CH	**Slopewash (Qsw):** Brown to reddish-brown, very moist, medium stiff, FAT CLAY, mottled.							
4				Stiff.		CK		24.0	98.8		
8			CL	**Santiago Formation (Tsa):** Olive gray to purplish-brown, very moist, very stiff, SILTY CLAY, mottled with orangish iron staining and gypsum crystals in fractures, highly weathered.		CK					
11				Terminated at 11 feet. No groundwater or seepage encountered.		CK					

Notes:

Symbol Legend

- ▽ Groundwater Level During Drilling
- ▼ Groundwater Level After Drilling
- ⁘ Apparent Seepage
- * No Sample Recovery
- ** Non-Representative Blow Count (rocks present)

SAN MARCOS RESIDENCES
2972-2982 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

DATE:	DECEMBER 2022	JOB NO.:	2220399.01
BY:	SD	APPENDIX:	A-9

CHRISTIAN WHEELER ENGINEERING

LOG OF TEST TRENCH T-3

Date Logged:	8/29/22	Equipment:	Cat 430 Backhoe
Logged By:	DJF	Auger Type:	24" Bucket
Existing Elevation:	515'	Drive Type:	N/A
Finish Elevation:	512'	Depth to Water:	N/A

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk
SPT	Standard Penetration Test	DR	Drive Ring
ST	Shelby Tube		
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential	SD	Sample Density

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0			CH	**Slopewash (Qsw):** Grayish-brown, dry, medium stiff, FAT CLAY with white precipitate deposits and trace shell fragments.							
1											
2				Damp, very stiff.							
3				Moist.							
4											
5						CK		15.9	98.1		
6											
7				Brown.							
8						CK					
9			CL	**Santiago Formation (Tsa):** Light olive gray, moist, very stiff, SANDY CLAY, highly weathered, mottled.		CK					
10				White, hard.							
11						CK					
				Terminated at 11.5 feet. No groundwater or seepage encountered.							
12											
13											
14											
15											

Notes:

Symbol Legend

- ▽ Groundwater Level During Drilling
- ▼ Groundwater Level After Drilling
- ⁹⁹ Apparent Seepage
- * No Sample Recovery
- ** Non-Representative Blow Count (rocks present)

SAN MARCOS RESIDENCES
2972-2982 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

DATE:	DECEMBER 2022	JOB NO.:	2220399.01
BY:	SD	APPENDIX:	A-10

CHRISTIAN WHEELER ENGINEERING

LOG OF TEST TRENCH T-4

Date Logged:	8/29/22	Equipment:	Cat 430 Backhoe
Logged By:	DJF	Auger Type:	24" Bucket
Existing Elevation:	526'	Drive Type:	N/A
Finish Elevation:	±512'	Depth to Water:	N/A

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk
SPT	Standard Penetration Test	DR	Drive Ring
ST	Shelby Tube		
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential	SD	Sample Density

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0			CL	**Documented Artificial Fill (Qdaf):** Grayish-brown, dry, soft, SANDY CLAY with gravel, upper 2' disturbed by landscaping operations. Expansion Index = 116 (High)							HA EI MD SO4 DS
2				Moist, very stiff.		CK					
4			CH	**Santiago Formation (Tsa):** Olive gray, very moist, hard, FAT CLAY with yellow precipitate deposits, moderately weathered. Expansion Index = 139 (Very High)		CK		22.9	98.7		HA EI MD PI SO4 DS
6				Terminated at 6 feet. No groundwater or seepage encountered.							

Notes:

Symbol Legend

- ▽ Groundwater Level During Drilling
- ▼ Groundwater Level After Drilling
- ⁘ Apparent Seepage
- * No Sample Recovery
- ** Non-Representative Blow Count (rocks present)

SAN MARCOS RESIDENCES
2972-2982 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

DATE:	DECEMBER 2022	JOB NO.:	2220399.01
BY:	SD	APPENDIX:	A-11

CHRISTIAN WHEELER ENGINEERING

LOG OF TEST TRENCH T-5

Date Logged:	8/29/22	Equipment:	Cat 430 Backhoe
Logged By:	DJF	Auger Type:	24" Bucket
Existing Elevation:	526'	Drive Type:	N/A
Finish Elevation:	±512'	Depth to Water:	N/A

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk
SPT	Standard Penetration Test	DR	Drive Ring
ST	Shelby Tube		
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential	SD	Sample Density

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0			CL	**Documented Artificial Fill (Qdaf):** Grayish-brown, dry, medium stiff, SANDY CLAY, upper 12" decompacted.							
1				Moist, very stiff.							
2											
3				Very moist.		CK		26.5	88.7		
4											
5											
6			CH	**Santiago Formation (Tsa):** Olive gray, moist, very stiff, FAT CLAY with orangish iron staining and white precipitate deposits infractures, moderately weathered.		CK		26.5	88.7		
7											
8				Terminated at 7.5 feet. No groundwater or seepage encountered.							
9											
10											
11											
12											
13											
14											
15											

Notes:

Symbol Legend

- ▽ Groundwater Level During Drilling
- ▼ Groundwater Level After Drilling
- ⁹⁹ Apparent Seepage
- * No Sample Recovery
- ** Non-Representative Blow Count (rocks present)

SAN MARCOS RESIDENCES
2972-2982 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

DATE:	DECEMBER 2022	JOB NO.:	2220399.01
BY:	SD	APPENDIX:	A-12

CHRISTIAN WHEELER ENGINEERING

LOG OF TEST TRENCH T-6

Date Logged:	8/29/22	Equipment:	Cat 430 Backhoe
Logged By:	DJF	Auger Type:	24" Bucket
Existing Elevation:	539'	Drive Type:	N/A
Finish Elevation:	±532'	Depth to Water:	N/A

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk
SPT	Standard Penetration Test	DR	Drive Ring
ST	Shelby Tube		
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential	SD	Sample Density

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0			CL	**Documented Artificial Fill (Qdaf):** Light greenish-gray, dry, medium stiff, SANDY CLAY, upper 1.5' decompacted and dry.							
1											
2				Damp, stiff.		CK					
3				Dark brown, very stiff, SILTY CLAY.							
4						CK					
5											
6											
7				Dark greenish-gray, organic scent, trace organics.							
8						CK					
9											
10				Terminated at 9.5 feet. No groundwater or seepage encountered.							
11											
12											
13											
14											
15											

Notes:

Symbol Legend

- ▽ Groundwater Level During Drilling
- ▼ Groundwater Level After Drilling
- ⁘ Apparent Seepage
- * No Sample Recovery
- ** Non-Representative Blow Count (rocks present)

SAN MARCOS RESIDENCES
2972-2982 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

DATE:	DECEMBER 2022	JOB NO.:	2220399.01
BY:	SD	APPENDIX:	A-13

CHRISTIAN WHEELER ENGINEERING

LOG OF TEST TRENCH T-7

Date Logged:	8/29/22	Equipment:	Cat 430 Backhoe
Logged By:	DJF	Auger Type:	24" Bucket
Existing Elevation:	543'	Drive Type:	N/A
Finish Elevation:	535'	Depth to Water:	N/A

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk
SPT	Standard Penetration Test	DR	Drive Ring
ST	Shelby Tube		
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential	SD	Sample Density

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0			CL	**Santiago Formation (Tsa):** Dark olive gray, damp, medium stiff, SILTY CLAY with orangish iron staining and white precipitate deposits in fractures, upper 12" disturbed.							
1				Moist, hard.							
2											
3						CK					
4				Light olive brown to yellowish-brown, SILTY CLAY with sand.							
5						CK					
6											
7											
8				Fossiliferous concretion bed at 8' to 9'. Hard digging.							
9											
10				Terminated at 10 feet. No groundwater or seepage encountered.							
11											
12											
13											
14											
15											

Notes:

Symbol Legend

- ▽ Groundwater Level During Drilling
- ▼ Groundwater Level After Drilling
- ⁹⁹ Apparent Seepage
- * No Sample Recovery
- ** Non-Representative Blow Count (rocks present)

SAN MARCOS RESIDENCES
2972-2982 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

DATE:	DECEMBER 2022	JOB NO.:	2220399.01
BY:	SD	APPENDIX:	A-14

CHRISTIAN WHEELER ENGINEERING

LOG OF TEST TRENCH T-8

Date Logged:	8/29/22	Equipment:	Cat 430 Backhoe
Logged By:	DJF	Auger Type:	24" Bucket
Existing Elevation:	438'	Drive Type:	N/A
Finish Elevation:	532'	Depth to Water:	N/A

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk
SPT	Standard Penetration Test	DR	Drive Ring
ST	Shelby Tube		
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential	SD	Sample Density

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0			CL	**Santiago Formation (Tsa):** Olive gray, damp, medium stiff, SILTY CLAY with orangish iron staining and white precipitate deposits in fractures, upper 12" disturbed, highly fractured/weathered to 3'.							
1				Moist, very stiff.							
2											
3				Hard.							
4											
5				SANDY CLAY.		CK		26.3	94.5		
6											
7											
8						CK					
9				Terminated at 9 feet. No groundwater or seepage encountered.							
10											
11											
12											
13											
14											
15											

Notes:

Symbol Legend

- Groundwater Level During Drilling
- Groundwater Level After Drilling
- Apparent Seepage
- * No Sample Recovery
- ** Non-Representative Blow Count (rocks present)

SAN MARCOS RESIDENCES
2972-2982 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

DATE:	DECEMBER 2022	JOB NO.:	2220399.01
BY:	SD	APPENDIX:	A-15

CHRISTIAN WHEELER ENGINEERING

LOG OF TEST TRENCH T-9

Date Logged:	8/29/22	Equipment:	Cat 430 Backhoe
Logged By:	DJF	Auger Type:	24" Bucket
Existing Elevation:	541'	Drive Type:	N/A
Finish Elevation:	534'	Depth to Water:	N/A

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk
SPT	Standard Penetration Test	DR	Drive Ring
ST	Shelby Tube		
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential	SD	Sample Density

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0			CL	**Santiago Formation (Tsa):** Light olive gray, dry, medium stiff, SILTY CLAY, upper 12" disturbed.							
1				Very stiff.							
2				Hard, SANDY CLAY, orangish iron staining.							
3						CK					
4				Fossiliferous concretion at 4' to 4.5'.							
5				Brown.							
6											
7											
8						CK		23.5	95.3		
9				Terminated at 9 feet. No groundwater or seepage encountered.							
10											
11											
12											
13											
14											
15											

Notes:

Symbol Legend

- ▽ Groundwater Level During Drilling
- ▼ Groundwater Level After Drilling
- ⁹⁹ Apparent Seepage
- * No Sample Recovery
- ** Non-Representative Blow Count (rocks present)

SAN MARCOS RESIDENCES
2972-2982 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

DATE:	DECEMBER 2022	JOB NO.:	2220399.01
BY:	SD	APPENDIX:	A-16

CHRISTIAN WHEELER ENGINEERING

LOG OF TEST TRENCH T-10

Date Logged:	8/29/22	Equipment:	Cat 430 Backhoe
Logged By:	DJF	Auger Type:	24" Bucket
Existing Elevation:	540'	Drive Type:	N/A
Finish Elevation:	532'	Depth to Water:	N/A

Sample Type and Laboratory Test Legend

Cal	Modified California Sampler	CK	Chunk
SPT	Standard Penetration Test	DR	Drive Ring
ST	Shelby Tube		
MD	Max Density	DS	Direct Shear
SO4	Soluble Sulfates	Con	Consolidation
SA	Sieve Analysis	EI	Expansion Index
HA	Hydrometer	R-Val	Resistance Value
SE	Sand Equivalent	Chl	Soluble Chlorides
PI	Plasticity Index	Res	pH & Resistivity
CP	Collapse Potential	SD	Sample Density

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0			CL	**Documented Artificial Fill (Qdaf):** Dark grayish-brown, damp, medium stiff, SILTY CLAY.							
1				Moist, very stiff.							
2											
3			SC	**Santiago Formation (Tsa):** White, moist, very dense, very fine- to medium-grained, CLAYEY SAND.							
				Fossiliferous concretion at 3.5' to 4".							
4			CL	Greenish-gray, moist, hard, SILTY CLAY.							
5											
6						CK		17.8	111.0		
7											
8											
9				Terminated at 9 feet. No groundwater or seepage encountered.							
10											
11											
12											
13											
14											
15											

Notes:

Symbol Legend

- ▽ Groundwater Level During Drilling
- ▼ Groundwater Level After Drilling
- ⁘ Apparent Seepage
- * No Sample Recovery
- ** Non-Representative Blow Count (rocks present)

SAN MARCOS RESIDENCES
2972-2982 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

DATE:	DECEMBER 2022	JOB NO.:	2220399.01
BY:	SD	APPENDIX:	A-17

CHRISTIAN WHEELER ENGINEERING

Appendix B

Laboratory Test Results

Laboratory tests were performed in accordance with the generally accepted American Society for Testing and Materials (ASTM) test methods or suggested procedures. Brief descriptions of the tests performed are presented below:

a) **CLASSIFICATION:** Field classifications were verified in the laboratory by visual examination. The final soil classifications are in accordance with the Unified Soil Classification System and are presented on the exploration logs in Appendix A.

b) **MOISTURE-DENSITY: MOISTURE-DENSITY:** In-place moisture contents and dry densities were determined for a selected soil sample in accordance with ATM D 1188 and D 2937. The results are summarized in the subsurface exploration logs presented in Appendix A.

c) **DIRECT SHEAR:** a direct shear test was performed on selected samples of the on-site soils in accordance with ASTM D3080.

d) **EXPANSION INDEX TEST:** Expansion index tests were performed on selected remolded soil samples in accordance with ASTM D 4829.

e) **GRAIN SIZE DISTRIBUTION:** The grain size distribution of selected samples was determined in accordance with ASTM C136 and/or ASTM D422.

f) **ATTERBERG LIMITS:** The Liquid Limit, Plastic Limit and Plastic Index of selected soil samples were determined in accordance with ASTM D424.

g) **SOLUBLE SULFATE CONTENT:** The soluble sulfate content of selected soil samples was determined in accordance with California Test Methods 417.

h) **CONSOLIDATION TEST:** Consolidation tests were performed on selected undisturbed samples in accordance with ASTM D 2435.

LABORATORY TEST RESULTS

SAN MARCOS RESIDENCES

2972-2982 SOUTH SANTA FE AVENUE

SAN MARCOS, CALIFORNIA

MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT (ASTM D1557)

Sample Location	**Boring B-2 @ 0-5'**	**Trench T-4@ 0-3½'**	**Trench T-4 @ 3½'-6'**
Sample Description	Brown Silty Clay (CH)	Grayish-Brown Silty Clay (CL)	Light Brown Silty Clay (CH)
Maximum Density	108.5 pcf	116.8 pcf	108.6 pcf
Optimum Moisture	15.2 %	13.5 %	15.6 %

DIRECT SHEAR (ASTM D3080)

Sample Location	**Boring B-2 @ 0'-5'**	**Boring B-4 @ 5½'**	**Trench T-4@ 0-3½'**
Sample Type	Remolded to 90%	Undisturbed	Remolded to 90%
Friction Angle	14°	20°	18°
Cohesion	400 psf	800 psf	400 psf

EXPANSION INDEX TESTS (ASTM D4829)

Sample Location	**Boring B-2 @ 0'-5'**	**Trench T-4@ 0-3½'**	**Trench T-4 @ 3½'-6'**
Initial Moisture	15.8 %	13.0 %	15.2 %
Initial Dry Density	91.4 pcf	100.5 pcf	94.5 pcf
Final Moisture	38.7 %	29.9 %	35.4 %
Expansion Index	158 (Very High)	116 (High)	139 (Very High)

GRAIN SIZE DISTRIBUTION (ASTM D422)

Sample Location	**Boring B-2 @ 0-5'**	**Trench T-4@ 0-3½'**	**Trench T-4@ 3½'-6'**
Sieve Size	*Percent Passing*	*Percentage Passing*	*Percentage Passing*
1½"		100	
1"	100	96	
¾"	99	95	
½"	99	94	
⅜"	98	93	
#4	96	89	
#8	100	86	100
#16	99	83	99
#30	99	79	99
#50	97	75	98
#100	94	69	97
#200	86	61	93
0.05 mm	82	60	
0.005 mm	63	38	
0.001 mm	55	28	

LABORATORY TEST RESULTS (CONT.)

ATTERBERG LIMITS (ASTM D424)

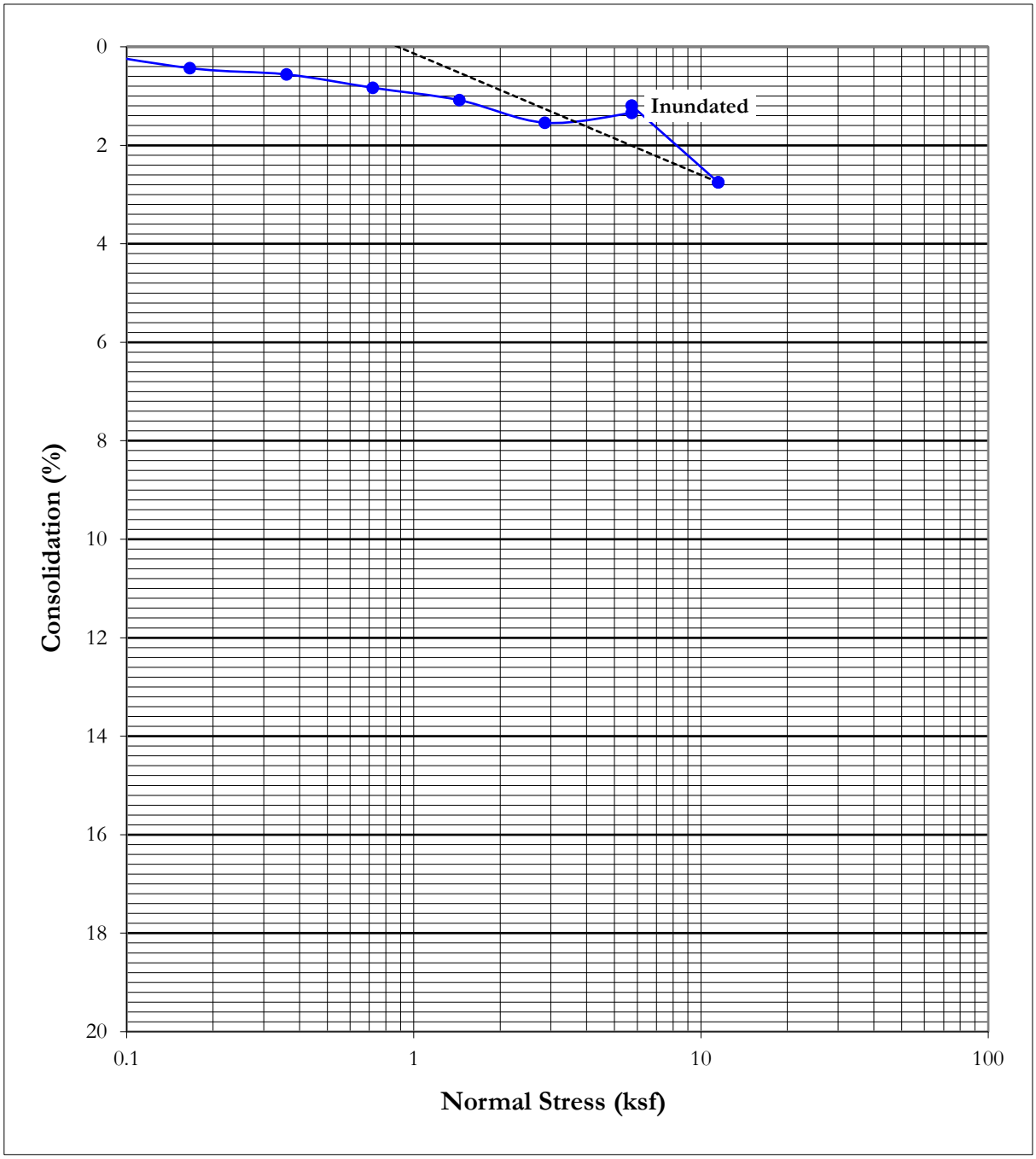
Sample Location	**Boring B-2 @ 0-5'**	**Trench T-4@ 3½' -6'**
Liquid Limit	66	59
Plastic Limit	25	24
Plasticity Index	41 (CH)	35 (CH)

SOLUBLE SULFATES (CALIFORNIA TEST 417)

Sample Location	**Boring B-2 @ 0-5'**	**Trench T-4@ 0-3½'**	**Trench T-4@ 3½' -6'**
Soluble Sulfate	0.022 % (SO_4)	0.045 % (SO_4)	0.048 % (SO_4)

CONSOLIDATION TEST

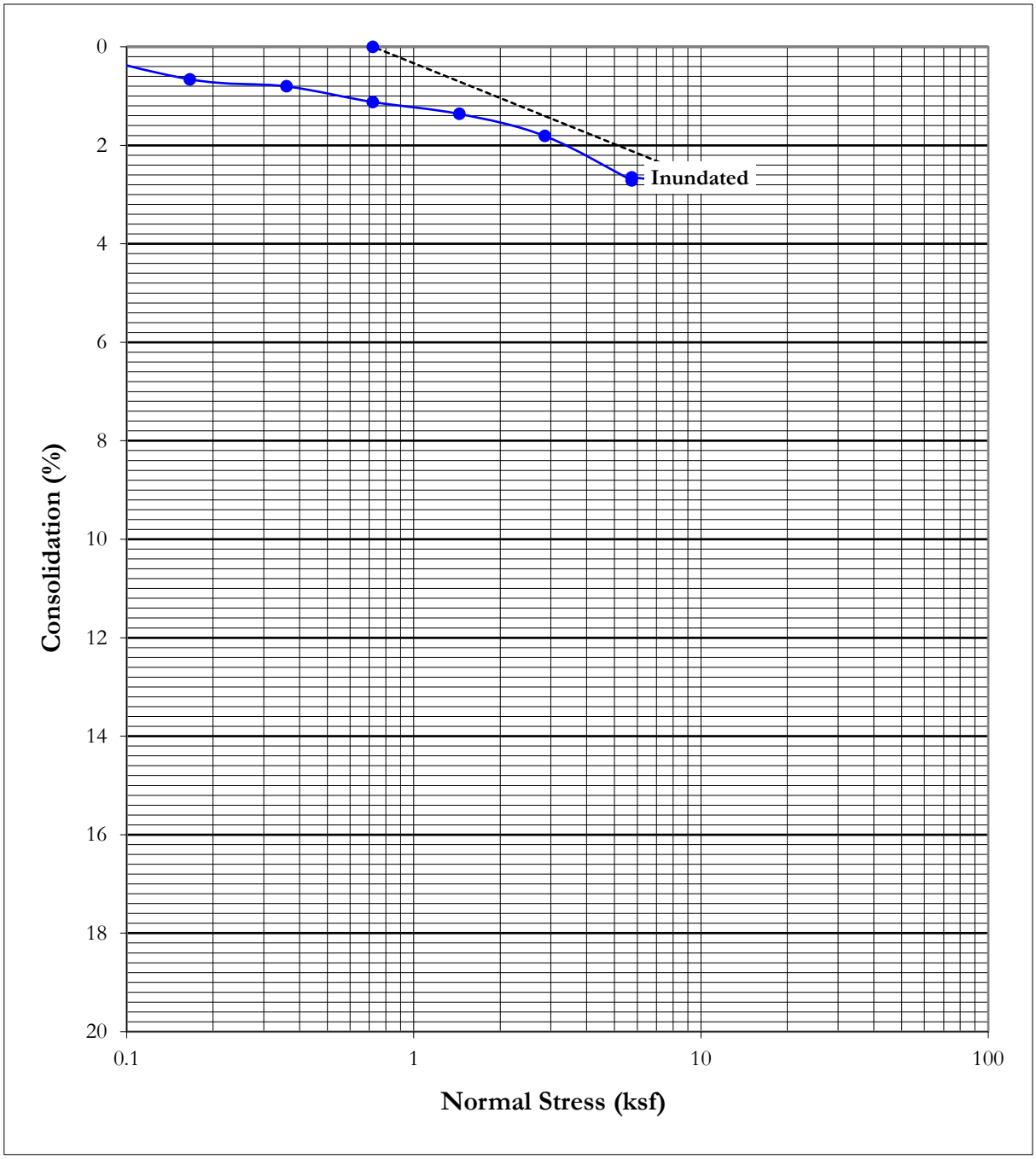
ASTM D2435



CHRISTIAN WHEELER ENGINEERING	SAN MARCOS RESIDENCES 2972-2982 SOUTH SANTA FE AVENUE		B-5 @ 5½'	
	BY: DBA	DATE: DEC 2022	REPORT NO.:2220399.01	PLATE NO.: B-3

CONSOLIDATION TEST

ASTM D2435



CHRISTIAN WHEELER ENGINEERING	SAN MARCOS RESIDENCES 2972-2982 SOUTH SANTA FE AVENUE		B-5 @ 9½'	
	BY: DBA	DATE: DEC 2022	REPORT NO.:2220399.01	PLATE NO.: B-4

Appendix B

Exploratory Logs

SUBSURFACE EXPLORATION LEGEND

UNIFIED SOIL CLASSIFICATION SYSTEM Visual-Manual Procedure (ASTM D2488)					CONSISTENCY / RELATIVE DENSITY
MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES	CRITERIA
Coarse-Grained Soils* More than 50 % Retained on No. 200 Sieve	Gravels 50 % or more of Coarse Fraction Retained on No. 4 Sieve	Clean Gravels	GW	Well Graded Gravels and Gravel-Sand Mixtures, Little or no Fines	Reference: 'Foundation Engineering', Peck, Hansen, Thornburn, 2nd Edition.
			GP	Poorly Graded Gravels and Gravel-Sand Mixtures, Little or no Fines	Standard Penetration Test Granular Soils
		Gravels with Fines	GM	Silty Gravels, Gravel-Sand-Silt Mixtures**	Penetration Resistance, N, (Blows / Foot) / Relative Density
			GC	Clayey Gravel, Gravel-Sand-Clay Mixtures**	0 - 4 Very Loose
	Sands More than 50 % of Coarse Fraction Passes No. 4 Sieve	Clean Sands	SW	Well Graded Sands and Gravely Sands, Little or no Fines	4 - 10 Loose
			SP	Poorly Graded Sands and Gravely Sands, Little or no Fines	10 - 30 Medium
		Sands with Fines	SM	Silty Sands, Sand-Silt Mixtures**	30 - 50 Dense
			SC	Clayey Sands, Sand-Clay Mixtures**	> 50 Very Dense
Fine Grained Soils* 50 % or more Passes No. 200 Sieve	Silts and Clays Liquid Limits 50 % or less		ML	Inorganic Silts, Sandy Silts, Rock Flour	Standard Penetration Test Cohesive Soils
			CL	Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays	Penetration Resistance, N, (Blows / Foot) / Consistency / Unconfined Compressive Strength, (Tons / Sq. Ft.)
			OL	Organic Silts and Organic silty Clays of Low Plasticity	< 2 Very Soft < 0.25
	Silts and Clays Liquid Limits Greater than 50 %		MH	Inorganic Silts, Micaceous or Diatomaceous silts, Plastic Silts	2 - 4 Soft 0.25 - 0.5
			CH	Inorganic Clays of High Plasticity, Fat Clays	4 - 8 Medium 0.5 - 1.0
			OH	Organic Clays of Medium to High Plasticity	8 - 15 Stiff 1.0 - 2.0
					15 - 30 Very Stiff 2.0 - 4.0
					> 30 Hard > 4.0
Highly Organic Soils			PT	Peat, Muck, or Other Highly Organic Soils	

* Based on material passing the 3-inch sieve.

** More than 12% passing the No. 200 sieve; 5% to 12% passing No. 200 sieve requires use of duel symbols (i.e., SP-SM GP-GM, SP-SC, GP-GC, etc.); Border line classifications are designated as CH/CL, GM/SM, SP/SW, etc.

U.S. Standard Sieve Size 12" 3" 3/4" #4 #10 #40 #200

Unified Soil Classification Designation	Boulders	Cobbles	Gravel		Sand			Silt and Clay
			Coarse	Fine	Coarse	Medium	Fine	

Moisture Condition

Dry	Absence of moisture, dusty, dry to the touch.
Moist	Damp but no visible moisture.
Wet	Visible free water, usually below the water table.

Material Quantity

Trace	< 5 %
Slightly	5 - 12%
Little	12 - 25%
Some	25 - 50 %

Other Symbols

C - Core Sample
S - SPT Sample
B - Bulk Sample
CK - Chunk Sample
R - Ring Sample
N - Nuclear Gauge Test
∇ - Water Table

Date:	Simplified USCS Soils Classification Chart	ETERNIA	Figure
3/26/2019			B-1
Drawn By:			
L.B.			

GHOSTRIDER

SUBSURFACE EXPLORATION LOG
BORING NO. 1

Project Name: San Marcos Apts. Date: 5/6/2020 Logged By: D.J. / Gostrider
Type of Rig: Drill Rig Drive Wt.: 140 lbs. Elevation: From Surface
Drill Hole Dia.: 6" Drop: 30" Depth of Boring (ft.): 50.5

Depth (ft.)	Sample Type	No. of Blows per 6"	Soil Classification	Dry Density (lb/ft3)	Moisture Content (%)	Lithology	Groundwater	Description
			SC					**0'-3' - Dark Brown Clayey Sand with Gravel, Moist, Loose**
0.0								
2.5								
5.0	R	5,13,15	CL	97.4	16.0			Yellowish Brown Sandy Clay, Moist, Stiff
7.5	R	7,12,17	CL	100.3	25.3			Grayish Brown Clay, Moist, Stiff
10.0	R	4,15,29	CL	102.6	21.4			Grayish Brown Sandy Clay, Moist, Very Stiff
12.5								
15.0	R	10,20,32	CL	100.7	23.7			Yellowish Brown Sandy Clay, Moist, Very Stiff
17.5								
20.0	R	10,19,18	CL	100.5	23.0			Dark Brown Clay with Yellowish Streaking, Moist, Very Stiff
22.5								
25.0	R	11,23,44	CL	102.3	23.4			Light Grayish Brown Sandy Clay, Moist, Very Stiff
27.5								
30.0	S	10,20,39	CL		23.7			Grayish Brown Clay with Sand, Moist, Very Stiff
32.5								
35.0	S	9,17,24	CL		21.4			Grayish Brown Clay with Sand, Moist, Very Stiff
37.5								
40.0	S	9,24,34	CL		18.0			Grayish Brown Clay with Sand, Moist, Very Stiff
42.5								
45.0	S	10,21,31	CL		20.8			Greenish Brown Sandy Clay, Moist, Very Stiff
47.5								
50.0	S	18,50,-	CL		24.8			Greenish Brown Sandy Clay, Moist, Hard
52.5								Hole Refusal at 51', Backfilled with Slurry

S - SPT Sample R - Ring Sample B - Bulk Sample D - Disturbed Sample

GHOSTRIDER

SUBSURFACE EXPLORATION LOG
BORING NO. 2

Project Name: San Marcos Devlop. Date: 5/6/2020
Type of Rig: Drill Rig Drive Wt.: 140 lbs.
Drill Hole Dia.: 6" Drop: 30"

Project No.:
Logged By: D.J. / Ghostrider
Elevation: From Surface
Depth of Boring (ft.): 20.5'

Depth (ft.)	Sample Type	No. of Blows per 6"	Soil Classification	Dry Density (lb/ft3)	Moisture Content (%)	Lithology	Groundwater	Description
			SC					**0'-3' - Dark Brown Clayey Sand with Gravel, Moist, Loose**
3	R	2,3,6	CL	96.5	25.0			Yellowish Brown Sandy Clay, Moist, Stiff
6	R	14,20,26	CL	112.2	16.8			Yellowish Brown Sandy Clay, Moist, Very Stiff
10	B	7,13,19	CL		17.7			Olive Green Brown Sandy Clay, Moist, Stiff
15	R	9,21,22	CL	107.9	19.3			OliveGreen Brown Sandy Clay, Moist, Very Stiff
20	B	9,17,23	CL		18.4			Olive Reddish Brown Sandy Clay, Moist, Very Stiff Hole Abandoned at 20' - Backfilled with Cuttings

S - SPT Sample R - Ring Sample B - Bulk Sample D - Disturbed Sample

SUBSURFACE EXPLORATION LOG
BORING NO. 3

Project Name: San Marcos Devlop. Date: 5/6/2020
Type of Rig: Drill Rig Drive Wt.:
Drill Hole Dia.: 6" Drop:

Project No.:
Logged By: D.J. / Ghostrider
Elevation: From Surface
Depth of Boring (ft.): 20.5'

Depth (ft.)	Sample Type	No. of Blows per 6"	Soil Classification	Dry Density (lb/ft3)	Moisture Content (%)	Lithology	Groundwater	Description
			SC					**0'-3' - Dark Brown Clayey Sand with Gravel, Moist, Loose**
1								
2								
3	R	6,6,7	SC	103.8	20.6			Dark Brown Clayey Sand with Grave, Moist, Loose
4								4'-5.5' - Dark Brown Sandy Clay, Moist, Loose
5	R	4,6,10	CL	115.6	12.8			Dark Brown Sandy Clay, Moist Loose
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								

S - SPT Sample R - Ring Sample B - Bulk Sample D - Disturbed Sample

GHOSTRIDER

SUBSURFACE EXPLORATION LOG
BORING NO. 4

Project Name: San Marcos Devlop. Date: 5/10/2020 Logged By: L.B. / Ghostrider
Type of Rig: Hand Auger Drive Wt.: N/A Elevation: From Surface
Drill Hole Dia.: 3" Drop: N/A Depth of Boring (ft.): 15'

Depth (ft.)	Sample Type	No. of Blows per 6"	Soil Classification	Dry Density (lb/ft3)	Moisture Content (%)	Lithology	Groundwater	Description
			SC					**0'-4.5' - Dark Brown Clayey Sand with Gravel, Moist, Loose**
1								
2								
3	R	N/A	SC	110.5	13.1			Dark Brown Clayey Sand with Gravel, Moist, Loose
4								
5								
6	R	N/A	CL	101.5	15.7			Gryaish Brown Sandy Clay, Moist, Dense
7								
8								
9								
10	R	N/A	CL	103.5	20.1			Yellowish Brown Clay with Sand, Moist, Stiff
11								
12								
13								
14								
15	R	N/A	CL	100.1	22.3			Yellowish Brown Sandy Clay, Moist, Very Stiff Hole Abandoned at 15', Backfilled with Cuttings
16								
17								
18								
19								
20								
21								
22								

S - SPT Sample R - Ring Sample B - Bulk Sample D - Disturbed Sample

GHOSTRIDER

SUBSURFACE EXPLORATION LOG
BORING NO. 5

Project Name: San Marcos Devlop. Date: 5/10/2020 Logged By: L.B. / Ghostrider
Type of Rig: Hand Auger Drive Wt.: N/A Elevation: From Surface
Drill Hole Dia.: 3" Drop: N/A Depth of Boring (ft.): 15'

Depth (ft.)	Sample Type	No. of Blows per 6"	Soil Classification	Dry Density (lb/ft3)	Moisture Content (%)	Lithology	Groundwater	Description
			SC					**0'-6' - Dark Brown Clayey Sand with Gravel, Moist, Loose**
1								
2								
3	R	N/A	SC	109.9	10.1			Dark Brown Clayey Sand with Gravel, Moist, Loose
4								
5	R	N/A	SC	110.3	13.5			Dark Brown Clayey Sand, Moist, Loose
6								
7								
8								
9								
10	R	N/A	CL	100.1	20.0			Yellowish Brown Sandy Clay, Moist, Stiff Hole Abandoned at 10.5', Backfilled with Cuttings
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								

S - SPT Sample R - Ring Sample B - Bulk Sample D - Disturbed Sample

Appendix B

Exploratory Logs

Appendix C

Laboratory Testing

Dry Density and Moisture Content

Date Tested: 5/20/2020

Boring #	Sample #	Depth (ft)	Dry Density (pcf)	Moisture Content (%)	Description
B-1	2	5'	97.4	16.0%	Yellowish Brown Sandy Clay
B-1	3	7.5'	100.3	25.3%	Grayish Brown Clay
B-1	4	10'	102.6	21.4%	Grayish Brown Sandy Clay
B-1	5	15'	100.7	23.7%	Yellowish Brown Sandy Clay
B-1	6	20'	100.5	23.0%	Dark Brown Clay with Yellowish Streaks
B-1	7	25'	102.3	23.4%	Light Gray Brown Sandy Clay
B-2	1	3'	96.5	25.0%	Yellowish Brown Clay with Sand
B-2	2	6'	112.2	16.8%	Yellowish Brown Sandy Clay
B-2	4	15'	107.9	19.3%	Olive Green Brown Clay with Sand
B-3	1	2.5'	103.8	20.6%	Dark Brown Clayey Sand with Gravel
B-3	2	5'	115.6	12.8%	Dark Brown Sandy Clay

Performed in General Accordance with ASTM D7263 B and D2216

	Project Name	FIGURE
GHOSTRIDER	Santa Fe Apartments	C-1
TECH: L.B.		
DATE: 11-Jun-20		

Dry Density and Moisture Content

Date Tested: 5/20/2020

Boring #	Sample #	Depth (ft)	Dry Density (pcf)	Moisture Content (%)	Description
B-4	1	3'	110.5	13.1%	Dark Brown Clayey Sand with Gravel
B-4	2	6'	101.5	15.7%	Grayish Brown Sandy Clay
B-4	3	10'	103.5	20.1%	Yellowish Brown Clay with Sand
B-4	4	15'	100.1	22.3%	Yellowish Brown Sandy Clay
B-5	1	2.5'	109.9	10.1%	Dark Brown Clayey Sand with Gravel
B-5	2	5'	110.3	13.5%	Dark Brown Clayey Sand
B-5	3	10'	100.1	20.0%	Yellowish Brown Sandy Clay

Performed in General Accordance with ASTM D7263 B and D2216

GHOSTRIDER	Project Name	FIGURE
TECH: L.B.	Santa Fe Apartments	C-2
DATE: 11-Jun-20		

Materials Finer than No. 200 Sieve

Date Tested	5/15/2020	5/15/2020	5/15/2020	5/15/2020	5/15/2020	5/15/2020
Boring No	B-1	B-1	B-1	B-1	B-1	B-1
Sample No.	2	3	4	5	6	7
Depth, ft.	5'	7.5'	10'	15'	20'	25'
Dry Weight before wash, g	94.1	127.4	122.5	114.9	147.2	104.5
Dry Weight After Wash, g	29.3	3.9	16.5	18.5	61.8	21.5
Weight Loss, No. 200, g	64.8	123.5	106	96.4	85.4	83
Passing No. 200, %	68.9	96.9	86.5	83.9	58.0	79.4
Sample Description	Yellowish Brown Sandy Clay	Grayish Brown Clay	Grayish Brown Sandy Clay	Yellowish Brown Sandy Clay	Dark Brown Clay with Yellowish Streaks	Light Gray Brown Sandy Clay

Date Tested	5/15/2020	5/15/2020	5/15/2020			
Boring No	B-1	B-1	B-1			
Sample No.	9	10	11			
Depth, ft.	35'	40'	45'			
Dry Weight before wash, g	163.3	145.3	233.6			
Dry Weight After Wash, g	12.4	10.6	40.2			
Weight Loss, No. 200, g	150.9	134.7	193.4			
Passing No. 200, %	92.4	92.7	82.8			
Sample Description	Grayish Brown Clay with Sand	Grayish Brown Clay with Sand	Greenish Brown Sandy Clay			

TEST PERFORMED IN ACCORDANCE WITH ASTM D 1140

	Project Name	FIGURE
GHOSTRIDER	Santa Fe Apartments	C-3
Tech: LB		
DATE: 6/11/2020		

Materials Finer than No. 200 Sieve

Date Tested	5/16/2020	5/16/2020	5/16/2020	5/16/2020	5/16/2020	
Boring No	B-2	B-2	B-2	B-2	B-2	
Sample No.	1	2	3	4	5	
Depth, ft.	3'	6'	10'	15'	20'	
Dry Weight before wash, g	156.5	97.4	159.5	145	185.8	
Dry Weight After Wash, g	14.3	9.9	5.1	5.2	22.7	
Weight Loss, No. 200, g	142.2	87.5	154.4	139.8	163.1	
Passing No. 200, %	90.9	89.8	96.8	96.4	87.8	
Sample Description	Yellowish Brown Clay with Sand	Yellowish Brown Sandy Clay	Olive Green Brown Clay with Sand	Olive Green Brown Clay with Sand	Olive Reddish Brown Sandy Clay	

Date Tested	5/16/2020	5/16/2020				
Boring No	B-3	B-3				
Sample No.	1	2				
Depth, ft.	2.5'	5'				
Dry Weight before wash, g	161.9	144.3				
Dry Weight After Wash, g	82.4	54.9				
Weight Loss, No. 200, g	79.5	89.4				
Passing No. 200, %	49.1	62.0				
Sample Description	Dark Brown Clayey Sand with Gravel	Dark Brown Sandy Clay				

TEST PERFORMED IN ACCORDANCE WITH ASTM D 1140

	Project Name	FIGURE
GHOSTRIDER	Santa Fe Apartments	C-4
Tech: AE		
DATE: 6/11/2020		

Materials Finer than No. 200 Sieve

Date Tested	5/16/2020	5/16/2020	5/16/2020	5/16/2020		
Boring No	B-4	B-4	B-4	B-4		
Sample No.	1	2	3	4		
Depth, ft.	3'	6'	10'	15'		
Dry Weight before wash, g	210.3	185.9	191.5	203.5		
Dry Weight After Wash, g	120.5	21.1	15.9	26.7		
Weight Loss, No. 200, g	89.8	164.8	175.6	176.8		
Passing No. 200, %	42.7	88.6	91.7	86.9		
Sample Description	Dark Brown Clayey Sand w/ Gravel	Grayish Brown Sandy Clay	Yellowish Brown Clay with Sand	Yellowish Brown Sandy Clay		

Date Tested	5/16/2020	5/16/2020	5/16/2020			
Boring No	B-5	B-5	B-5			
Sample No.	1	2	3			
Depth, ft.	2.5'	5'	10'			
Dry Weight before wash, g	265.5	220.1	189.3			
Dry Weight After Wash, g	193.5	131.5	21.3			
Weight Loss, No. 200, g	72	88.6	168			
Passing No. 200, %	27.1	40.3	88.7			
Sample Description	Dark Brown Clayey Sand w/ Gravel	Dark Brown Clayey Sand	Yellowish Brown Sandy Clay			

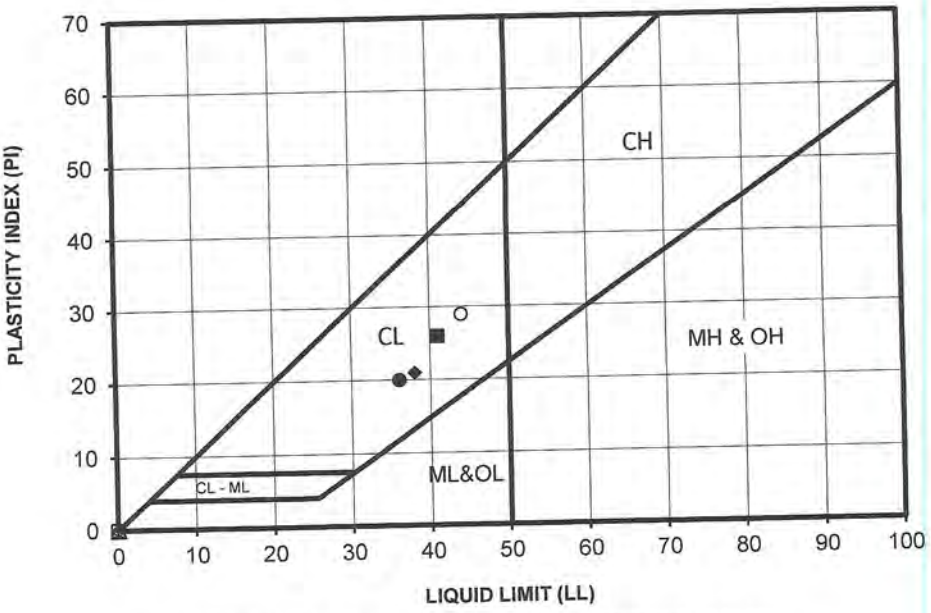
TEST PERFORMED IN ACCORDANCE WITH ASTM D 1140

GHOSTRIDER	Project Name	FIGURE
Tech: AE	Santa Fe Apartments	C-5
DATE: 6/11/2020		

ATTERBERG LIMITS TEST RESULTS

Date Tested : 5/17/2020

SYMBOL	SAMPLE NAME	DEPTH (ft)	LL	PL	PI	USCS CLASSIFICATION (Minus No. 40 Sieve Fraction)	USCS Entire Sample
●	B-1	5'	36	16	20	CL	CL
■	B-1	20'	41	15	26	CL	CL
◆	B-3	2.5'	38	17	21	CL	CL
○	B-4	15'	44	15	29	CL	CL
□							
△							
+							
◇							



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

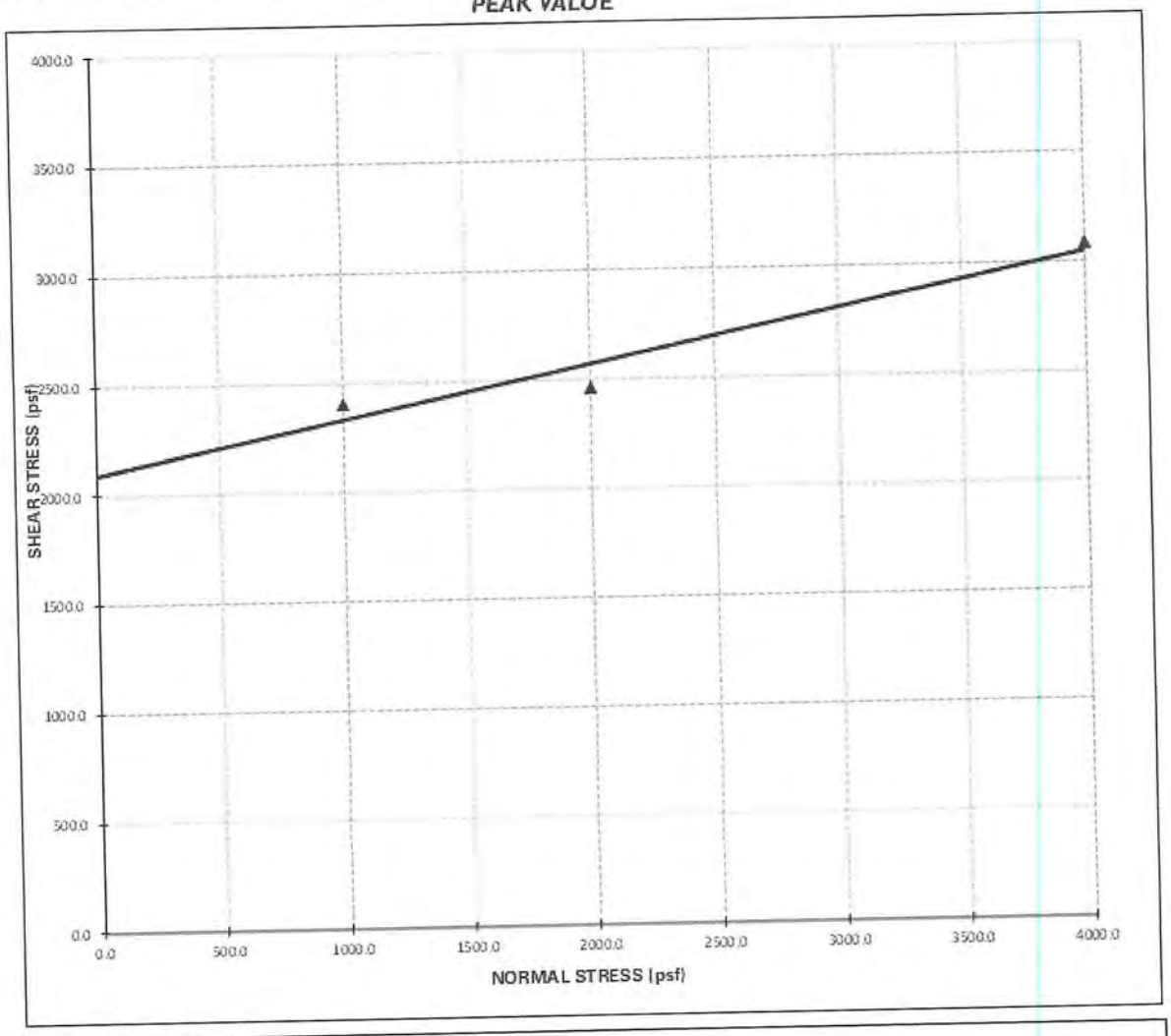
GHOSTRIDER	**Project Name:**	FIGURE
TECH:L.B.	**Santa Fe Apartments**	**C-6**
28-Jun-20		

GEOTEK

DIRECT SHEAR TEST

Project Name:	2972 Santa Fe, San Marcos	*Sample Location:*	B-1 @ 6
Project Number:	19-2118C	*Date Tested:*	6/8/2020

PEAK VALUE



Shear Strength: Φ = 13.5 ° C = 2088.00 psf

Notes:
1 - The soil specimens sheared were "undisturbed" ring samples.
2 - The above reflect direct shear strength at saturated conditions.
3 - The tests were run at a shear rate of 0.035 in/min.

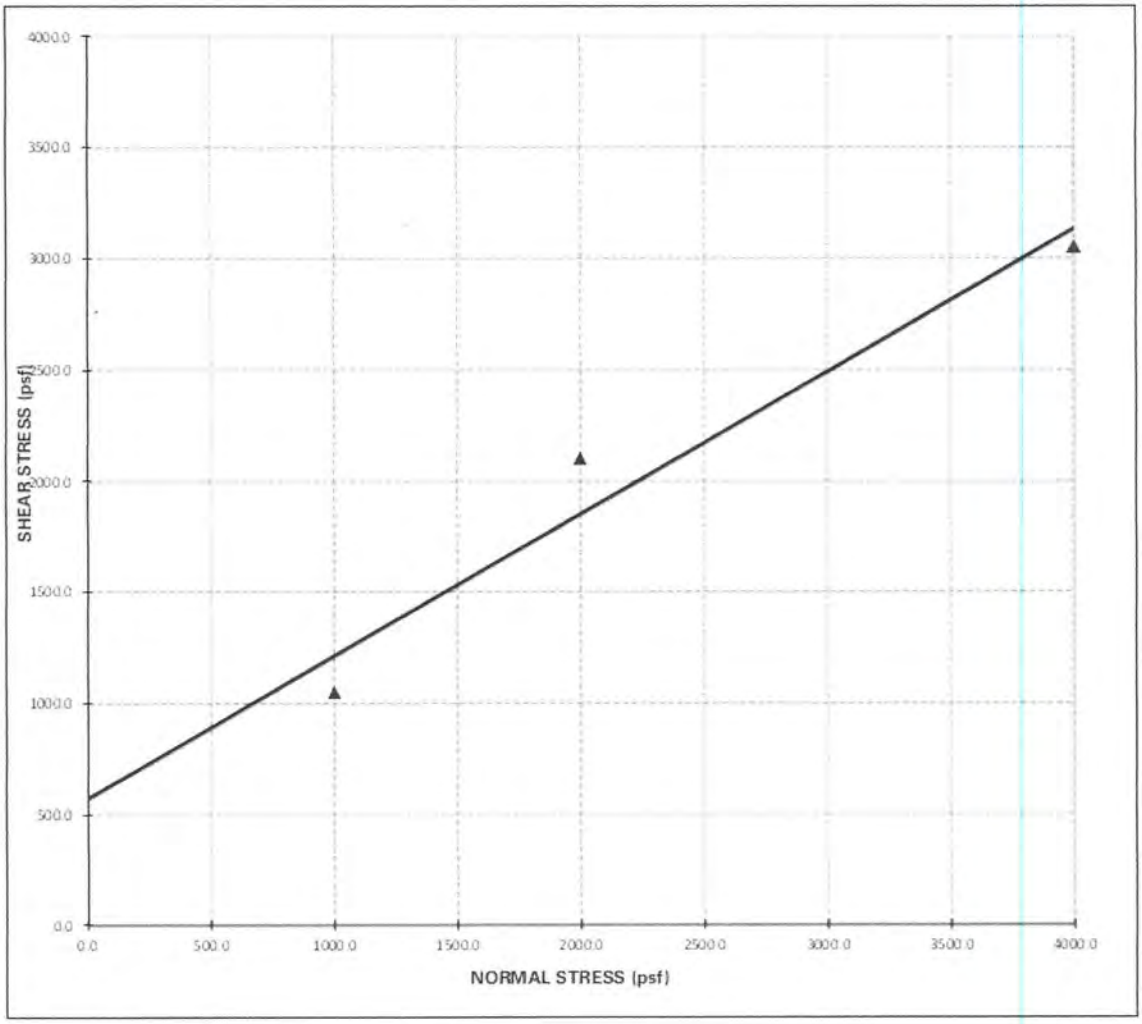
C-7

GEOTEK

DIRECT SHEAR TEST

Ultimate Value

Project Name:	2972 Santa Fe, San Marcos	***Sample Location:***	B-1 @ 6
Project Number:	19-2118C	***Date Tested:***	6/8/2020



Shear Strength: Φ = 32.6 ° C = 570.00 psf

Notes:
1 - The soil specimens sheared were "undisturbed" ring samples.
2 - The above reflect direct shear strength at saturated conditions.
3 - The tests were run at a shear rate of 0.035 in/min.

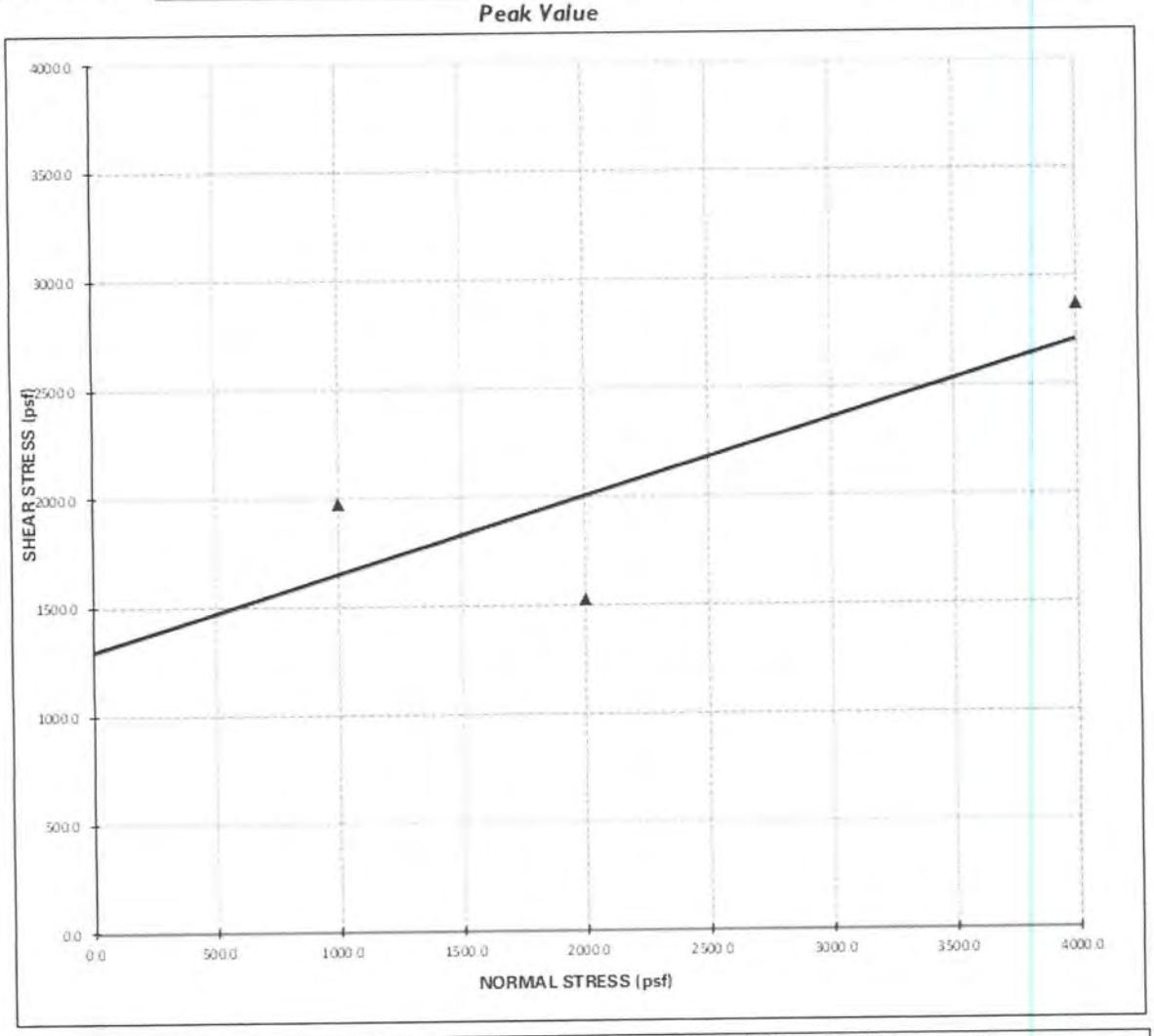
C-8

GEOTEK

DIRECT SHEAR TEST

Project Name:	2972 Santa Fe, San Marcos	*Sample Location:*	B-4 @ 15
Project Number:	19-2118C	*Date Tested:*	6/8/2020

Peak Value



Shear Strength: Φ = 19.4 ° C = 1296.00 psf

Notes:
1 - The soil specimens sheared were "undisturbed" ring samples.
2 - The above reflect direct shear strength at saturated conditions.
3 - The tests were run at a shear rate of 0.035 in/min.

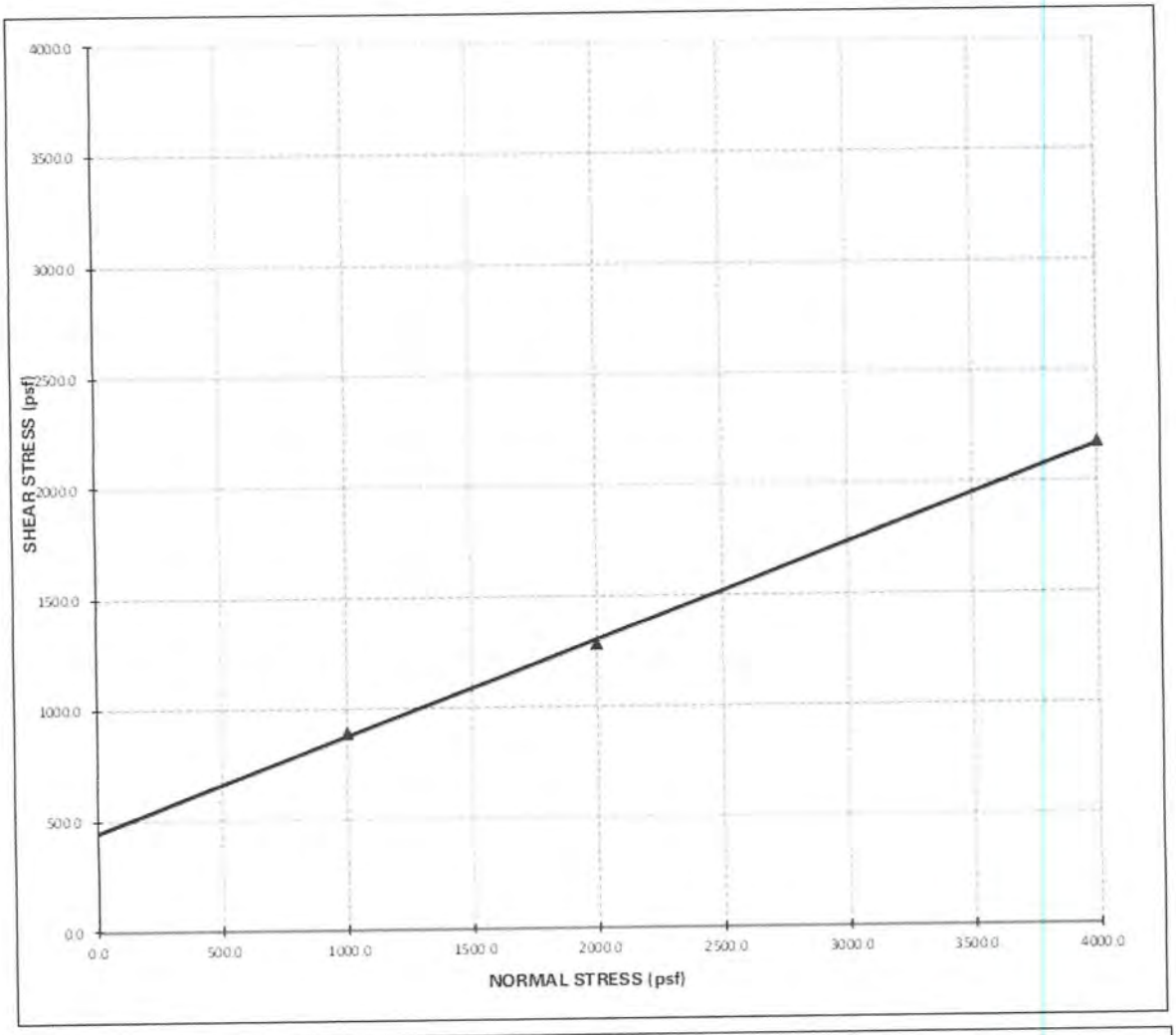
C-9

GEOTEK

DIRECT SHEAR TEST

Ultimate Value

Project Name:	2972 Santa Fe, San Marcos	***Sample Location:***	B-4 @ 15
Project Number:	19-2118C	***Date Tested:***	6/8/2020



Shear Strength: Φ = 23.3 ° C = 444.00 psf

Notes:
1 - The soil specimens sheared were "undisturbed" ring samples.
2 - The above reflect direct shear strength at saturated conditions.
3 - The tests were run at a shear rate of 0.035 in/min.

C-10

Expansion Index (ASTM D4829)

Location	Sample No.	Depth (ft)	Sample Description
B-1	Bulk	3'-8'	Yellowish Brown Clay with Sand

Density Determination	Trial #1	Trial #2
Weight Compacted Sample and Rin	724.7	
Weight of Ring	367.4	
Net Weight of Sample	357.3	
Wet Density, pcf	108.3	
Dry Density, pcf	94.3	

Moisture Determination		
Wet Weight of Sample, g	200.8	
Dry Weight of Sample, g	174.9	
Moisture Content, %	14.8%	

Expansion Index	154	
Corrected Expansion Index	**155**	**(VERY HIGH)**
% Saturation	50.8	

Expansion Readings			
DATE	TIME	READING	
5/20/2020	7:00 AM	0.1475	
5/20/2020	7:10 AM	0.1474	<< Add Water
5/22/2020	9:00 AM	0.3011	<< Final

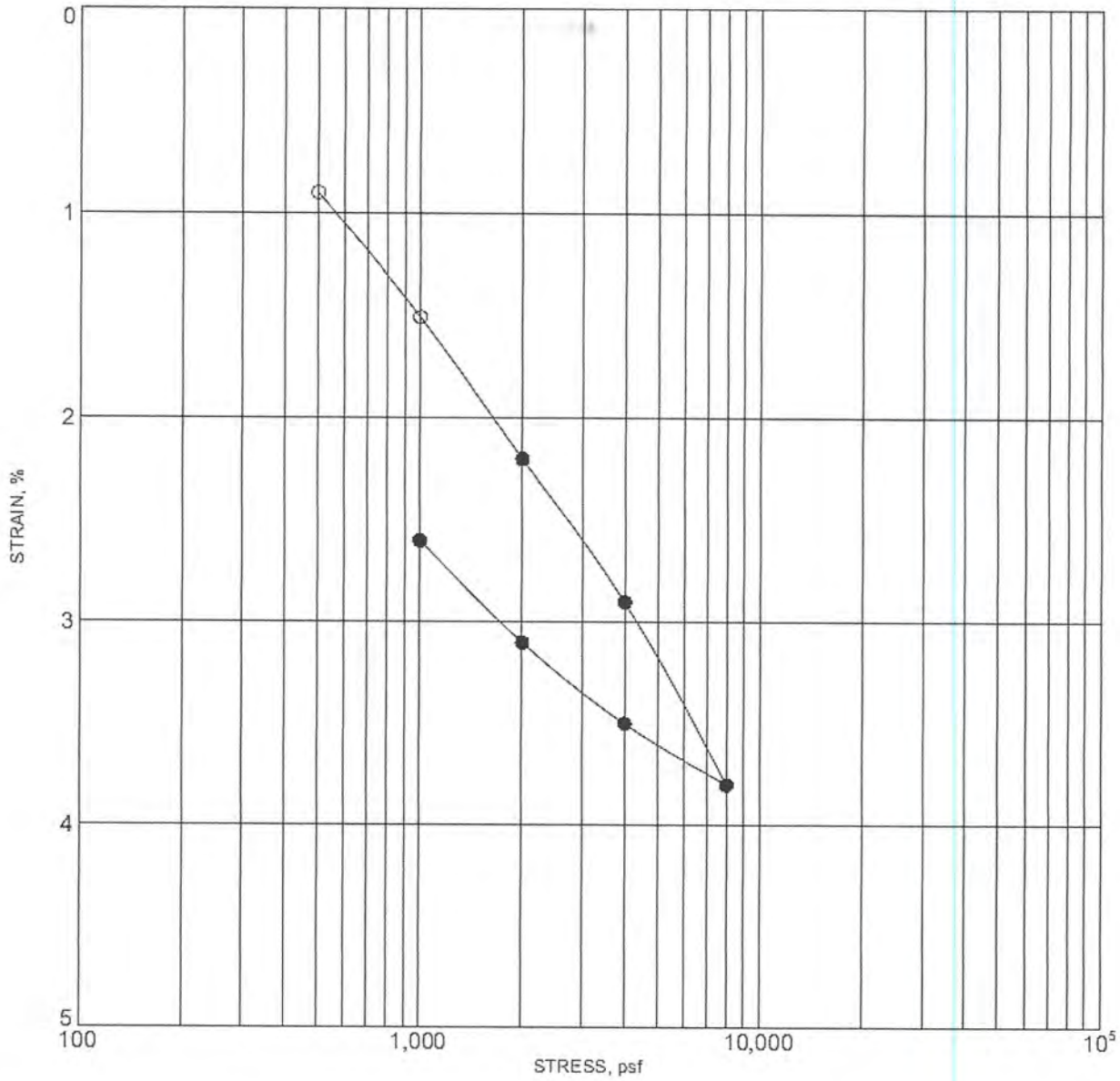
Moisture Content after Test	
Wet+Ring	797.7
Dry	311.2
	38.3%

GHOSTRIDER

TECH: L.B.

DATE: 6/28/2020

Project Name	FIGURE
Santa Fe Apartments	C-11



BORING NO. :	B-1	DEPTH (ft) :	6.0-7.5
DESCRIPTION :	SANDY CLAY (CL)		

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	21	106.43	97	0.569

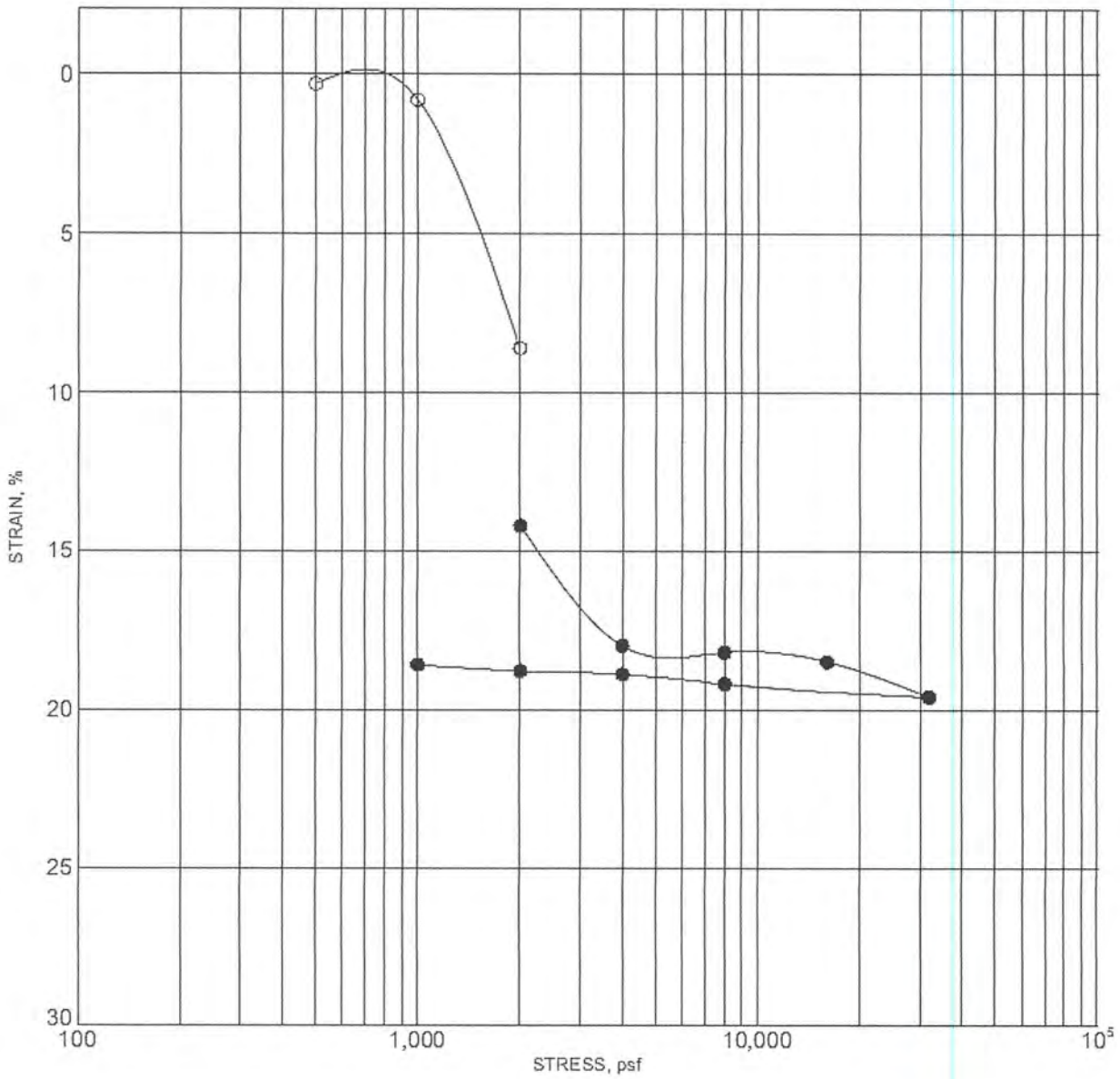
NOTE: SOLID CIRCLES INDICATE READINGS AFTER ADDITION OF WATER

CONSOLIDATION TEST RESULTS

Converse Consultants Santa Fe Apartments C-12

Project No. 20-81-188-01 Drawing No. B-1

Project ID: 20-81-188-01.GPJ; Template: CONSOLIDATION



BORING NO. :	B-4	DEPTH (ft) :	20.0-21.5
DESCRIPTION :	SANDY CLAY (CL)		

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	23	99.89	93	0.650
FINAL				

NOTE: SOLID CIRCLES INDICATE READINGS AFTER ADDITION OF WATER

CONSOLIDATION TEST RESULTS

Converse Consultants Santa Fe Apartments C-13

Project No. 20-81-188-01 Drawing No.

Project ID: 20-81-188-01.GPJ; Template: CONSOLIDATION

Soil Analysis Lab Results

Client: Ghostrider
Job Name: Santa Fe Apts
Client Job Number: 19-2118C
Project X Job Number:
S200602A June 4, 2020

	Method	ASTM D4327		ASTM D4327		ASTM G187		ASTM G51
Bore# / Description	**Depth**	**Sulfates** SO_4^{2-}		**Chlorides** Cl^-		**Resistivity** As Rec'd	Minimum	**pH**
	(ft)	(mg/kg)	(wt%)	(mg/kg)	(wt%)	(Ohm-cm)	(Ohm-cm)	
B-1, S-3	7.5	8,941.6	0.8942	625.2	0.0625	1,005	302	5.10

Cations and Anions, except Sulfide and Bicarbonate, tested with Ion Chromatography
mg/kg = milligrams per kilogram (parts per million) of dry soil weight
ND = 0 = Not Detected | NT = Not Tested | Unk = Unknown
Chemical Analysis performed on 1:3 Soil-To-Water extract

APPENDIX B

LOGS OF BORINGS BY NOVA

BORING LOG

BORING NO.: B-1

PROJECT: BOSSTICK SAN MARCOS
PROJECT NO.: 2016428
BORING LOCATION:
ELEVATION AND DATUM: feet ± (MSL)
DRILLING CONTRACTOR: CAL PAC DRILLING
DATE STARTED: 5/2/2016 **DATE FINISHED:** 5/2/2016
DRILLING METHOD: 8" DIAMETER HOLLOW STEM AUGER
TOTAL BORING DEPTH: 21.5 feet
DRILLING EQUIPMENT: B-61
DEPTH TO WATER START: NA **FINISH:** NA
SAMPLING METHOD: MOD CAL, SPT
LOGGED BY: HE
HAMMER WT.: 140 LBS **DROP:** 30 INCH
REVIEWED BY: WM

ELEVATION (MSL) / DEPTH (FT.)	SOIL STRATIGRAPHY	USCS CLASSIFICATION	SAMPLER TYPE	BLOWS/FT.	GEOTECHNICAL DESCRIPTION	DRY DENSITY (pcf)	WATER CONTENT (%)	LAB TESTS
0		CL			FILL: LIGHT BROWN; FIRM; MOIST; SILTY CLAY WITH SOME SAND (CL)			
2					BROWN/GRAY WITH ORANGE/TAN MIX; NO SAND			
4				13				
6				12	AT 6.0 FT BECOMES BROWN			
8					BECOMES OLIVE-GRAY, RED-BROWN AND BROWN			
10				24				
12								
14								
16				14				
18								
20				22				
22					BORING TERMINATED AT 21.5 FT. NO GROUNDWATER ENCOUNTERED, NO CAVING.			
24								
26								

SAMPLER KEY: BULK SPT MOD. CAL. NO RECOVERY

Nova Services

BORING LOG

BORING NO.: B-2

PROJECT: BOSSTICK SAN MARCOS
PROJECT NO.: 2016428
BORING LOCATION:
ELEVATION AND DATUM: feet ± (MSL)
DRILLING CONTRACTOR: CAL PAC DRILLING
DATE STARTED: 5/2/2016 **DATE FINISHED:** 5/2/2016
DRILLING METHOD: 8" DIAMETER HOLLOW STEM AUGER
TOTAL BORING DEPTH: 21.5 feet
DRILLING EQUIPMENT: B-61
DEPTH TO WATER START: NA **FINISH:** NA
SAMPLING METHOD: MOD CAL, SPT
LOGGED BY: HE
HAMMER WT.: 140 LBS **DROP:** 30 INCH
REVIEWED BY: WM

ELEVATION (MSL) / DEPTH (FT.)	SOIL STRATIGRAPHY	USCS CLASSIFICATION	SAMPLER TYPE	BLOWS/FT.	GEOTECHNICAL DESCRIPTION	DRY DENSITY (pcf)	WATER CONTENT (%)	LAB TESTS
0		CL			FILL: LIGHT BROWN-BROWN AND GRAY MIX; FIRM TO STIFF; VERY MOIST; SILTY CLAY (CL)			
2								
				49	ROCK DISTURBED BLOWCOUNTS			
4								
6				18	BECOMES VERY MOIST			
8								
10				38	SOME GRAVEL SIZE ROCK			
12								
14								
16				39	OCCASIONAL GRAVEL SIZE ROCK			
18								
20				23				
22					BORING TERMINATED AT 21.5 FT. NO GROUNDWATER ENCOUNTERED, NO CAVING.			
24								
26								

SAMPLER KEY: BULK SPT MOD. CAL. NO RECOVERY

Nova Services

BORING LOG

BORING NO.: B-3

PROJECT: BOSSTICK SAN MARCOS
PROJECT NO.: 2016428
BORING LOCATION:
ELEVATION AND DATUM: 503 feet ± (MSL)
DRILLING CONTRACTOR: CAL PAC DRILLING
DATE STARTED: 5/2/2016 **DATE FINISHED:** 5/2/2016
DRILLING METHOD: 8" DIAMETER HOLLOW STEM AUGER
TOTAL BORING DEPTH: 21.5 feet
DRILLING EQUIPMENT: B-61
DEPTH TO WATER START: NA **FINISH:** NA
SAMPLING METHOD: MOD CAL, SPT
LOGGED BY: HE
HAMMER WT.: 140 LBS **DROP:** 30 INCH
REVIEWED BY: WM

ELEVATION (MSL) / DEPTH (FT.)	SOIL STRATIGRAPHY	USCS CLASSIFICATION	SAMPLER TYPE	BLOWS/FT.	GEOTECHNICAL DESCRIPTION	DRY DENSITY (pcf)	WATER CONTENT (%)	LAB TESTS
0		CL			FILL: LIGHT BROWN/GRAY/REDDISH BROWN; STIFF; VERY MOIST; SILTY CLAY (CL)			
2				20				
500								
4								
6				19				
8					BECOMES WET			
10				11				
12								
490								
14								
16				11				
18					BECOMES OLIVE GRAY			
20				14				
22					BORING TERMINATED AT 21.5 FT. NO GROUNDWATER ENCOUNTERED, NO CAVING.			
480								
24								
26								

SAMPLER KEY: BULK SPT MOD. CAL. NO RECOVERY

Nova Services

BORING LOG

BORING NO.: B-4

PROJECT: BOSSTICK SAN MARCOS
PROJECT NO.: 2016428
BORING LOCATION:
ELEVATION AND DATUM: feet ± (MSL)
DRILLING CONTRACTOR: CAL PAC DRILLING
DATE STARTED: 5/2/2016 **DATE FINISHED:** 5/2/2016
DRILLING METHOD: 8" DIAMETER HOLLOW STEM AUGER
TOTAL BORING DEPTH: 21.5 feet
DRILLING EQUIPMENT: B-61
DEPTH TO WATER START: NA **FINISH:** NA
SAMPLING METHOD: MOD CAL, SPT
LOGGED BY: HE
HAMMER WT.: 140 LBS **DROP:** 30 INCH
REVIEWED BY: WM

ELEVATION (MSL) / DEPTH (FT.)	SOIL STRATIGRAPHY	USCS CLASSIFICATION	SAMPLER TYPE	BLOWS/FT.	GEOTECHNICAL DESCRIPTION	DRY DENSITY (pcf)	WATER CONTENT (%)	LAB TESTS
0		CL			FILL: LIGHT BROWN/GRAY/BROWN/OLIVE GRAY; STIFF; VERY MOIST; SILTY CLAY (CL)			
2				20				
4								
6		ML		9	LIGHT TAN; FIRM; MOIST; CLAYEY SILT (ML)			
8		CL			LIGHT BROWN/OLIVE GRAY/BROWN; STIFF; MOIST; SILTY CLAY (CL)			
10				20				
12								
14								
16				14				
18								
20		ML		35	LIGHT GRAY; VERY STIFF; MOIST; CLAYEY SILT (ML)			
22					BORING TERMINATED AT 21.5 FT. NO GROUNDWATER ENCOUNTERED, NO CAVING.			
24								
26								

SAMPLER KEY: BULK SPT MOD. CAL. NO RECOVERY

Nova Services

BORING LOG

BORING NO.: P-1

PROJECT: BOSSTICK SAN MARCOS
PROJECT NO.: 2016428
BORING LOCATION:
ELEVATION AND DATUM: feet ± (MSL)
DRILLING CONTRACTOR: CAL PAC DRILLING
DATE STARTED: 5/2/2016 **DATE FINISHED:** 5/2/2016
DRILLING METHOD: 8" DIAMETER HOLLOW STEM AUGER
TOTAL BORING DEPTH: 5.5 feet
DRILLING EQUIPMENT: B-61
DEPTH TO WATER START: NA **FINISH:** NA
SAMPLING METHOD: MOD CAL, SPT
LOGGED BY: HE
HAMMER WT.: 140 LBS **DROP:** 30 INCH
REVIEWED BY: WM

ELEVATION (MSL) / DEPTH (FT.)	SOIL STRATIGRAPHY	USCS CLASSIFICATION	SAMPLER TYPE	BLOWS/FT.	GEOTECHNICAL DESCRIPTION	DRY DENSITY (pcf)	WATER CONTENT (%)	LAB TESTS
0		CL			FILL: LIGHT BROWN-BROWN AND GRAY AND ORANGE MIX; FIRM; MOIST; SILTY CLAY (CL)			
4				12				
6					BORING TERMINATED AT 5.5 FT. NO GROUNDWATER ENCOUNTERED, NO CAVING.			

SAMPLER KEY: BULK SPT MOD. CAL. NO RECOVERY

Nova Services

BORING LOG

BORING NO.: P-2

PROJECT: BOSSTICK SAN MARCOS
PROJECT NO.: 2016428
BORING LOCATION:
ELEVATION AND DATUM: feet ± (MSL)
DRILLING CONTRACTOR: CAL PAC DRILLING
DATE STARTED: 5/2/2016 **DATE FINISHED:** 5/2/2016
DRILLING METHOD: 8" DIAMETER HOLLOW STEM AUGER
TOTAL BORING DEPTH: 5.5 feet
DRILLING EQUIPMENT: B-61
DEPTH TO WATER START: NA **FINISH:** NA
SAMPLING METHOD: MOD CAL, SPT
LOGGED BY: HE
HAMMER WT.: 140 LBS **DROP:** 30 INCH
REVIEWED BY: WM

ELEVATION (MSL) / DEPTH (FT.)	SOIL STRATIGRAPHY	USCS CLASSIFICATION	SAMPLER TYPE	BLOWS/FT.	GEOTECHNICAL DESCRIPTION	DRY DENSITY (pcf)	WATER CONTENT (%)	LAB TESTS
0								
2		CL			FILL: LIGHT BROWN-BROWN, GRAY-REDDISH BROWN MIX; STIFF TO VERY STIFF; VERY MOIST; SILTY CLAY (CL)			
4				31				
6					BORING TERMINATED AT 5.5 FT. NO GROUNDWATER ENCOUNTERED, NO CAVING.			
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								

SAMPLER KEY: BULK SPT MOD. CAL. NO RECOVERY

Nova Services

BORING LOG

BORING NO.: P-3

PROJECT: BOSSTICK SAN MARCOS
PROJECT NO.: 2016428
BORING LOCATION:
ELEVATION AND DATUM: feet ± (MSL)
DRILLING CONTRACTOR: CAL PAC DRILLING
DATE STARTED: 5/2/2016 **DATE FINISHED:** 5/2/2016
DRILLING METHOD: 8" DIAMETER HOLLOW STEM AUGER
TOTAL BORING DEPTH: 5.5 feet
DRILLING EQUIPMENT: B-61
DEPTH TO WATER START: NA **FINISH:** NA
SAMPLING METHOD: MOD CAL, SPT
LOGGED BY: HE
HAMMER WT.: 140 LBS **DROP:** 30 INCH
REVIEWED BY: WM

ELEVATION (MSL) / DEPTH (FT.)	SOIL STRATIGRAPHY	USCS CLASSIFICATION	SAMPLER TYPE	BLOWS/FT.	GEOTECHNICAL DESCRIPTION	DRY DENSITY (pcf)	WATER CONTENT (%)	LAB TESTS
0		CL			FILL: LIGHT BROWN-BROWN AND GRAY TO OLIVE GRAY; STIFF; VERY MOIST; SILTY CLAY (CL)			
2								
4				21				
6					BORING TERMINATED AT 5.5 FT. NO GROUNDWATER ENCOUNTERED, NO CAVING.			
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								

SAMPLER KEY: BULK SPT MOD. CAL. NO RECOVERY

Nova Services

BORING LOG

BORING NO.: P-4

PROJECT: BOSSTICK SAN MARCOS
PROJECT NO.: 2016428
BORING LOCATION:
ELEVATION AND DATUM: feet ± (MSL)
DRILLING CONTRACTOR: CAL PAC DRILLING
DATE STARTED: 5/2/2016 **DATE FINISHED:** 5/2/2016
DRILLING METHOD: 8" DIAMETER HOLLOW STEM AUGER
TOTAL BORING DEPTH: 7.5 feet
DRILLING EQUIPMENT: B-61
DEPTH TO WATER START: NA **FINISH:** NA
SAMPLING METHOD: MOD CAL, SPT
LOGGED BY: HE
HAMMER WT.: 140 LBS **DROP:** 30 INCH
REVIEWED BY: WM

ELEVATION (MSL) / DEPTH (FT.)	SOIL STRATIGRAPHY	USCS CLASSIFICATION	SAMPLER TYPE	BLOWS/FT.	GEOTECHNICAL DESCRIPTION	DRY DENSITY (pcf)	WATER CONTENT (%)	LAB TESTS
0		CL			FILL: LIGHT BROWN-BROWN AND OLIVE GRAY-GRAY MIX; STIFF; MOIST; SILTY CLAY (CL)			
4				50/5"				
6		SC/CL		15	BECOMES LIGHT BROWN; MOIST; SILTY TO CLAYEY SAND (SL)			
8					BORING TERMINATED AT 7.5 FT. NO GROUNDWATER ENCOUNTERED, NO CAVING.			
10								
12								
14								
16								
18								
20								
22								
24								
26								

SAMPLER KEY: BULK SPT MOD. CAL. NO RECOVERY

Nova Services

APPENDIX D

LABORATORY ANALYTICAL TESTING BY NOVA

SAMPLE LOCATION	SAMPLE DEPTH (ft)	INITIAL MOISTURE (%)	COMPACTED DRY DENSITY (pcf)	FINAL MOISTURE (%)	VOLUMETRIC SWELL (inch)	EXPANSION INDEX	EXPANSION POTENTIAL
B 2-B3	1' - 5'	11.5	105.0	21.5	0.075	66	Medium

Expansion Index	Expansion Potential
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
131 and above	Very High

NOVA

EXPANSION INDEX

BOSSTICK GEO
BOSSTICK AVE
SAN MARCOS, CALIFORNIA

DATE	PROJECT NO.	FIGURE
09/14	2016428	**B-1**

Sample Location	Sample Depth (ft)	pH	Resistivity (Ohm-cm)	Sulfate Content (ppm)	Sulfate Content (%)	Chloride Content (ppm)	Chloride Content (%)
B-2&B-3	1.0'-5.0'	7.1	420	1590	0.159	64	0.006

NOVA

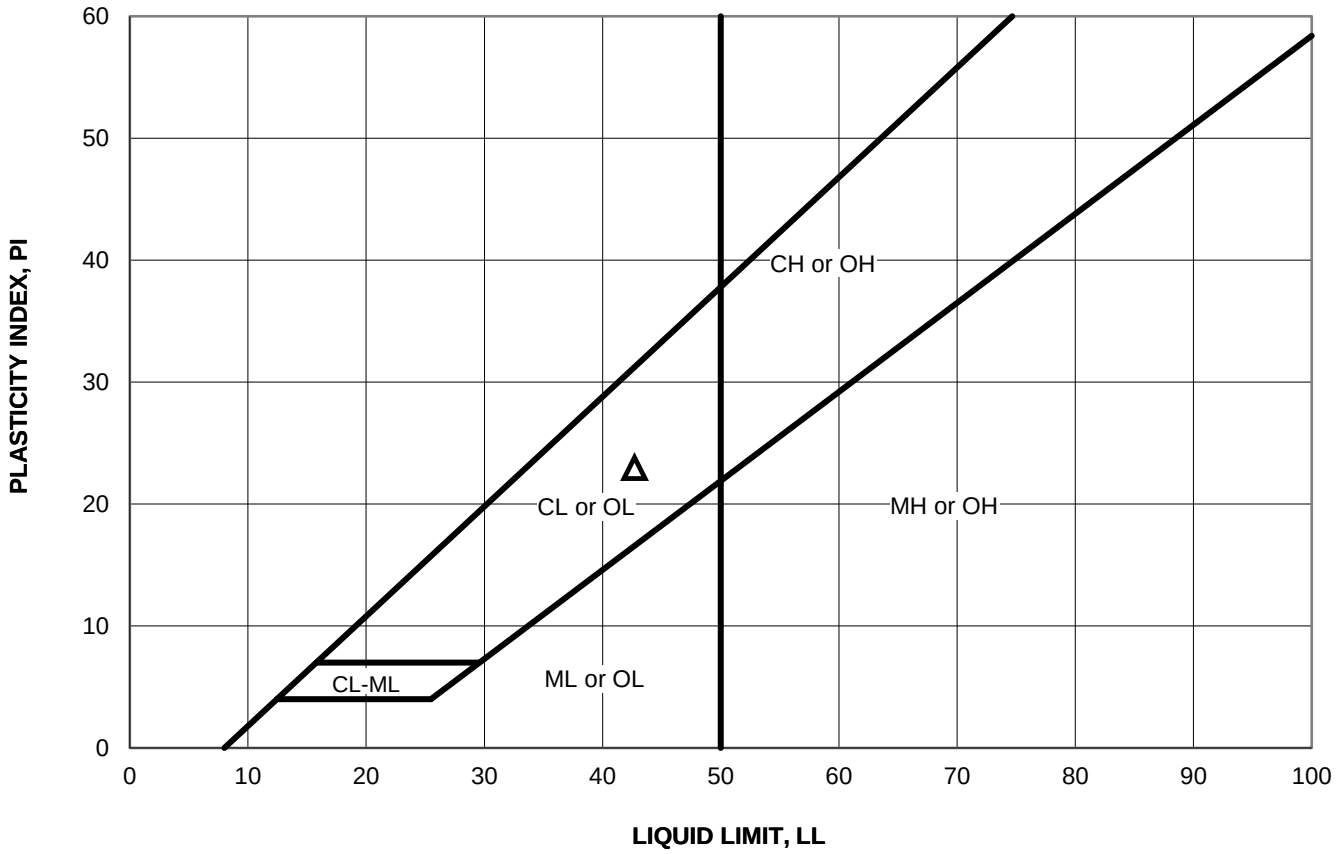
CORROSIVITY TEST RESULTS

BOSSTICK AVENUE
BOSSTICK AVENUE
SAN MARCOS, CALIFORNIA

DATE	PROJECT NO.	FIGURE
05/16	2016428	**B-2**

SYMBOL	SAMPLE LOCATION	SAMPLE DEPTH (FT)	LIQUID LIMIT, LL	PLASTIC LIMIT, PL	PLASTICITY INDEX, PI	USCS (% Finer than No. 40)	USCS (Entire Sample)
Δ	B2 & B3	1-5'	43	20	23	CL	CL

NP - INDICATES NON-PLASTIC



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

NOVA

ATTERBERG LIMIT TEST RESULTS

Bosstick Geo.
Bosstick Ave.
San Marcos, CA

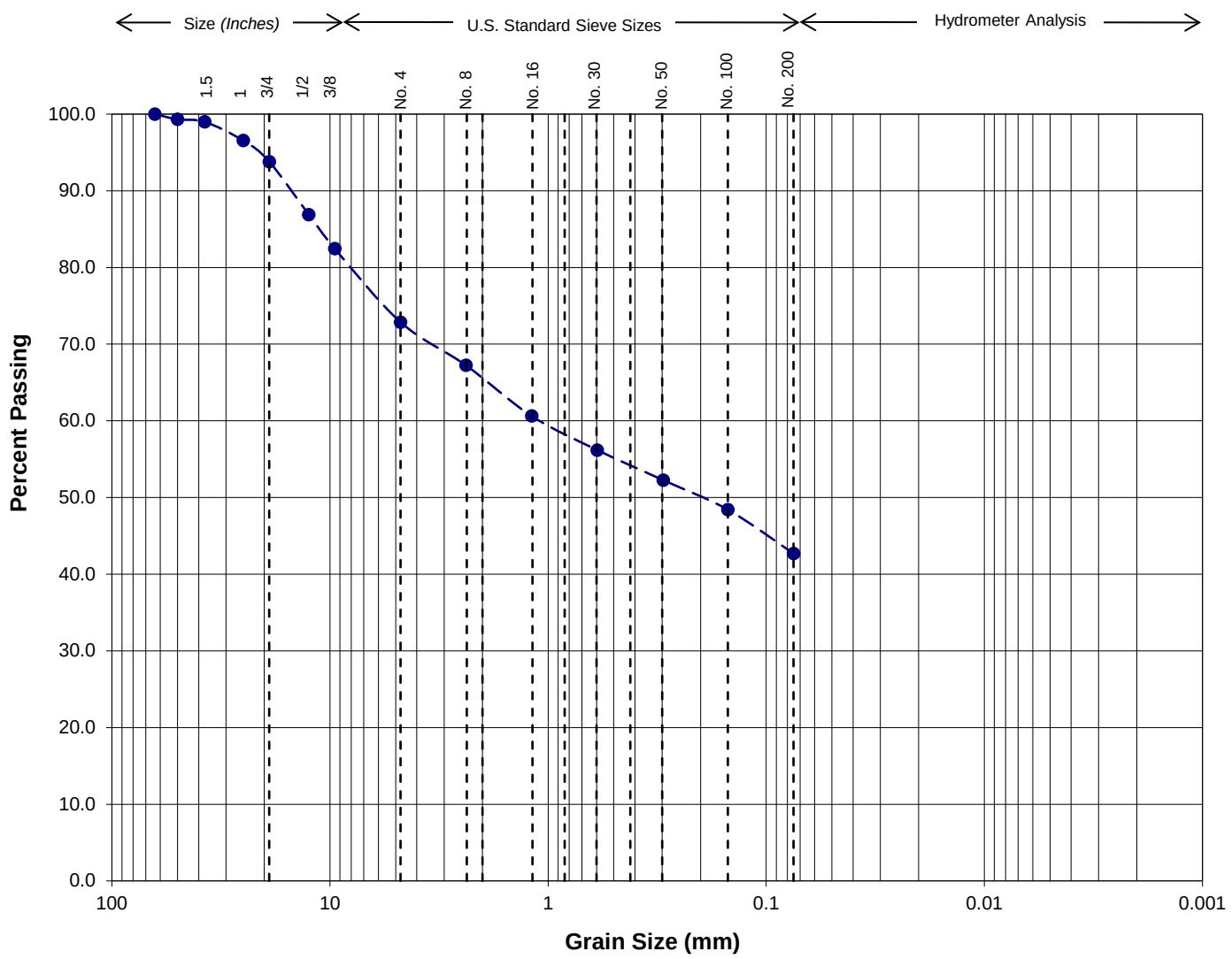
DATE	PROJECT NO.	FIGURE
4/11/2016	2016428	**B-3**

MOISTURE - DENSITY TEST DATA
(ASTM D 2937)

Page No. 1

Project Name:		BOSSTICK			Project No.:	2016428		Technician:	JA	Date:	05/16
Lab No.		6181	6182	6183	6184	6186	6188				
Sample Location		B-1	B-1	B-2	B-2	B-3	B-4				
Sample Depth (ft)		2.5'	6.0'	2.5'	6.0'	2.5'	2.5'				
Visual Soil Classification	Top										
	Bottom										
Torvane Shear (tsf)											
Pocket Penetrometer (tsf)											
WEIGHTS											
Weight of Moist Soil + Rings (g)		943	748.3	815.3	975.1	939.4	962.6				
Number of Rings		5	4	4	5	5	5				
Weight of Dry Soil + Rings (g)		820.4	638.1	754.0	890.5	826.2	833.3				
Weight of All Rings (g)		214.1	169.6	168.8	210.6	218.7	213.8				
Wt. of Moist Soil (No Rings)		728.9	578.7	646.5	764.5	720.7	748.8				
Wt. of Dry Soil (No Rings)		606.3	468.5	585.2	679.9	607.5	619.5				
Notes:		GRAYISH/ OLIVE SILTY CLAY	OLIVE CLAYEY SILT	OLIVE SILTY CLAY W/GRAVEL	DARK GRAY OLIVE CLAYEY SILT W/GRAVEL	OLIVE CLAYEY SILT	OLIVE CLAYEY SILT				
RESULTS											
Wet Density (pcf)		122.8	121.8	136.1	128.8	121.4	126.1				
Moisture Content (%)		20.2	23.5	10.5	12.4	18.6	20.9				
Dry Density (pcf)		102.1	98.6	123.2	114.5	102.3	104.3				
Degree of Saturation (%)		86.5	92.1	81.2	74.2	80.1	94.5				
Remarks											

Moisture-Density RINGS 6181,6182,6183,6184,6186,6188



GRAVEL		SAND			SILT OR CLAY
Coarse	Fine	Coarse	Medium	Fine	

Sample Location:	B-2 & B-3
Depth (ft):	1.0' - 5.0'
USCS Soil Type:	CL
Passing No. 200 (%):	43

NOVA

GRADATION ANALYSIS TEST RESULTS

BOSSTICK
BOSSTICK BLVD
SAN MARCOS, CALIFORNIA

DATE	PROJECT NO.	FIGURE
5/9/2016	2016428	**B-4**

APPENDIX D

APPENDIX D

SLOPE STABILITY EVALUATION

General

Slope stability analyses were performed on Cross-Sections A-A' and B-B' shown on Figures 1 and 2. The slope stability analyzes utilized the information on the preliminary grading study plans provided by PLSA with respect to proposed site conditions. Slope stability was evaluated for the proposed fill/cut slopes located in the south-central portion of the site and existing slopes and retaining wall located along the northeast and northwest perimeters of the site. Slope geometry, geologic structure, and calculated factors of safety for each cross section analyzed are presented on the figures in this Appendix.

The computer program, *Slope/W* from GeoSlope 2018, distributed by Geo-Slope International, was utilized to perform slope stability analyses. This program uses conventional slope stability equations and a two-dimensional limit-equilibrium method to calculate the factor of safety against deep-seated failure. For our analyses, the Morgenstern-Price method with circular failure mode was utilized.

The computer program searches for the most critical failure surface based on geometry and soil strength parameters. The computer program searches for the critical failure surface based on input parameters. The critical failure surface for each analysis is shown on computer generated output directly above the failure surface (which is shown as the hatched area on the figure).

Shear Strength Parameters

Shear strength parameters used in the analyses are based on laboratory direct shear testing performed for our investigation, and our experience with similar soil conditions. The results of the laboratory direct shear testing are presented in Appendix B.

Shear strength values used in our analyses are shown in the table below. The shear strength values are also shown in stability output figures.

SHEAR STRENGTH USED IN SLOPE STABILITY ANALYSES

Soil Type	Angle of Internal Friction (degrees)	Cohesion (psf)
Qcf (Compacted Fill)	25	250
Tsa (Santiago Formation)	25	320

Summary of Stability Analyses

The table below summarizes the stability analyses performed for this study. The calculated factor-of-safety for proposed and existing slopes is included on the table.

SUMMARY OF STABILITY ANALYSES

Cross Section	Location	Condition of Slope Stability Analysis	Calculated Factor of Safety
A-A'	South-Central	Proposed slope, 2:1 cut/fill slope, circular-mode analysis, static condition	1.94
B-B'	Northeast Perimeter	Existing slope, 2:1 fill slope, circular-mode analysis, static condition	1.83
B-B'	Northwest Perimeter	Existing slope and approximately 10-foot retaining wall (point load corresponding to an equivalent fluid pressure of 35H psf applied), 2:1 cut slope, circular-mode analysis, static conditions	1.57

Surficial Slope Stability Analysis

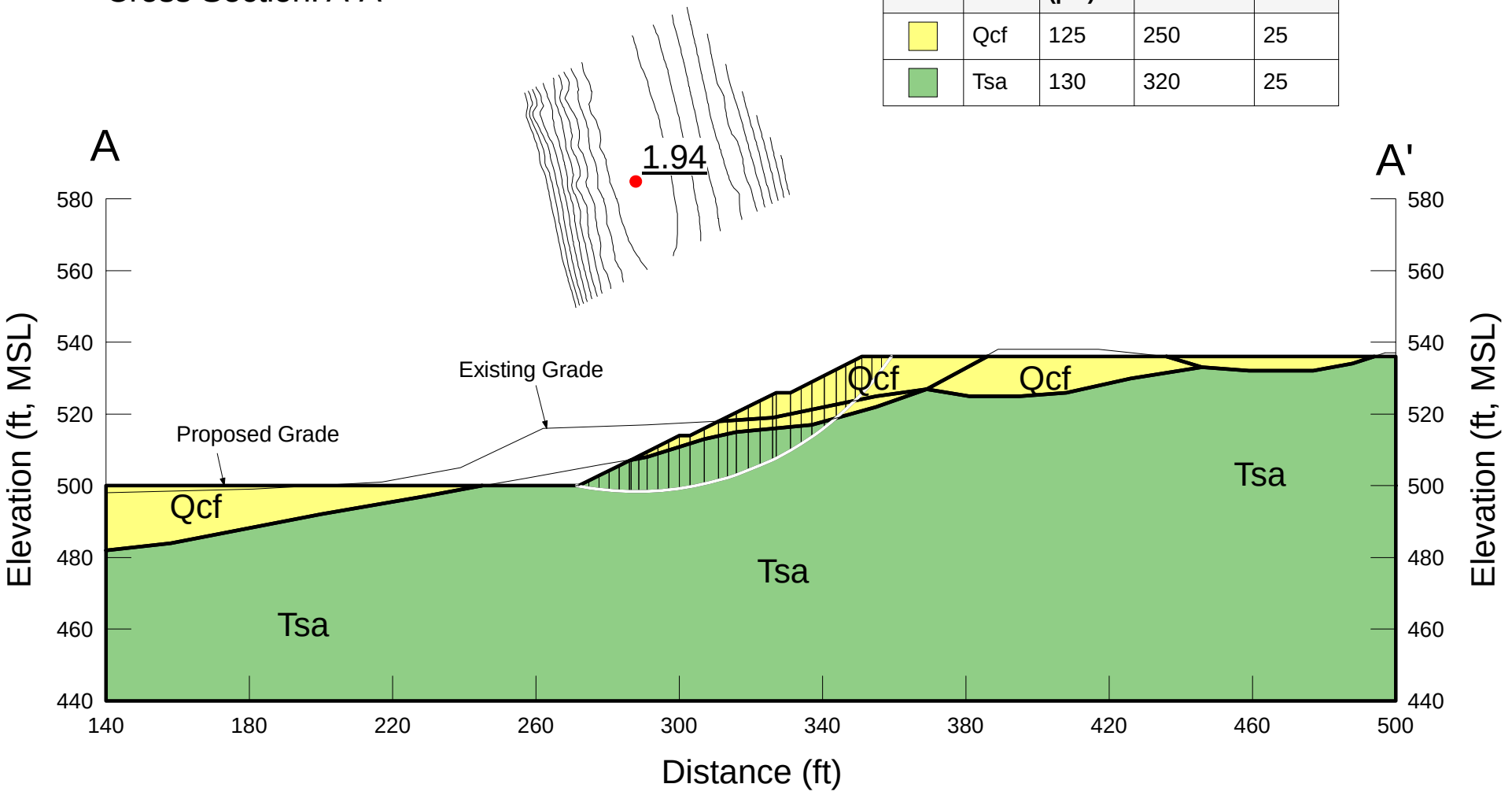
We evaluated surficial slope stability of proposed and existing slopes with inclinations as steep as 2:1 (horizontal:vertical) and the results indicate a calculated factor of safety of at least 1.5 under static conditions. The surficial slope stability analysis for the existing and proposed sloping conditions is summarized in the following table.

SURFICIAL SLOPE STABILITY EVALUATION

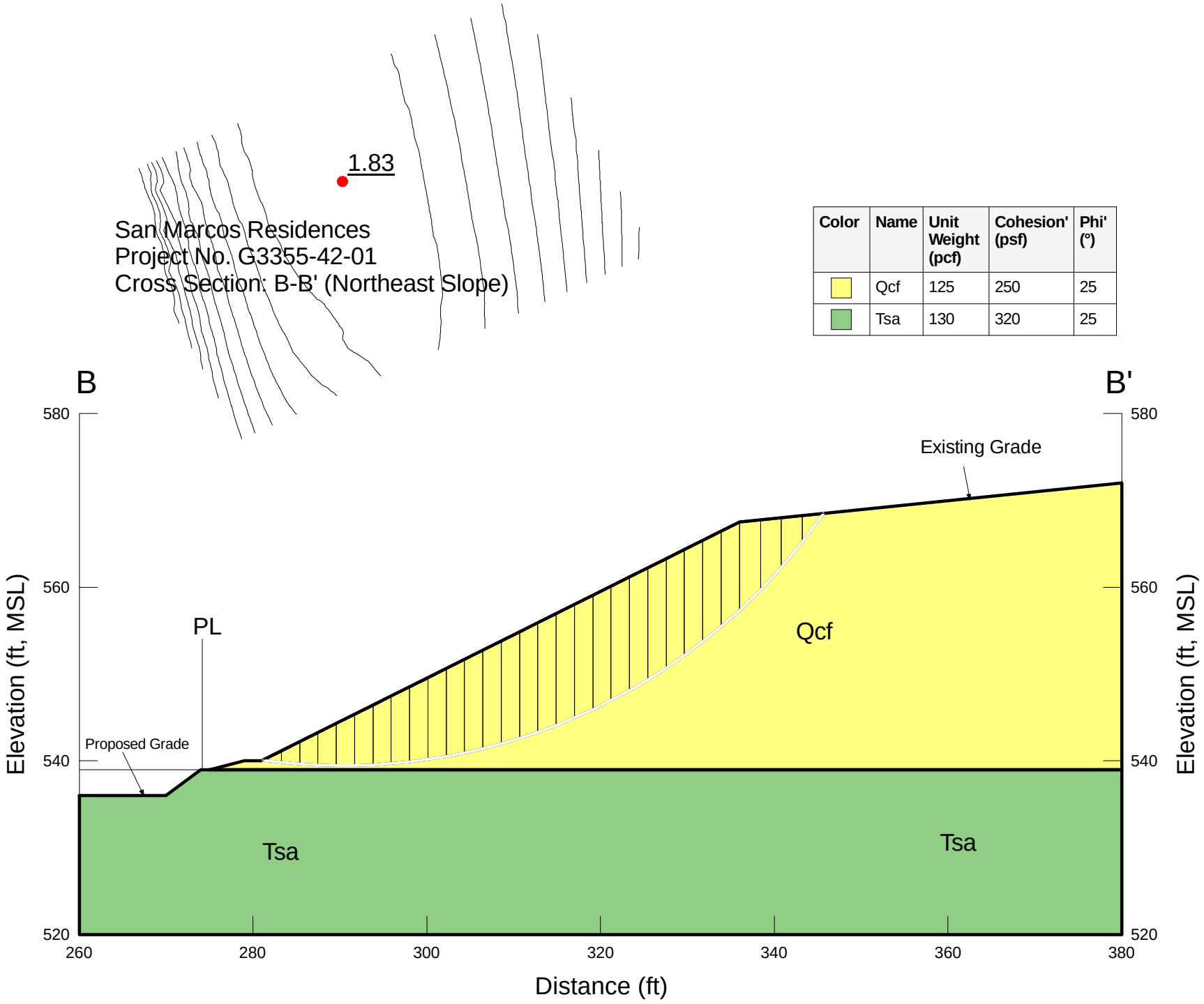
Parameter	Value
Slope Height, H	∞
Vertical Depth of Saturation, Z (feet)	3
Slope Inclination, I (Horizontal to Vertical)	2:1
Total Soil Unit Weight, γ (pcf)	130
Water Unit Weight, γ_W (pcf)	62.4
Friction Angle, ϕ (Degrees)	25
Cohesion, C (psf)	250
Factor of Safety = $(C+(\gamma+\gamma_W)Z\cos^2 I \tan\phi)/(\gamma Z \sin I \cos I)$	2.1

San Marcos Residences
Project No. G3355-42-01
Cross Section: A-A'

Color	Name	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Qcf	125	250	25
	Tsa	130	320	25



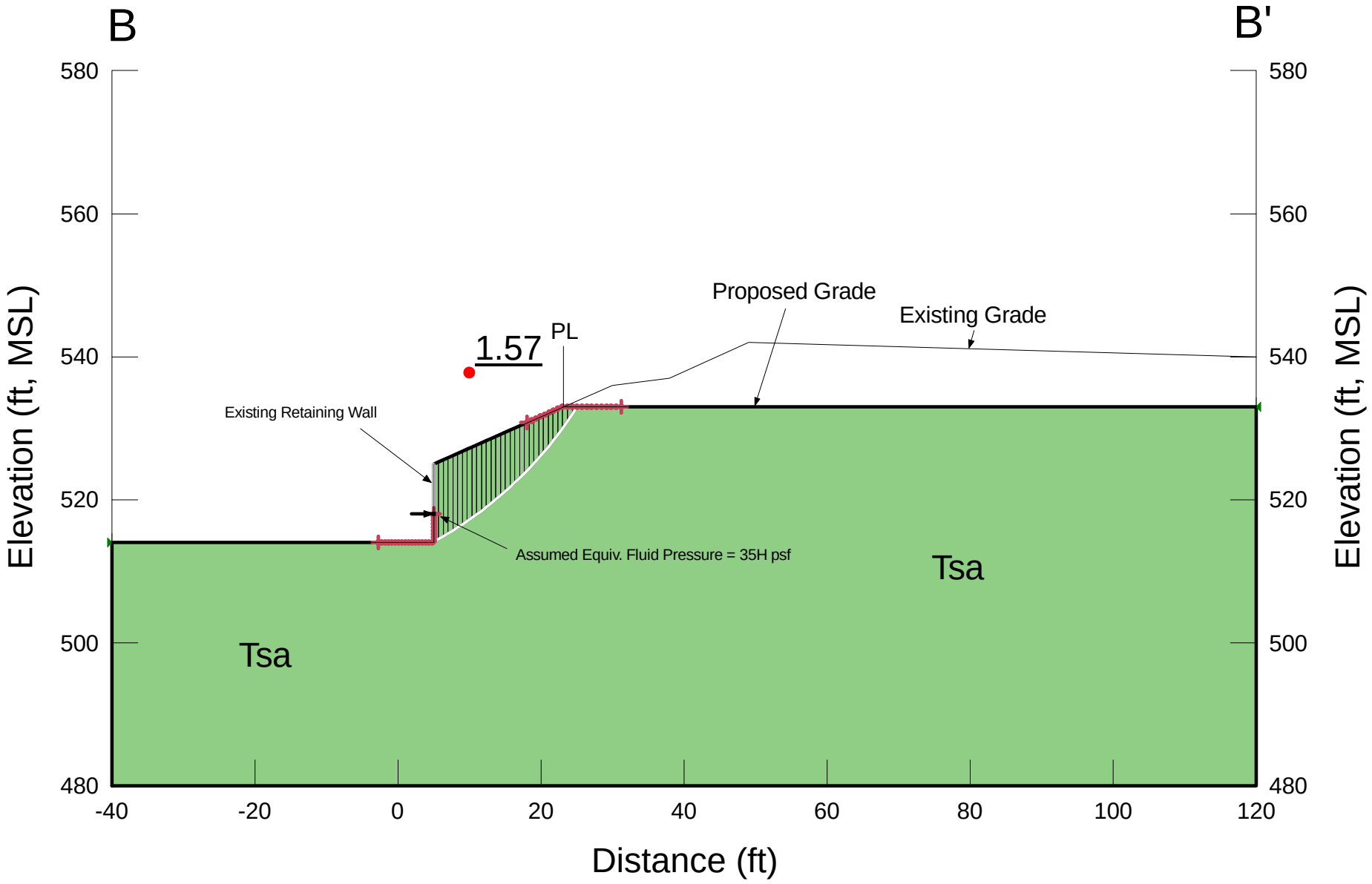
1707


1.83
San Marcos Residences
Project No. G3355-42-01
Cross Section: B-B' (Northeast Slope)
Color
Name
Unit Weight (pcf)
Cohesion' (psf)
Phi' (°)
Qcf
125
250
25
Tsa
130
320
25
B
B'
Existing Grade
PL
Proposed Grade
Qcf
Tsa
Tsa
Elevation (ft, MSL)
Elevation (ft, MSL)
Distance (ft)
580
560
540
520
260
280
300
320
340
360
380

1708

San Marcos Residences
Project No. G3355-42-01
Cross Section: B-B' (Northwest Slope)

Color	Name	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
	Tsa	130	320	25



1709

APPENDIX E

APPENDIX E

RECOMMENDED GRADING SPECIFICATIONS

FOR

SAN MARCOS RESIDENCES
2972 SOUTH SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

PROJECT NO. G3355-42-01

RECOMMENDED GRADING SPECIFICATIONS

1. GENERAL

1.1 These Recommended Grading Specifications shall be used in conjunction with the Geotechnical Report for the project prepared by Geocon. The recommendations contained in the text of the Geotechnical Report are a part of the earthwork and grading specifications and shall supersede the provisions contained hereinafter in the case of conflict.

1.2 Prior to the commencement of grading, a geotechnical consultant (Consultant) shall be employed for the purpose of observing earthwork procedures and testing the fills for substantial conformance with the recommendations of the Geotechnical Report and these specifications. The Consultant should provide adequate testing and observation services so that they may assess whether, in their opinion, the work was performed in substantial conformance with these specifications. It shall be the responsibility of the Contractor to assist the Consultant and keep them apprised of work schedules and changes so that personnel may be scheduled accordingly.

1.3 It shall be the sole responsibility of the Contractor to provide adequate equipment and methods to accomplish the work in accordance with applicable grading codes or agency ordinances, these specifications and the approved grading plans. If, in the opinion of the Consultant, unsatisfactory conditions such as questionable soil materials, poor moisture condition, inadequate compaction, and/or adverse weather result in a quality of work not in conformance with these specifications, the Consultant will be empowered to reject the work and recommend to the Owner that grading be stopped until the unacceptable conditions are corrected.

2. DEFINITIONS

2.1 **Owner** shall refer to the owner of the property or the entity on whose behalf the grading work is being performed and who has contracted with the Contractor to have grading performed.

2.2 **Contractor** shall refer to the Contractor performing the site grading work.

2.3 **Civil Engineer** or **Engineer of Work** shall refer to the California licensed Civil Engineer or consulting firm responsible for preparation of the grading plans, surveying and verifying as-graded topography.

2.4 **Consultant** shall refer to the soil engineering and engineering geology consulting firm retained to provide geotechnical services for the project.

2.5 **Soil Engineer** shall refer to a California licensed Civil Engineer retained by the Owner, who is experienced in the practice of geotechnical engineering. The Soil Engineer shall be responsible for having qualified representatives on-site to observe and test the Contractor's work for conformance with these specifications.

2.6 **Engineering Geologist** shall refer to a California licensed Engineering Geologist retained by the Owner to provide geologic observations and recommendations during the site grading.

2.7 **Geotechnical Report** shall refer to a soil report (including all addenda) which may include a geologic reconnaissance or geologic investigation that was prepared specifically for the development of the project for which these Recommended Grading Specifications are intended to apply.

3. MATERIALS

3.1 Materials for compacted fill shall consist of any soil excavated from the cut areas or imported to the site that, in the opinion of the Consultant, is suitable for use in construction of fills. In general, fill materials can be classified as *soil* fills, *soil-rock* fills or *rock* fills, as defined below.

3.1.1 **Soil fills** are defined as fills containing no rocks or hard lumps greater than 12 inches in maximum dimension and containing at least 40 percent by weight of material smaller than ¾ inch in size.

3.1.2 **Soil-rock fills** are defined as fills containing no rocks or hard lumps larger than 4 feet in maximum dimension and containing a sufficient matrix of soil fill to allow for proper compaction of soil fill around the rock fragments or hard lumps as specified in Paragraph 6.2. **Oversize rock** is defined as material greater than 12 inches.

3.1.3 **Rock fills** are defined as fills containing no rocks or hard lumps larger than 3 feet in maximum dimension and containing little or no fines. Fines are defined as material smaller than ¾ inch in maximum dimension. The quantity of fines shall be less than approximately 20 percent of the rock fill quantity.

3.2 Material of a perishable, spongy, or otherwise unsuitable nature as determined by the Consultant shall not be used in fills.

3.3 Materials used for fill, either imported or on-site, shall not contain hazardous materials as defined by the California Code of Regulations, Title 22, Division 4, Chapter 30, Articles 9 and 10; 40CFR; and any other applicable local, state or federal laws. The Consultant shall not be responsible for the identification or analysis of the potential presence of hazardous materials. However, if observations, odors or soil discoloration cause Consultant to suspect the presence of hazardous materials, the Consultant may request from the Owner the termination of grading operations within the affected area. Prior to resuming grading operations, the Owner shall provide a written report to the Consultant indicating that the suspected materials are not hazardous as defined by applicable laws and regulations.

3.4 The outer 15 feet of *soil-rock* fill slopes, measured horizontally, should be composed of properly compacted *soil* fill materials approved by the Consultant. *Rock* fill may extend to the slope face, provided that the slope is not steeper than 2:1 (horizontal:vertical) and a soil layer no thicker than 12 inches is track-walked onto the face for landscaping purposes. This procedure may be utilized provided it is acceptable to the governing agency, Owner and Consultant.

3.5 Samples of soil materials to be used for fill should be tested in the laboratory by the Consultant to determine the maximum density, optimum moisture content, and, where appropriate, shear strength, expansion, and gradation characteristics of the soil.

3.6 During grading, soil or groundwater conditions other than those identified in the Geotechnical Report may be encountered by the Contractor. The Consultant shall be notified immediately to evaluate the significance of the unanticipated condition.

4. CLEARING AND PREPARING AREAS TO BE FILLED

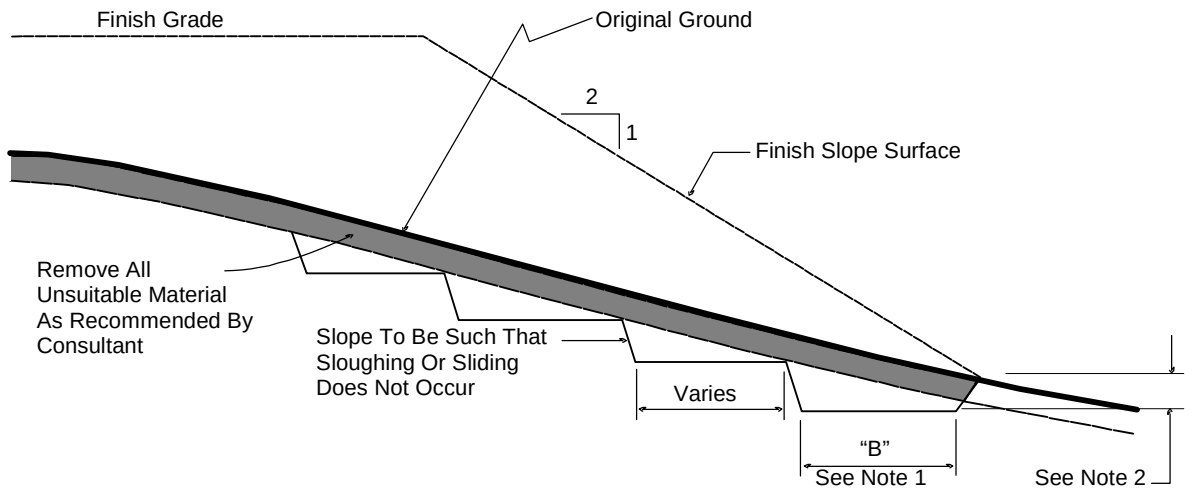
4.1 Areas to be excavated and filled shall be cleared and grubbed. Clearing shall consist of complete removal above the ground surface of trees, stumps, brush, vegetation, man-made structures, and similar debris. Grubbing shall consist of removal of stumps, roots, buried logs and other unsuitable material and shall be performed in areas to be graded. Roots and other projections exceeding 1½ inches in diameter shall be removed to a depth of 3 feet below the surface of the ground. Borrow areas shall be grubbed to the extent necessary to provide suitable fill materials.

4.2 Asphalt pavement material removed during clearing operations should be properly disposed at an approved off-site facility or in an acceptable area of the project evaluated by Geocon and the property owner. Concrete fragments that are free of reinforcing steel may be placed in fills, provided they are placed in accordance with Section 6.2 or 6.3 of this document.

4.3 After clearing and grubbing of organic matter and other unsuitable material, loose or porous soils shall be removed to the depth recommended in the Geotechnical Report. The depth of removal and compaction should be observed and approved by a representative of the Consultant. The exposed surface shall then be plowed or scarified to a minimum depth of 6 inches and until the surface is free from uneven features that would tend to prevent uniform compaction by the equipment to be used.

4.4 Where the slope ratio of the original ground is steeper than 5:1 (horizontal:vertical), or where recommended by the Consultant, the original ground should be benched in accordance with the following illustration.

TYPICAL BENCHING DETAIL



No Scale

DETAIL NOTES:

(1) Key width "B" should be a minimum of 10 feet, or sufficiently wide to permit complete coverage with the compaction equipment used. The base of the key should be graded horizontal, or inclined slightly into the natural slope.

(2) The outside of the key should be below the topsoil or unsuitable surficial material and at least 2 feet into dense formational material. Where hard rock is exposed in the bottom of the key, the depth and configuration of the key may be modified as approved by the Consultant.

4.5 After areas to receive fill have been cleared and scarified, the surface should be moisture conditioned to achieve the proper moisture content, and compacted as recommended in Section 6 of these specifications.

5. COMPACTION EQUIPMENT

5.1 Compaction of *soil* or *soil-rock* fill shall be accomplished by sheepsfoot or segmented-steel wheeled rollers, vibratory rollers, multiple-wheel pneumatic-tired rollers, or other types of acceptable compaction equipment. Equipment shall be of such a design that it will be capable of compacting the *soil* or *soil-rock* fill to the specified relative compaction at the specified moisture content.

5.2 Compaction of *rock* fills shall be performed in accordance with Section 6.3.

6. PLACING, SPREADING AND COMPACTION OF FILL MATERIAL

6.1 *Soil* fill, as defined in Paragraph 3.1.1, shall be placed by the Contractor in accordance with the following recommendations:

6.1.1 *Soil* fill shall be placed by the Contractor in layers that, when compacted, should generally not exceed 8 inches. Each layer shall be spread evenly and shall be thoroughly mixed during spreading to obtain uniformity of material and moisture in each layer. The entire fill shall be constructed as a unit in nearly level lifts. Rock materials greater than 12 inches in maximum dimension shall be placed in accordance with Section 6.2 or 6.3 of these specifications.

6.1.2 In general, the *soil* fill shall be compacted at a moisture content at or above the optimum moisture content as determined by ASTM D 1557.

6.1.3 When the moisture content of *soil* fill is below that specified by the Consultant, water shall be added by the Contractor until the moisture content is in the range specified.

6.1.4 When the moisture content of the *soil* fill is above the range specified by the Consultant or too wet to achieve proper compaction, the *soil* fill shall be aerated by the Contractor by blading/mixing, or other satisfactory methods until the moisture content is within the range specified.

6.1.5 After each layer has been placed, mixed, and spread evenly, it shall be thoroughly compacted by the Contractor to a relative compaction of at least 90 percent. Relative compaction is defined as the ratio (expressed in percent) of the in-place dry density of the compacted fill to the maximum laboratory dry density as determined in accordance with ASTM D 1557. Compaction shall be continuous over the entire area, and compaction equipment shall make sufficient passes so that the specified minimum relative compaction has been achieved throughout the entire fill.

6.1.6 Where practical, soils having an Expansion Index greater than 50 should be placed at least 3 feet below finish pad grade and should be compacted at a moisture content generally 2 to 4 percent greater than the optimum moisture content for the material.

6.1.7 Properly compacted *soil* fill shall extend to the design surface of fill slopes. To achieve proper compaction, it is recommended that fill slopes be over-built by at least 3 feet and then cut to the design grade. This procedure is considered preferable to track-walking of slopes, as described in the following paragraph.

6.1.8 As an alternative to over-building of slopes, slope faces may be back-rolled with a heavy-duty loaded sheepsfoot or vibratory roller at maximum 4-foot fill height intervals. Upon completion, slopes should then be track-walked with a D-8 dozer or similar equipment, such that a dozer track covers all slope surfaces at least twice.

6.2 *Soil-rock* fill, as defined in Paragraph 3.1.2, shall be placed by the Contractor in accordance with the following recommendations:

6.2.1 Rocks larger than 12 inches but less than 4 feet in maximum dimension may be incorporated into the compacted *soil* fill, but shall be limited to the area measured 15 feet minimum horizontally from the slope face and 5 feet below finish grade or 3 feet below the deepest utility, whichever is deeper.

6.2.2 Rocks or rock fragments up to 4 feet in maximum dimension may either be individually placed or placed in windrows. Under certain conditions, rocks or rock fragments up to 10 feet in maximum dimension may be placed using similar methods. The acceptability of placing rock materials greater than 4 feet in

maximum dimension shall be evaluated during grading as specific cases arise and shall be approved by the Consultant prior to placement.

6.2.3 For individual placement, sufficient space shall be provided between rocks to allow for passage of compaction equipment.

6.2.4 For windrow placement, the rocks should be placed in trenches excavated in properly compacted *soil* fill. Trenches should be approximately 5 feet wide and 4 feet deep in maximum dimension. The voids around and beneath rocks should be filled with approved granular soil having a Sand Equivalent of 30 or greater and should be compacted by flooding. Windrows may also be placed utilizing an "open-face" method in lieu of the trench procedure, however, this method should first be approved by the Consultant.

6.2.5 Windrows should generally be parallel to each other and may be placed either parallel to or perpendicular to the face of the slope depending on the site geometry. The minimum horizontal spacing for windrows shall be 12 feet center-to-center with a 5-foot stagger or offset from lower courses to next overlying course. The minimum vertical spacing between windrow courses shall be 2 feet from the top of a lower windrow to the bottom of the next higher windrow.

6.2.6 Rock placement, fill placement and flooding of approved granular soil in the windrows should be continuously observed by the Consultant.

6.3 *Rock* fills, as defined in Section 3.1.3, shall be placed by the Contractor in accordance with the following recommendations:

6.3.1 The base of the *rock* fill shall be placed on a sloping surface (minimum slope of 2 percent). The surface shall slope toward suitable subdrainage outlet facilities. The *rock* fills shall be provided with subdrains during construction so that a hydrostatic pressure buildup does not develop. The subdrains shall be permanently connected to controlled drainage facilities to control post-construction infiltration of water.

6.3.2 *Rock* fills shall be placed in lifts not exceeding 3 feet. Placement shall be by rock trucks traversing previously placed lifts and dumping at the edge of the currently placed lift. Spreading of the *rock* fill shall be by dozer to facilitate *seating* of the

rock. The *rock* fill shall be watered heavily during placement. Watering shall consist of water trucks traversing in front of the current rock lift face and spraying water continuously during rock placement. Compaction equipment with compactive energy comparable to or greater than that of a 20-ton steel vibratory roller or other compaction equipment providing suitable energy to achieve the required compaction or deflection as recommended in Paragraph 6.3.3 shall be utilized. The number of passes to be made should be determined as described in Paragraph 6.3.3. Once a *rock* fill lift has been covered with *soil* fill, no additional *rock* fill lifts will be permitted over the *soil* fill.

6.3.3 Plate bearing tests, in accordance with ASTM D 1196, may be performed in both the compacted *soil* fill and in the *rock* fill to aid in determining the required minimum number of passes of the compaction equipment. If performed, a minimum of three plate bearing tests should be performed in the properly compacted *soil* fill (minimum relative compaction of 90 percent). Plate bearing tests shall then be performed on areas of *rock* fill having two passes, four passes and six passes of the compaction equipment, respectively. The number of passes required for the *rock* fill shall be determined by comparing the results of the plate bearing tests for the *soil* fill and the *rock* fill and by evaluating the deflection variation with number of passes. The required number of passes of the compaction equipment will be performed as necessary until the plate bearing deflections are equal to or less than that determined for the properly compacted *soil* fill. In no case will the required number of passes be less than two.

6.3.4 A representative of the Consultant should be present during *rock* fill operations to observe that the minimum number of "passes" have been obtained, that water is being properly applied and that specified procedures are being followed. The actual number of plate bearing tests will be determined by the Consultant during grading.

6.3.5 Test pits shall be excavated by the Contractor so that the Consultant can state that, in their opinion, sufficient water is present and that voids between large rocks are properly filled with smaller rock material. In-place density testing will not be required in the *rock* fills.

6.3.6 To reduce the potential for "piping" of fines into the *rock* fill from overlying *soil* fill material, a 2-foot layer of graded filter material shall be placed above the uppermost lift of *rock* fill. The need to place graded filter material below the *rock*

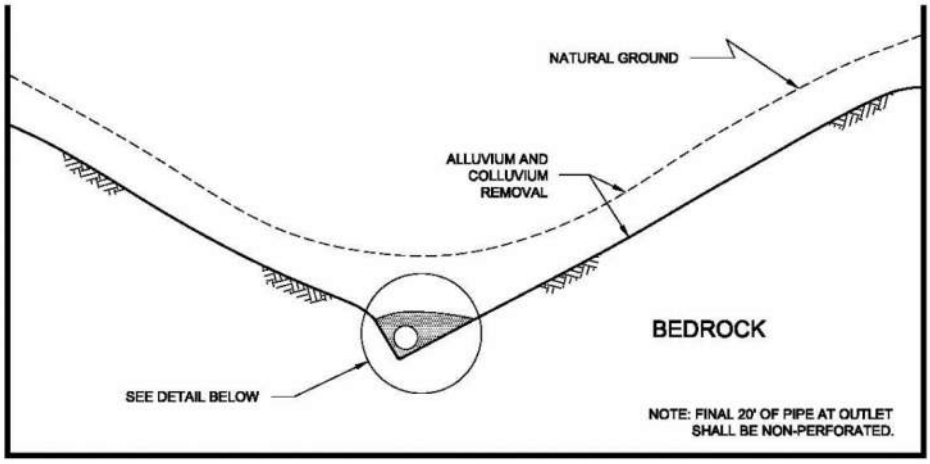
should be determined by the Consultant prior to commencing grading. The gradation of the graded filter material will be determined at the time the *rock* fill is being excavated. Materials typical of the *rock* fill should be submitted to the Consultant in a timely manner, to allow design of the graded filter prior to the commencement of *rock* fill placement.

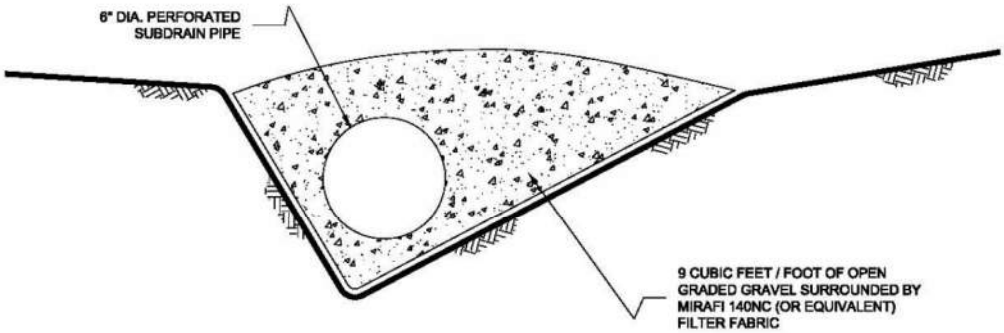
6.3.7 *Rock* fill placement should be continuously observed during placement by the Consultant.

7. SUBDRAINS

7.1 The geologic units on the site may have permeability characteristics and/or fracture systems that could be susceptible under certain conditions to seepage. The use of canyon subdrains may be necessary to mitigate the potential for adverse impacts associated with seepage conditions. Canyon subdrains with lengths in excess of 500 feet or extensions of existing offsite subdrains should use 8-inch-diameter pipes. Canyon subdrains less than 500 feet in length should use 6-inch-diameter pipes.

TYPICAL CANYON DRAIN DETAIL





NOTES:

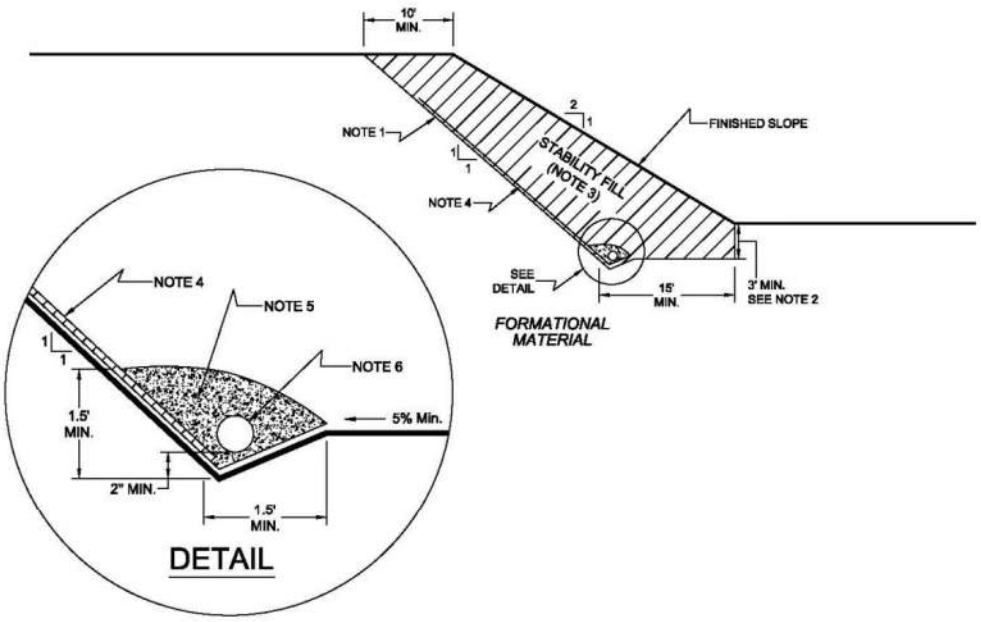
1.....6-INCH DIAMETER, SCHEDULE 80 PVC PERFORATED PIPE FOR FILLS
IN EXCESS OF 100-FEET IN DEPTH OR A PIPE LENGTH OF LONGER THAN 500 FEET.

2.....6-INCH DIAMETER, SCHEDULE 40 PVC PERFORATED PIPE FOR FILLS
LESS THAN 100-FEET IN DEPTH OR A PIPE LENGTH SHORTER THAN 500 FEET.

NO SCALE

7.2 Slope drains within stability fill keyways should use 4-inch-diameter (or lager) pipes.

TYPICAL STABILITY FILL DETAIL



NOTES:

1.....EXCAVATE BACKCUT AT 1:1 INCLINATION (UNLESS OTHERWISE NOTED).

2.....BASE OF STABILITY FILL TO BE 3 FEET INTO FORMATIONAL MATERIAL, SLOPING A MINIMUM 5% INTO SLOPE.

3.....STABILITY FILL TO BE COMPOSED OF PROPERLY COMPACTED GRANULAR SOIL.

4.....CHIMNEY DRAINS TO BE APPROVED PREFABRICATED CHIMNEY DRAIN PANELS (MIRADRAIN G200N OR EQUIVALENT) SPACED APPROXIMATELY 20 FEET CENTER TO CENTER AND 4 FEET WIDE. CLOSER SPACING MAY BE REQUIRED IF SEEPAGE IS ENCOUNTERED.

5.....FILTER MATERIAL TO BE 3/4-INCH, OPEN-GRADED CRUSHED ROCK ENCLOSED IN APPROVED FILTER FABRIC (MIRAFI 140NC).

6.....COLLECTOR PIPE TO BE 4-INCH MINIMUM DIAMETER, PERFORATED, THICK-WALLED PVC SCHEDULE 40 OR EQUIVALENT, AND SLOPED TO DRAIN AT 1 PERCENT MINIMUM TO APPROVED OUTLET.

NO SCALE

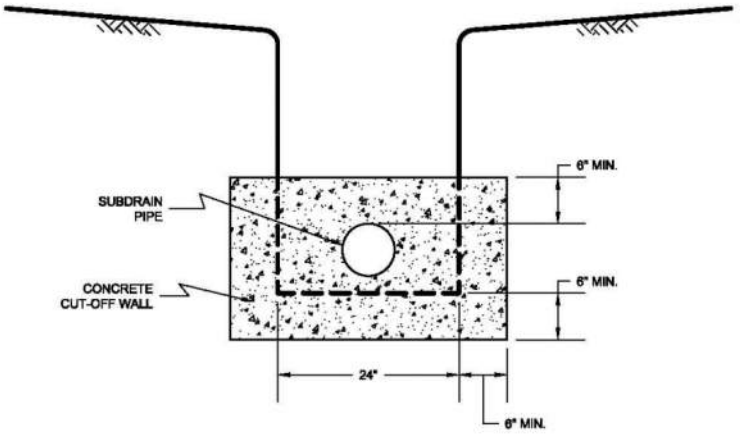
7.3 The actual subdrain locations will be evaluated in the field during the remedial grading operations. Additional drains may be necessary depending on the conditions observed and the requirements of the local regulatory agencies. Appropriate subdrain outlets should be evaluated prior to finalizing 40-scale grading plans.

7.4 *Rock* fill or *soil-rock* fill areas may require subdrains along their down-slope perimeters to mitigate the potential for buildup of water from construction or landscape irrigation. The subdrains should be at least 6-inch-diameter pipes encapsulated in gravel and filter fabric. *Rock* fill drains should be constructed using the same requirements as canyon subdrains.

7.5 Prior to outletting, the final 20-foot segment of a subdrain that will not be extended during future development should consist of non-perforated drainpipe. At the non-perforated/ perforated interface, a seepage cutoff wall should be constructed on the downslope side of the pipe.

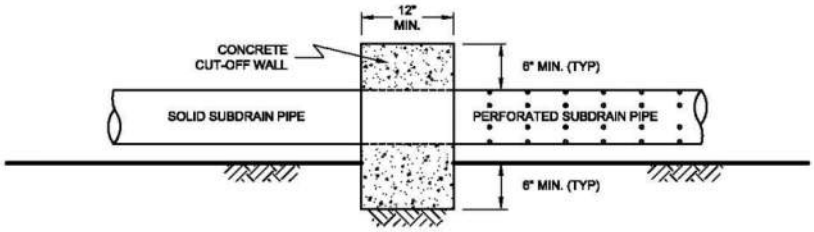
TYPICAL CUT OFF WALL DETAIL

FRONT VIEW



NO SCALE

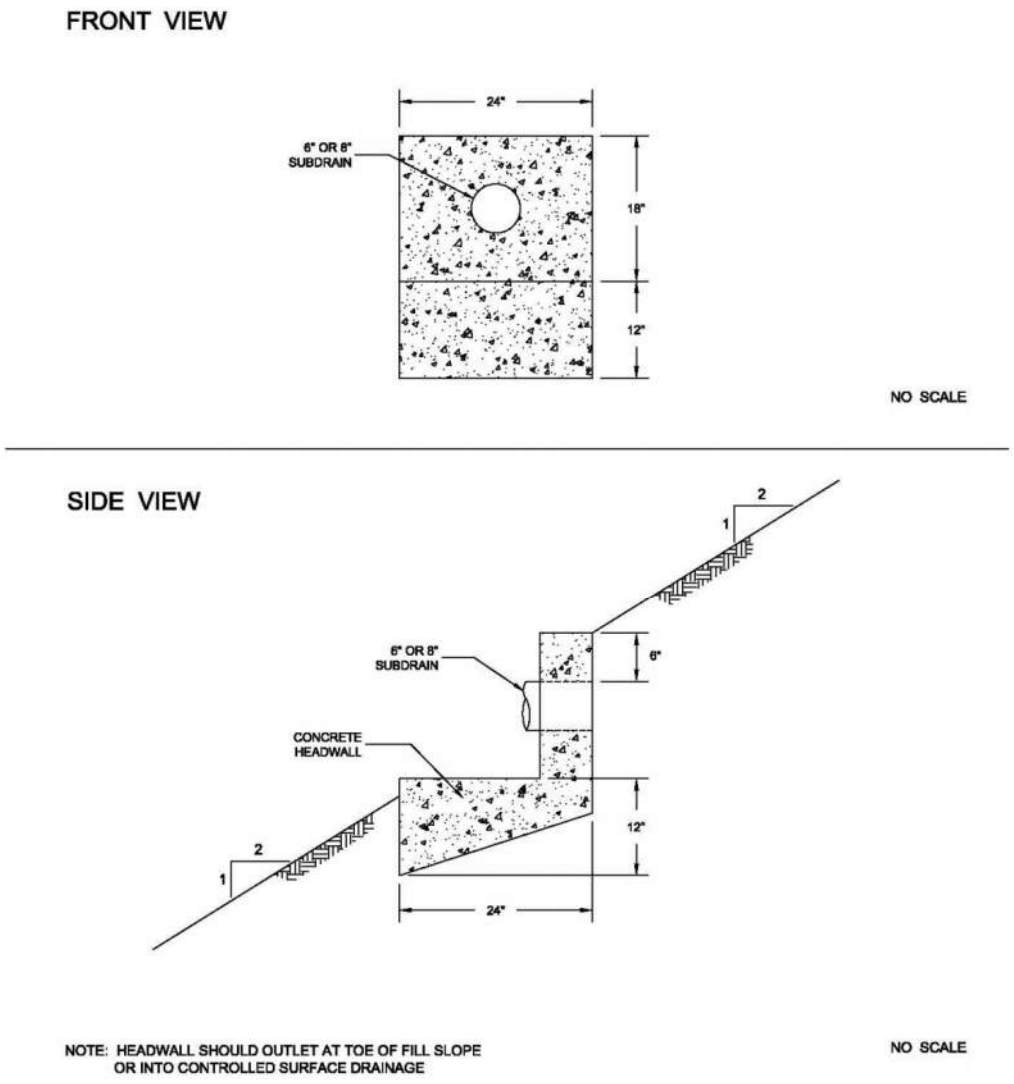
SIDE VIEW



NO SCALE

7.6 Subdrains that discharge into a natural drainage course or open space area should be provided with a permanent headwall structure.

TYPICAL HEADWALL DETAIL



7.7 The final grading plans should show the location of the proposed subdrains. After completion of remedial excavations and subdrain installation, the project civil engineer should survey the drain locations and prepare an “as-built” map showing the drain locations. The final outlet and connection locations should be determined during grading operations. Subdrains that will be extended on adjacent projects after grading can be placed on formational material and a vertical riser should be placed at the end of the subdrain. The grading contractor should consider videoing the subdrains shortly after

burial to check proper installation and functionality. The contractor is responsible for the performance of the drains.

8. OBSERVATION AND TESTING

8.1 The Consultant shall be the Owner's representative to observe and perform tests during clearing, grubbing, filling, and compaction operations. In general, no more than 2 feet in vertical elevation of *soil* or *soil-rock* fill should be placed without at least one field density test being performed within that interval. In addition, a minimum of one field density test should be performed for every 2,000 cubic yards of *soil* or *soil-rock* fill placed and compacted.

8.2 The Consultant should perform a sufficient distribution of field density tests of the compacted *soil* or *soil-rock* fill to provide a basis for expressing an opinion whether the fill material is compacted as specified. Density tests shall be performed in the compacted materials below any disturbed surface. When these tests indicate that the density of any layer of fill or portion thereof is below that specified, the particular layer or areas represented by the test shall be reworked until the specified density has been achieved.

8.3 During placement of *rock* fill, the Consultant should observe that the minimum number of passes have been obtained per the criteria discussed in Section 6.3.3. The Consultant should request the excavation of observation pits and may perform plate bearing tests on the placed *rock* fills. The observation pits will be excavated to provide a basis for expressing an opinion as to whether the *rock* fill is properly seated and sufficient moisture has been applied to the material. When observations indicate that a layer of *rock* fill or any portion thereof is below that specified, the affected layer or area shall be reworked until the *rock* fill has been adequately seated and sufficient moisture applied.

8.4 A settlement monitoring program designed by the Consultant may be conducted in areas of *rock* fill placement. The specific design of the monitoring program shall be as recommended in the Conclusions and Recommendations section of the project Geotechnical Report or in the final report of testing and observation services performed during grading.

8.5 We should observe the placement of subdrains, to check that the drainage devices have been placed and constructed in substantial conformance with project specifications.

8.6 Testing procedures shall conform to the following Standards as appropriate:

8.6.1 Soil and Soil-Rock Fills:

8.6.1.1 Field Density Test, ASTM D 1556, *Density of Soil In-Place By the Sand-Cone Method.*

8.6.1.2 Field Density Test, Nuclear Method, ASTM D 6938, *Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth).*

8.6.1.3 Laboratory Compaction Test, ASTM D 1557, *Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-Pound Hammer and 18-Inch Drop*.

8.6.1.4. Expansion Index Test, ASTM D 4829, *Expansion Index Test*.

9. PROTECTION OF WORK

9.1 During construction, the Contractor shall properly grade all excavated surfaces to provide positive drainage and prevent ponding of water. Drainage of surface water shall be controlled to avoid damage to adjoining properties or to finished work on the site. The Contractor shall take remedial measures to prevent erosion of freshly graded areas until such time as permanent drainage and erosion control features have been installed. Areas subjected to erosion or sedimentation shall be properly prepared in accordance with the Specifications prior to placing additional fill or structures.

9.2 After completion of grading as observed and tested by the Consultant, no further excavation or filling shall be conducted except in conjunction with the services of the Consultant.

10. CERTIFICATIONS AND FINAL REPORTS

10.1 Upon completion of the work, Contractor shall furnish Owner a certification by the Civil Engineer stating that the lots and/or building pads are graded to within 0.1 foot vertically of elevations shown on the grading plan and that all tops and toes of slopes are within 0.5 foot horizontally of the positions shown on the grading plans. After installation of a section of subdrain, the project Civil Engineer should survey its location and prepare an *as-built* plan of the subdrain location. The project Civil Engineer should verify the proper outlet for the subdrains and the Contractor should ensure that the drain system is free of obstructions.

10.2 The Owner is responsible for furnishing a final as-graded soil and geologic report satisfactory to the appropriate governing or accepting agencies. The as-graded report should be prepared and signed by a California licensed Civil Engineer experienced in

geotechnical engineering and by a California Certified Engineering Geologist, indicating that the geotechnical aspects of the grading were performed in substantial conformance with the Specifications or approved changes to the Specifications.

LIST OF REFERENCES

CGS (2021a), *EQ Zapp: California Earthquake Hazards Zone Application*, online map that queries California Geological Survey mapped earthquake hazard zones, https://www.conservation.ca.gov/cgs/geohazards/eq-zapp, accessed July 26, 2024;

CGS (2021b), *Tsunami Inundation Maps and Data,* web application for accessing tsunami inundation hazard, https://www.conservation.ca.gov/cgs/tsunami/maps, accessed July 26, 2024;

Christian Wheeler Engineering (2022), *Report of Preliminary Geotechnical Investigation, San Marcos Residences, 2972-2982 South Santa Fe Avenue*, *San Marcos, California*, dated December 2,2022 (Project No. CWE 2220399.01);

FEMA (2019), *Flood Map Service Center*, FEMA website, https://msc.fema.gov/portal/home, flood map number 06073C0787H, effective May 16, 2012, accessed August 9, 2024;

Ghostrider Incorporated (2020), *Limited Geotechnical Investigation, San Marcos Residences Project, 2972 South Santa Fe Avenue, San Marcos, California,* dated July 1, 2020 (Project No. 19-2118C);

Kennedy, M. P., and Tan, S. S., (2007), *Geologic map of the Oceanside 30' x 60' quadrangle and adjacent areas*, California Geological Survey, Map Scale: 1:100,000;

Nova Engineering (2016), *Preliminary Geotechnical Investigation, Bosstick San Marcos Development, San Marcos, San Diego County, California,* revised date June 8, 2016 (Project No. 2016428);

PLSA (2024), *Pre-Application Exhibit, San Marco Residences, San Marcos, California*, dated March 28, 2024 (PLSA Job No. 3527);

SEAOCC (2020), *Seismic Design Maps*, website interface that queries the U.S. Geological Survey (USGS) web servers and retrieves the seismic design variables using ASCE 7-16, ASCE 7-10, ASCE 41-13, ASCE 41-17, IBC 2015, IBC 2012, NEHRP-2015, and NEHRP 2009 seismic design map data, http://seismicmaps.org, accessed January 12, 2024;

USGS (2019), *Quaternary Fault and Fold Database of the United States*: U.S. Geological Survey website, https://www.usgs.gov/natural-hazards/earthquake-hazards/faults, accessed July 26, 2024;

APPENDIX B

Project No. G3355-42-01
October 17, 2024

Santa Fe Flores LP
P.O. Box 903
Ranch Santa Fe, California 92067

Attention: Mr. Paul Mayer

Subject: PERMANENT SHORING, MSE, AND ANCHOR PLEX WALL RECOMMENDATIONS
SAN MARCOS RESIDENCES
2972 SOUTH SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

References:
1. *Geotechnical Investigation, San Marcos Residences, 2972 South Santa Fe Avenue, San Marcos, California*, prepared by Geocon Incorporated, dated August 12, 2024 (Project No. G3355-42-01).
2. *Retaining Wall Quantities Study [for San Marcos Residences, San Marcos, California],* prepared by PLSA, dated October 3, 2024.
3. *Retaining Wall Backfill Remedial Earthwork Study [for San Marcos Residences, San Marcos, California],* prepared by PLSA, dated October 3, 2024.

Dear Mr. Mayer:

In accordance with your request, we have prepared this report to provide recommendations for permanent shoring walls, Mechanically Stabilized Earth (MSE) retaining walls, and Anchor Plex walls for the proposed project.

We understand the project will consist of the construction of seven townhome complexes and will include the construction of numerous retaining walls. Based on the referenced retaining wall studies, MSE wall heights will vary from approximately 3 feet to 18 feet, Anchor Plex Wall heights will be 3 feet to 6 feet, and the shoring wall heights will be 5 feet to 16 feet. Recommendations for the walls are provided hereafter.

EXCAVATION SLOPES, PERMANENT SHORING AND TIEBACKS

Geocon Incorporated is not responsible for site safety and the stability of the proposed excavations. It is the contractor's responsibility to ensure all excavations, temporary slopes, and trenches are properly constructed and maintained in accordance with applicable OSHA guidelines in order to maintain safety and the stability of the excavations and adjacent improvements. These excavation sidewalls should not be allowed to become saturated or to dry out. Surcharge loads should not be permitted to a distance equal to the height of the excavation from the top of the excavation. The top of the excavation should be a minimum of 15 feet from the edge of existing improvements. Excavation walls steeper than those recommended or closer than 15 feet from an existing surface improvement should be shored in accordance with applicable OSHA codes and regulations.

The design of shoring is governed by soil and groundwater conditions, and by the depth and width of the excavated area. Continuous support of the excavation face can be provided by a system of soldier piles and facing consisting of wood lagging, shotcrete, or other applicable techniques. Excavations exceeding 15 feet could require tieback anchors to provide additional wall support.

The condition of existing buildings, streets, sidewalks, and other structures and improvements around the perimeter of the planned excavation should be documented prior to the start of shoring and excavation work. Special attention should be given to documenting existing cracks or other indications of differential settlement within these adjacent areas. Settlement-sensitive underground utilities should be inspected and videotaped prior to construction to check the integrity of pipes. In addition, monitoring points should be established indicating location and elevation around the excavation and on existing buildings. These points should be monitored on a weekly basis during excavation work and monthly thereafter. Inclinometers should be installed and monitored behind any shoring sections that will be advanced deeper than 30 feet below the existing ground surface.

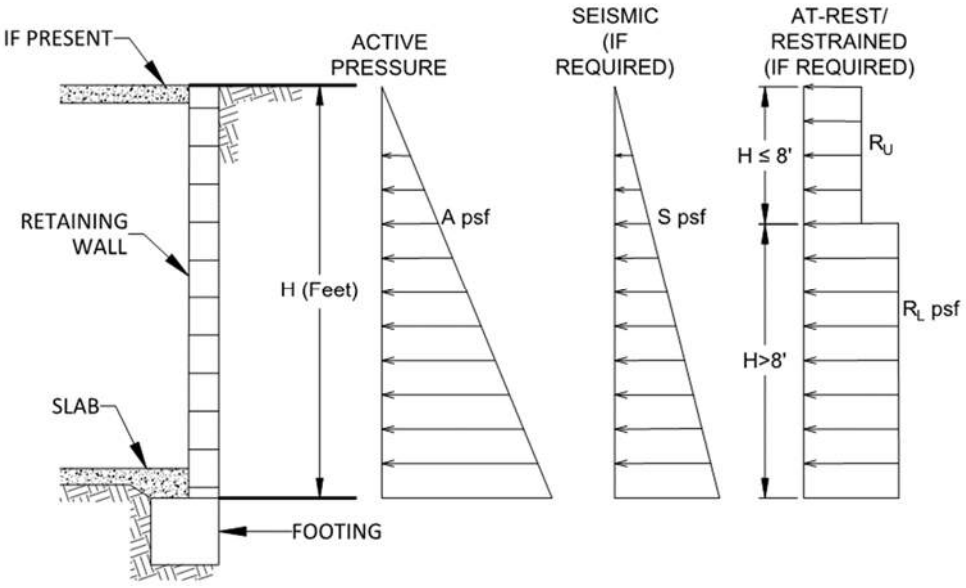
In general, ground conditions are suited for soldier pile and tieback anchor wall construction techniques; however, gravel, cobble, and cemented layers could be encountered that could be difficult to drill. Raveling could result along the unsupported portions of excavations if cohesionless sands are encountered.

Permanent shoring walls should be designed using the values presented in the following table. Additional lateral earth pressure due to the surcharging effects from construction equipment, stockpiles, adjacent structures, and traffic should be considered, where appropriate, during design of the shoring system.

SUMMARY OF PERMANEMT SHORING WALL RECOMMENDATIONS

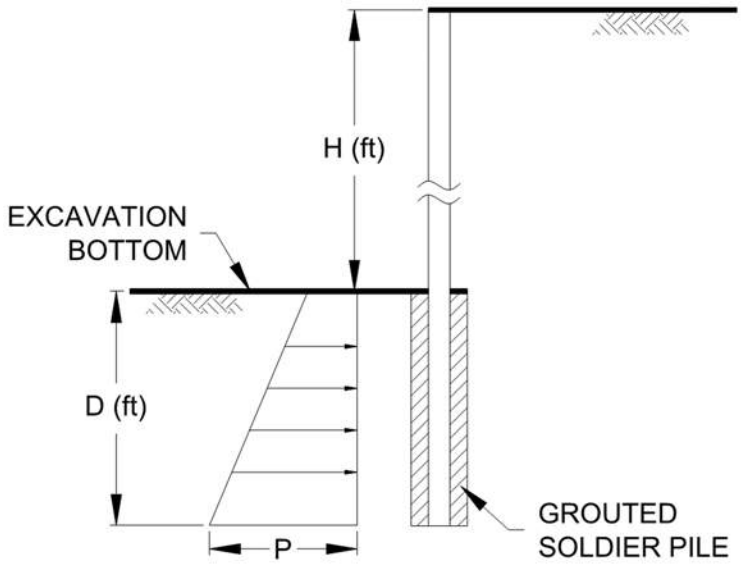
Parameter	Value
Active Soil Pressure, A (Fluid Density, Level Ground)	45 pcf
Active Soil Pressure, A (Fluid Density, 2:1 Sloping Backfill)	65 pcf
Seismic Pressure, S	15H psf
At-Rest/Restrained Walls Additional Uniform Pressure (0 to 8 Feet High)	7H psf
At-Rest/Restrained Walls Additional Uniform Pressure (8+ Feet High)	13H psf
Passive Pressure, P	350D + 500 psf
Effective Zone Angle, E	32 degrees
Maximum Design Lateral Movement	1 Inch
Maximum Design Vertical Movement	½ Inch
Expected Expansion Index for the Subject Property	EI> 90

H equals the height of the retaining portion of the wall in feet
D equals the embedment depth of the retaining wall in feet



Retaining Wall Loading Diagram

The passive resistance can be assumed to act over a width of three pile diameters. Typically, soldier piles are embedded a minimum of 0.5 times the maximum height of the excavation (this depth is to include footing excavations) if tieback anchors are not employed. The project structural engineer should determine the actual embedment depth.



Passive Pressures on Shoring

Unrestrained walls are those that are allowed to rotate more than 0.001H (where H equals the height of the retaining portion of the wall) at the top of the wall. Where walls are restrained from movement at the top (at-rest condition), an additional uniform pressure should be applied to the wall. For retaining walls subject to vehicular loads within a horizontal distance equal to two-thirds the wall height, a surcharge equivalent to 2 feet of fill soil should be added to the upper 10 feet of the retaining wall.

The structural engineer should determine the Seismic Design Category for the project in accordance with Section 1613 of the 2022 CBC or Section 11.6 of ASCE 7-16. For structures assigned to Seismic Design Category of D, E, or F, retaining walls that support more than 6 feet of backfill should be designed with seismic lateral pressure in accordance with Section 1803.5.12 of the 2022 CBC. The seismic load is dependent on the retained height where H is the height of the wall, in feet, and the calculated loads result in pounds per square foot (psf) exerted at the base of the wall and zero at the top of the wall.

We should observe the drilled shafts for the soldier piles prior to the placement of concrete reinforcement to check that the exposed soil conditions are similar to those expected and that pile excavations have been extended to the appropriate design depths. If unexpected soil conditions are encountered, foundation modifications could be required.

Earth pressures acting on a shoring wall could cause movement of the shoring toward the excavation and result in ground subsidence outside of the excavation. It is essential that the soldier pile and tieback system allow very limited amounts of lateral displacement. Horizontal movement of the shoring wall should be accurately monitored and recorded during excavation and anchor construction.

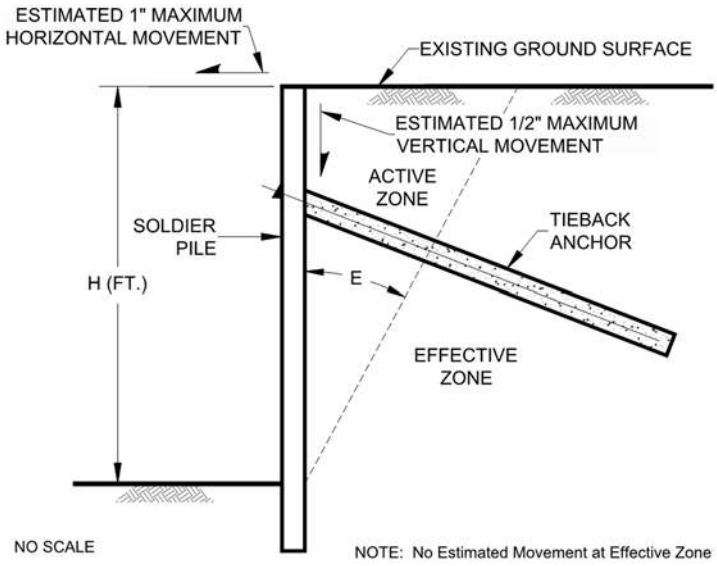
Survey points should be established at the top of the pile on at least 20 percent of the soldier piles. An additional point located at an intermediate point between the top of the pile and the base of the excavation should be monitored on at least 20 percent of the piles if tieback anchors will be used. These points should be monitored on a weekly basis during excavation work and monthly thereafter until the permanent support system is constructed.

The project civil engineer should provide the location, depth, and pipe type of the underground utilities to the shoring engineer to help select the shoring type and shoring design. The shoring system should be designed to limit horizontal soldier pile movement to a maximum of 1 inch. The amount of horizontal deflection can be assumed to be essentially zero along the Active Zone and Effective Zone boundary. The magnitude of movement for intermediate depths and distances from the shoring wall can be linearly interpolated.

Shoring walls greater than 15-feet high may need tieback anchors to mitigated excessive movement of the top of the exaction.

Tieback anchors should be designed, constructed, and tested in conformance with FHWA (1999) or PTI (2014). The testing method should be stated on the shoring plan.

Tieback anchors employed in shoring should be designed such that anchors fully penetrate the Active Zone behind the shoring. The Active Zone can be considered the wedge of soil from the face of the shoring to a plane extending upward from the base of the excavation as shown on the Active Zone Detail. Normally, tieback anchors are contractor-designed and installed, and there are numerous anchor construction methods available. Non-shrinkage grout should be used for the construction of the tieback anchors.



Active Zone Detail

Post grouting of the bonded portion of the anchor will increase the soil-grout bond strength. A pressure grouting tube should be installed during the construction of the tieback.

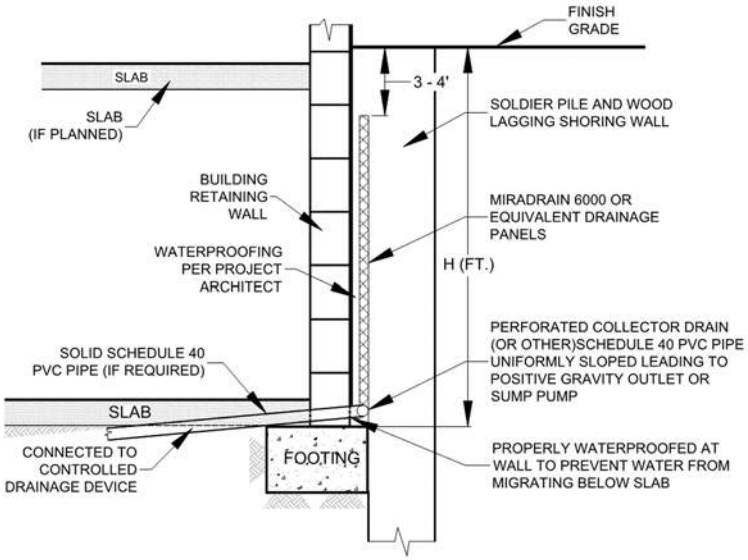
Anchor capacity should be evaluated using the strength parameters shown in the following table.

SOIL STRENGTH PARAMETERS FOR PERMANENT SHORING

Description	Cohesion (psf)	Friction Angle (Degrees)
Properly Compacted Fill (Qcf)	250	25
Documented Artificial Fill (Qdaf)	250	25
Colluvium (Qcol)	200	20
Santiago Formation (Tsa)	500	30

Lagging should keep pace with excavation. The excavation should not be advanced deeper than five feet below the bottom of lagging at any time. These unlagged gaps should only be allowed to stand for short periods of time to decrease the probability of soil instability and should never be unsupported overnight. Proper backfilling between the back of lagging and excavation walls should be done to reduce lateral movement behind the supported excavation. The excavation should not have advanced further than four feet below a row of tiebacks prior to those tiebacks being tested and locked off.

The shoring system should incorporate a drainage system for the proposed retaining wall as shown herein.



Shoring Retaining Wall Drainage Detail

The project civil engineer should provide an accurate survey of existing utilities and other underground structures adjacent to the shoring wall should be conducted. The survey should include both locations and depths of existing utilities. Locations of anchors should be adjusted as necessary during the design and construction process to accommodate the existing and proposed utilities.

MSE AND ANCHOR PLEX WALL RECOMMENDATIONS

MSE retaining walls consist of modular block facing units with geogrid reinforced earth behind the block. The reinforcing grid attaches to the block units and is typically placed at specified vertical intervals and embedment lengths. The grid length and spacing will be determined by the wall design engineer.

Anchor Plex walls consist of reinforced modular block facing units and a structural no-fines concrete backfill that attaches itself to the wall facing. The system eliminates the need for the construction of an MSE reinforced zone. The planned Anchor Plex wall is planned along the north perimeter of the site and will likely expose native Santiago Formation in the foundation and retained zones of the wall.

The geotechnical parameters listed in the table below can be used for preliminary design of the MSE walls. These values assume soil utilized within the reinforced zones of the wall will be from import soils with an EI of less than 50. The foundation zone is the area where the footing is embedded, the reinforced zone is the area of wall reinforcing grids and backfill, and the retained zone is the area behind the reinforced zone.

GEOTECHNICAL PARAMETERS FOR MSE WALLS

Parameter	Reinforced Zone	Retained Zone	Foundation Zone
Angle of Internal Friction	28 degrees*	25 degrees	25 degrees
Cohesion	100 psf	100 psf	100 psf
Wet Unit Density	125 pcf	125 pcf	125 pcf

*Assumes Import Soil will be used for the reinforced zone.

The geotechnical parameters listed in the table below can be used for preliminary design of the Anchor Plex wall along the northern property line. These values assume soil utilized within the foundation and retained zones of the wall will be native Santiago Formation. The foundation zone is the area where the footing is embedded, and the retained zone is the area behind the wall.

GEOTECHNICAL PARAMETERS FOR ANCHOR PLEX WALL

Parameter	Retained Zone	Foundation Zone
Angle of Internal Friction	30 degrees	30 degrees
Cohesion	100 psf	100 psf
Wet Unit Density	130 pcf	130 pcf

Once the import source of the backfill for the MSE walls have been selected, laboratory tests should be performed on samples prior to importing to evaluate if the proposed import soil conforms to design values. Results of the laboratory tests should be provided to the wall designer to re-evaluate stability of the walls. Depending on the test results, the designer may require modifications to the original wall design (e.g., modified reinforcing grid types or lengths).

The soil parameters presented in the tables above are based on our experience and direct shear-strength tests performed during the geotechnical investigation and represent some of the on-site soils. Clayey soils on the property should not be utilized within the reinforced zones of the MSE walls.

An allowable soil bearing pressure of 2,000 pounds per square foot (psf) can be used for foundation design and calculations for wall bearing. This value is for a wall footing measuring 1-foot wide and 2 feet deep. The allowable soil bearing pressure can be increased 300 psf for every foot of additional foundation width greater than 1-foot and 500 psf for every foot of depth greater than 2 feet, up to a maximum allowable bearing pressure of 4,000 psf. The entire length of the reinforced zone can be considered as the bearing zone of the MSE wall. If the wall is constructed on a sloping ground surface, the bottom of the wall should be at least 7 feet horizontally from the slope face to the wall.

Backfill materials within the reinforced zone should be compacted to a dry density of at least 90 percent of the laboratory maximum dry density near to or slightly above optimum moisture content in accordance with ASTM D 1557. This is applicable to the entire embedment length of the geogrid reinforcement. Typically, wall designers specify that heavy compaction equipment be excluded from within 3 feet of the face of the wall; however, smaller equipment (e.g., walk-behind, self-driven compactors or hand whackers) should be used to compact the materials without causing deformation of the wall. If the designer specifies no compactive effort for this zone, the materials are essentially not properly compacted and the geogrid within the uncompacted zone should not be relied upon for reinforcement and overall embedment lengths should be increased to account for the difference.

The wall should be provided with drainage system to prevent excessive seepage through the wall and to prevent hydrostatic pressure behind the wall. The perforated drainpipe behind the block facing should be set at an elevation approximately 2-inches above the base of the gravel-levelling course to minimize the potential for water to seep under the wall to the lot in front. The gravel-levelling course should not extend more than six inches in front of the lowest block course.

Geosynthetic reinforcement must elongate to develop full tensile resistance. This elongation generally results in movement at the top of the wall. The amount of movement is dependent on the height of the wall (e.g., higher walls rotate more) and the type of reinforcing grid used. In addition, over time the reinforcement grid has been known to exhibit creep (sometimes as much as 5 percent) and can undergo additional movement. Given this condition, the owner should be aware that structures and pavement placed within the reinforced and retained zones of the wall may undergo movement.

The MSE wall contractor should provide the estimated deformation of wall and adjacent ground in associated with wall construction. The calculated horizontal and vertical deformations should be determined by the wall designer. The estimated movements should be provided to the project structural engineer to determine if the planned improvements can tolerate the expected movements.

Should you have any questions regarding this letter, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON INCORPORATED

Lilian Rodriguez
RCE 83227

Rodney C. Mikesell
GE 2533

LR:RCM:kv

(e-mail) Addressee

ATTACHMENT D.7

CLIMATE ACTION PLAN CONSISTENCY CHECKLIST

CLIMATE ACTION PLAN CONSISTENCY REVIEW CHECKLIST

INTRODUCTION

The City of San Marcos (City) adopted an updated Climate Action Plan (CAP) in December, 2020. The CAP outlines strategies and measures that the City will undertake to achieve its proportional share of State greenhouse gas (GHG) emissions reduction targets. The purpose of the CAP Consistency Checklist (Checklist), in conjunction with the CAP, is to provide a streamlined review process for all proposed development projects that are subject to discretionary review and/or trigger environmental review pursuant to the California Environmental Quality Act (CEQA).

Analysis of GHG emissions and potential climate change impacts from new development is required under CEQA. The City's CAP is a qualified greenhouse gas (GHG) emissions reduction plan in accordance with State CEQA Guidelines Section 15183.5. Pursuant to CEQA Guidelines Sections 15064(h)(3), 15130(d), and 15183(b), a project's incremental contribution to a cumulative GHG emissions effect may be determined not to be cumulatively considerable if it complies with the requirements of a CAP.

The purpose of this Checklist is to implement GHG reduction measures from the CAP that apply to new discretionary development projects. New development would demonstrate consistency with relevant CAP strategies and would not conflict with the City's ability to achieve the identified GHG reduction targets through implementation of applicable measures. Projects that are consistent with the CAP, as determined through the use of this Checklist, may rely on the CAP for the cumulative impact analysis of GHG emissions. Projects that are not consistent with the CAP must prepare a comprehensive project-specific analysis of GHG emissions, including quantification of existing and projected GHG emissions and incorporation of the measures in this Checklist to the extent feasible. Cumulative GHG impacts would be significant for any project that is not consistent with the CAP.

This Checklist may be updated periodically to incorporate new GHG reduction techniques or to comply with later amendments to the CAP or local, State, or federal law. Comprehensive updates to this Checklist will be coordinated with each CAP update. Administrative updates to the Checklist may occur regularly, as necessary for the purpose of keeping the Checklist up-to-date and implementable. Updates to the CAP Checklist associated with an update to the City's CAP would also require City Council approval and shall comply with CEQA.

APPLICABILITY AND PROCEDURES

This Checklist is required only for discretionary projects[1] that are subject to and not exempt from CEQA. Projects that are exempt from CEQA are deemed to be consistent with the City's CAP, and no further review is necessary, with the exception of a Class 32 "In-Fill Development Projects" categorical exemption (State CEQA Guidelines Section 15332), for which projects are required to demonstrate consistency with the CAP through this Checklist.

General procedures for Checklist compliance and review are described below. Specific guidance is also provided under each of the questions under Steps 1 and 2 of the Checklist.

- The City's Development Services - Planning Division reviews development applications and makes determinations regarding environmental review requirements under CEQA.
- The specific applicable requirements outlined in the Checklist shall be required as conditions of project approval.
- The project must provide written documentation and supporting evidence that demonstrate how the proposed project would implement each applicable Checklist requirement described herein to the satisfaction of the Planning Division.
- If a question in the Checklist is deemed not applicable (N/A) to a project, written documentation and evidence supporting that conclusion shall be provided to the satisfaction of the Planning Division. Each Checklist question provides the scenario(s) where checking N/A may be acceptable. If a measure is deemed not applicable for reasons other than those outlined in each question, supporting evidence will need to be provided and would be subject to Planning Division approval. A project may be determined to be inconsistent with the CAP if the N/A response is deemed to be not supported by credible evidence.
- Development projects requiring discretionary review that cannot demonstrate consistency with the CAP using this Checklist shall prepare a separate, project-level GHG analysis as part of the CEQA document prepared for the project.

[1] In this context, a project is any action that meets the definition of a "Project" in Section 15378 of the State CEQA Guidelines.

Application Information

Contact Information

Project No. and Name:	GPA25-0001, R25-0001, MFSDP25-0001, and TSM25-0001, Santa Fe Flores Townhomes Project
Property Address and APN:	2966, 2972, and 2982 South Santa Fe Avenue APN 217-161-17, 217-161-18, and 217-161-19
Applicant Name and Co.:	Paul Mayer, Santa Fe Flores, LP
Contact Phone:	858-888-2488
Contact Email:	pm@pemcor.net

Was a consultant retained to complete this checklist? ☑ Yes ☐ No
If Yes, complete the following:

Consultant Name:	Jessica Fleming	Contact Phone:	619-308-9333 x177
Company Name:	RECON Environmental	Contact Email:	jfleming@reconenvironmental.com

Project Information

1. What is the size of the project site (acres)? 2.6 acres (net)
2. Identify all applicable proposed land uses:
   - ☐ Residential (indicate # of single-family dwelling units):
   - ☑ Residential (indicate # of multi-family dwelling units): 46 units
   - ☐ Commercial (indicate total square footage):
   - ☐ Industrial (indicate total square footage):
   - ☐ Other (describe):
3. Provide a description of the project proposed. This description should match the basic project description used for the CEQA document. The description may be attached to the Checklist if there are space constraints.

The project would require a General Plan Amendment (GPA) and Rezone to Multi-family Residential to allow the development of 46 multi-family residential townhome units in seven buildings. Vehicle parking would include 92 spaces within attached garages and 15 guest spaces. The project would include 0.37 acres of the northern portion of assessor's parcel number (APN) 217-161-17 through a lot line adjustment to be processed. The southern portion of APN 217-161-17 is currently developed with a convenience store which is not part of the project and would remain. The project also proposes approximately 0.12 acres of off-site improvements, including the construction of a new shared driveway extending into the southern portion of APN 217-161-17, upgrades to the existing liquor store parking lot, and landscaping within the 8-foot-wide irrevocable offer of dedication area along the project frontage.

The project would require a GPA from Medium Density Residential 2 (MDR2) to Medium High Density Residential (MHDR) for APNs 217-161-18 and 217-161-19, and a GPA from Commercial (C) to Medium High Density Residential (MHDR) for the northern portion (0.37 acres) of APN 217-161-17. Additionally, the project would rezone APNs 217-161-18 and 217-161-19 from Multi-family Residential 3 (R-3-10) to Multi-family Residential (R-3-6) and rezone the northern portion (0.37 acres) of APN 217-161-17 from Commercial (C) to Multi-Family Residential (R-3-6).

STEP 1: LAND USE CONSISTENCY

The first step in this section evaluates a project's GHG emissions consistent with the City's *Guidance to Demonstrating Consistency with the City of San Marcos Climate Action Plan: For Discretionary Projects Subject to CEQA* (Guidance Document). New discretionary development projects subject to CEQA review that emit fewer than 500 metric tons of carbon dioxide equivalent ($MTCO_2e$) annually would not contribute considerably to cumulative climate change impacts as stated in the City's Guidance Document, and therefore, would be considered consistent with the CAP and associated emissions projections.

For projects that are subject to CAP consistency review, the next step in determining consistency is to assess the project's consistency with the growth projections used in the development of the CAP. This section allows the city to determine a project's consistency with the land use assumptions used in the CAP.

Step 1: Land Use Consistency

	Checklist Item (Check the appropriate box and provide an explanation and supporting documentation for your answer)	**Yes**	**No**
1.	The size and type of projects listed below would emit fewer than 500 $MTCO_2e$ per year. Based on this threshold, does the proposed project exceed these characteristics? ▪ Single Family Housing: 36 dwelling units ▪ Multi-Family Housing: 55 dwelling units ▪ Office: 43,000 square feet ▪ Commercial Space: 20,000 square feet ▪ Regional Shopping Center: 18,000 square feet ▪ Hotel: 37 rooms ▪ Restaurant (Sit-Down): 6,500 square feet ▪ Restaurant (Drive-Thru, High Turnover): 2,400 square feet ▪ General Light Industrial: 58,000 square feet ▪ University: 263 students ▪ Mixed-Use: See *Guidance to Demonstrating Consistency* memorandum for methods to estimate mixed-use development thresholds ▪ Other: For project types not listed in this section the need for GHG analysis and mitigation will be made on a project-specific basis, considering the 500 $MTCO_2e$ per year screening threshold. If **"Yes",** proceed to Question 2 of Step 1. If **"No",** in accordance with the City's CAP screening criteria, the project's GHG impact is less than significant and is not subject to the measures of the CAP.	☐	☑
2.	Is the proposed project consistent with the City's existing General Plan land use designation? If **"Yes"**, proceed to Step 2. If **"No"**, proceed to Question 3 of Step 1	☐	☐
3.	For projects not consistent with the existing General Plan land use designation, does the project include a General Plan Amendment that would generate GHG emissions equal to or less than estimated emissions generated under the existing designation? If **"Yes"**, proceed to Step 2 and provide estimated project emissions under both existing and proposed designation(s) for comparison. If **"No"**, the project's GHG impact is potentially significant, and a GHG analysis must be prepared in accordance with the City's Guidance Document and applicable CEQA guidelines. The project must incorporate each of the measures identified in Step 2 to mitigate cumulative GHG emissions impacts, along with other mitigation measures as necessary based on a project specific GHG analysis. Proceed and complete a project specific GHG analysis, and Step 2 of the Checklist.	☐	☐

STEP 2: CAP MEASURES CONSISTENCY

The second step of CAP consistency review is to evaluate a project's consistency with the applicable strategies and measures of the CAP. Each Checklist item is associated with a specific GHG reduction measure in the City's CAP. "N/A" should only be checked based on the direction provided in each Checklist Item question. All projects for which the measure is applicable must demonstrate that they would implement measures consistent with the Checklist Item, or fully substantiate how the item would be infeasible for project implementation. "N/A" responses are subject to Planning Division review and approval. If "No" is provided as a response to a question, the project would be determined to be inconsistent with the CAP and result in a significant GHG impact.

Step 2: CAP Measures Consistency			
Checklist Item (Check the appropriate box and provide an explanation for your answer. Please use additional sheets if necessary)	**Yes**	**No**	**N/A**
Project Design			
1. Electric Vehicle Charging Stations (Measure T-2) Multi-Family Residential and Non-Residential: Will the project install electric vehicle charging stations (Level 2 or better) in at least five percent of the total parking spaces provided on-site? Check "N/A" if the project is a single-family residential project or would not provide any parking.	☐	☐	☐
Please substantiate how the project satisfies question 1:			
2. Bicycle Infrastructure (Measure T-8) Residential and Non-Residential Projects: If the following conditions are met, would the project pay its fair-share contribution to bicycle infrastructure improvements? ☐ Intersection or roadway segment improvements are proposed as part of the project and, ☐ The City's General Plan Mobility Element identifies bicycle infrastructure improvements at any intersection(s) or roadway segment(s) that would be improved as part of the project. Check "N/A" if the conditions above would not be met.	☐	☐	☐
Please substantiate how the project satisfies question 2:			

Step 2: CAP Measures Consistency			
Checklist Item (Check the appropriate box and provide an explanation for your answer. Please use additional sheets if necessary)	**Yes**	**No**	**N/A**
3. Transportation Demand Management (Measure T-9) Multi-Family Residential and Non-Residential: Will the project develop and implement a TDM plan that includes, at a minimum, all of the TDM strategies listed below? ☐ Provide discounted monthly transit pass or provide at least 25 percent transit fare subsidy to residents/employees. ☐ Provide designated car-share, carpool, vanpool, and/or park-and-ride parking spaces.[2] ☐ Provide pedestrian connections between all internal uses and to all existing or planned external streets around the project site(s). ☐ Provide secure bicycle parking spaces or bicycle racks, showers, and clothes lockers. ☐ Encourage telecommuting for employees (allow one telecommute day per week or compressed work weeks) or provide a telecommute work center with common office space and equipment available to residents. *-or-* Would the project implement and monitor for four (4) years a TDM program that demonstrates an alternative transportation (i.e. carpool, public transit, bicycle, walk, telecommute) mode share of at least 29 percent [3] for all residents? Check "N/A" if the project is a single-family residential project or is not subject to the City's TDM Ordinance.	☐	☐	☐
Please state which measure option the project for which the project would comply and substantiate how the project satisfies question 3:			

[2] The designated number of car-share, carpool, vanpool, and/or park-and-ride parking spaces provided at a rate equal to or greater than CALGreen minimum requirements.

[3] Measure T-10 requires projects to increase alternative mode share by seven percent. The baseline mode share for alternative transportation (i.e. carpool, public transit, bicycle, walk, and telecommute) is 22 percent based on 2010 Census Data.

Step 2: CAP Measures Consistency			
Checklist Item (Check the appropriate box and provide an explanation for your answer. Please use additional sheets if necessary)	**Yes**	**No**	**N/A**
4. Reduce Parking Near Transit (Measure T-12) Multi-Family Residential: If located within a half-mile of a major transit stop[4], would the project provide at least 27 percent fewer parking spaces than required for the same use based on the City's municipal code parking requirements? Check "N/A" if the project is a single-family residential or non-residential project.	☐	☐	☐
Please substantiate how the project satisfies question 4:			
5. Water Heaters (Measure E-1) Residential: Will the project install one of, or a combination of, the following water heater types in place of natural gas water heaters? ☐ Electric heat pump water heater ☐ Instantaneous electric water heater ☐ Electric tank ☐ Solar water heater with heat pump water heater backup ☐ Solar water heater with electric tank backup Check "N/A" if the project is a non-residential project.	☐	☐	☐
Please substantiate how the project satisfies question 5:			

[4] Major transit stop is defined as a bus or light-rail station with fixed service and 10-minute minimum headways during peak hours. Project applicants should confirm with City staff if the project site would fall within this proximity to a major transit stop.

Step 2: CAP Measures Consistency			
Checklist Item (Check the appropriate box and provide an explanation for your answer. Please use additional sheets if necessary)	**Yes**	**No**	**N/A**
6. Photovoltaic Installation (Measure E-2) Non-Residential: Will the project install photovoltaic systems with a minimum capacity of two watts per square foot of gross floor area? Check "N/A" if the project is a residential project or if installation of on-site photovoltaic would be infeasible.	☐	☐	☐
Please substantiate how the project satisfies question 6:			
7. Landscaping Water Use (Measure W-1) Residential and Non-Residential: Will the project comply with the City's Water Efficient Landscape Ordinance?[5] Check "N/A" if the project is not proposing any landscaping or is not subject to the City's Water Efficient Landscape Ordinance.	☐	☐	☐
Please substantiate how the project satisfies question 7:			

[5] City of San Marcos Landscape Manual: https://www.san-marcos.net/home/showdocument?id=13984

Step 2: CAP Measures Consistency			
Checklist Item (Check the appropriate box and provide an explanation for your answer. Please use additional sheets if necessary)	**Yes**	**No**	**N/A**
8. Urban Tree Canopy (Measure C-2) Single-Family Residential: Will the project plant a minimum of one tree per single-family residential unit? *-or-* Multi-Family Residential and Non-Residential: If the project is providing more than 10 parking spaces, will the project plant at least one tree per five parking spaces provided? Check "N/A" if planting the required number of trees on-site would be infeasible.	☐	☐	☐
Please substantiate how the project satisfies question 8:			

ATTACHMENT D.8

PRELIMINARY HYDROLOGY STUDY

PRELIMINARY HYDROLOGY STUDY

FOR

SOUTH SANTA FE TOWNHOMES
2972 &2982 S SANTA FE AVENUE
APN: 217-161-17, 217-161-18, 217-161-19

CITY OF SAN MARCOS, CA

PREPARED FOR:
SANTA FE FLORES LP
P.O. BOX 903
RANCHO SANTA FE, CA 92067

PREPARED BY:
PLSA
34270 PACIFIC COAST HIGHWAY, SUITE B
DANA POINT, CA 92629
949-661-6695

Prepared: June 2025

_____

William J. Suiter, RCE 68964 DATE

TABLE OF CONTENTS

	SECTION
Executive Summary	**1.0**
Introduction	1.1
Existing Conditions	1.2
Proposed Project	1.3
Conclusions	1.4
References	1.5
Methodology	**2.0**
Rational Method	2.1
County of San Diego Criteria	2.2
AES Rational Method Computer Model	2.3
Hydrologic Analysis	**3.0**
Existing Condition Hydrologic Model Output (100-Year Event)	3.1
Proposed Condition Hydrologic Model Output (100-Year Event Undetained)	3.2
Detention Analysis	3.3
Proposed Condition Hydrologic Model Output (100-Year Event Detained)	3.4
Hydromodification Management	3.5
Storm Water Pollutant Control	3.6

Appendices

Appendix A: Hydrology Support Material

Appendix B: Detention Support Material

Appendix C: Existing and Proposed Condition Hydrology Exhibits

1.0 EXECUTIVE SUMMARY

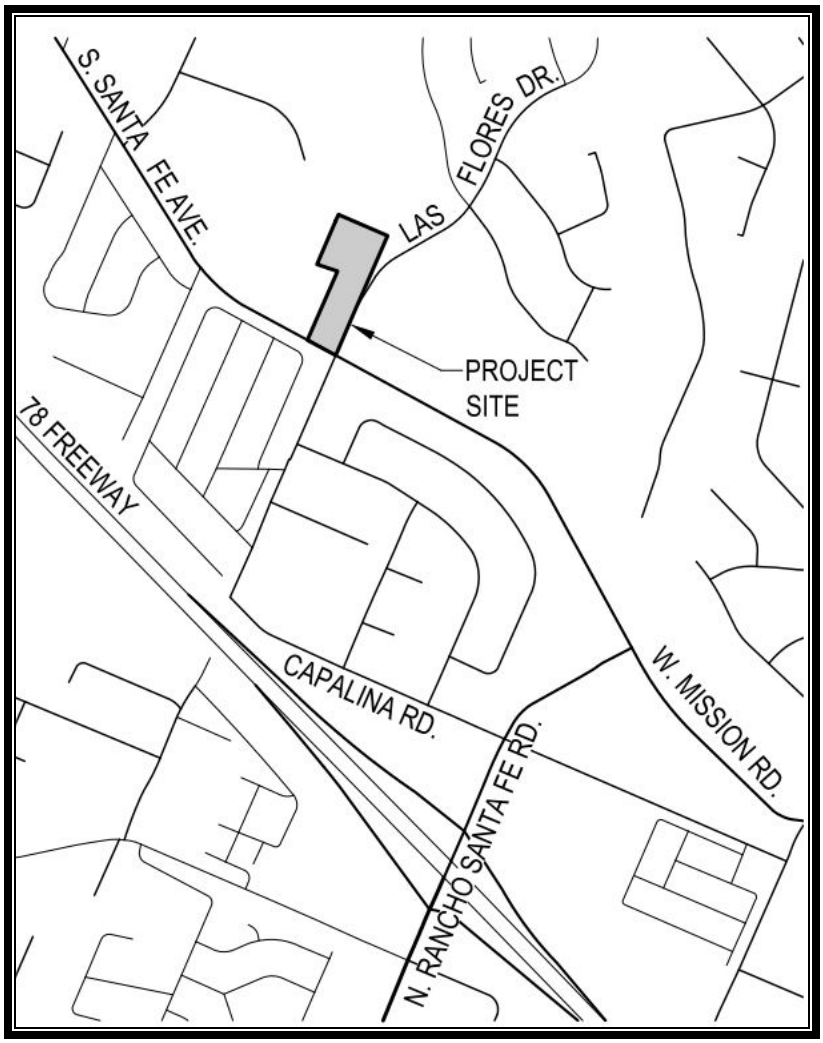
1.1 Introduction

This Hydrology Study for the proposed development has been prepared to analyze the hydrologic characteristics of the existing and proposed project site. This report presents both the methodology and the calculations used for determining the storm water runoff from the project site in the pre-developed (existing) conditions and the post-developed (proposed) conditions produced by the 100-year, 6-hour storm event.

1.2 Existing Conditions

The subject property is located at 2972 & 2982 S. Santa Fe Avenue in the City of San Marcos. The site is west of Las Flores Drive, north of South Santa Fe Avenue, and approximately 1/4 mile north of the 78 freeway.

Vicinity Map



The site is surrounded by residential homes to the north, east and south, and industrial offices to the west. The site is primarily undeveloped with a shared access driveway at the property's southerly boundary. The driveway also provides access to the adjacent commercial property's parking lot and commercial building. The southern portion of the site is relatively flat while the central portion slopes up to an elevated pad at the north end of the site. Las Flores Drive along the property's eastern boundary has approximately a 15-20% grade upward to the north to allow vehicle access over the railroad tracks north of the property. Elevations across the site range from a high of approximately 546 feet in the northeast corner of the property to a low of approximately 494.50 feet at the southwest corner of the property.

The project site is approximately 2.60 acres. In the existing condition, the project site is divided into four drainage basins (see Existing Condition Hydrology Exhibit in Appendix C).

Drainage basin E1 consists of the northerly half graded pad where runoff flows overland and into an existing storm drain inlet structure in the center of the pad. Captured runoff exits the site through an existing 18" RCP at the easterly boundary and into the public storm drain system within Las Flores Drive. Drainage Basin E2 is a similar, but much smaller, sump condition into an existing storm drain inlet structure just southerly of the north half sump condition mentioned above. Captured runoff also exits the site through a separate 18" RCP at the easterly boundary and into the public storm drain system within Las Flores Drive where it confluences with the north half pad runoff. Pipe flows continue to travel southerly down Las Flores Drive before combining with flows from a 54" RCP and 24" RCP. Combined pipe flows are then diverted westerly along South Santa Fe Avenue through a 60" RCP.

Drainage Basin E3 consists of the southern half of the site where runoff generated from the adjacent liquor store property and the project site combines to surface flow southerly. Surface runoff exits the drainage basin through the existing shared access driveway on South Santa Fe Avenue then into the public street's curb and gutter and flows northerly approximately 100' before being captured by an existing curb inlet structure. Captured runoff is diverted across South Santa Fe Avenue through an 18" RCP storm drain pipe and confluences with basins E1 and E2 into the 60" RCP mentioned above. Captured runoff then continues flowing westerly down South Santa Fe Avenue.

Drainage Basin E4 is located along the west edge of Drainage Basin E1 north half pad, a small area of existing graded slopes that surface flows to the west and onto the adjacent property.

Per the United States Department of Agriculture Web Soil Survey, the project site is underlain with Hydrologic Soil Group C and D. Refer to Appendix A for soil information.

Area weighted runoff coefficients were calculated using the methodology (see Appendix A) described in section 3.2.1 of the San Diego County Hydrology Manual and Table 3-1 Runoff Coefficients for Urban Areas. Using the Rational Method Procedure outlined in the San Diego County Hydrology Manual, a peak flow rate was calculated for the existing condition 100-year, 6-hour storm event. The following table summarizes the existing condition hydrologic data.

Summary of Existing Condition 100-yr Peak Discharge Rates

Drainage Basin ID	Area (ac)	Q100 (cfs)
E1	1.24	2.35
E2	0.04	0.10
E3	1.65	5.16
E4	0.14	0.37

Refer to the existing condition hydrologic calculations included in Section 3.1 for detailed analysis.

1.3 Proposed Project

The project proposes to develop the existing site into a 46-unit multifamily residential development consisting of multifamily townhome buildings, access drive, parking stalls, landscape, associated utilities and improvements, proprietary biofiltration systems to meet the requirements for pollutant control and underground storm water storage facilities to meet the requirements for hydromodification management flow control and to mitigate for the 100-year 6-hour storm event.

In the proposed condition, onsite storm water runoff will be collected in a proposed storm drain system and conveyed to proposed proprietary biofiltration systems (BMPs) and subsequently the proposed underground storage facilities (BMPs). Two storm drain systems, each with their own BMPs, are proposed to maintain the site's historical points of discharge.

In the proposed condition, the project site consists of six drainage basins (see Proposed Condition Hydrology Exhibit in Appendix C).

Drainage Basin P1 consists of the proposed site's upper level buildings, buildings 3 and 4, and a portion of existing hillside area from an adjacent lot that drains into the project site at the northeast corner of the property. Runoff from areas P1.0 and P1.1 will be captured by a series of area drains around the buildings and a ribbon gutter within the building drive aisles then drain to a proprietary biofiltration system. Treated flows and peak flows then enter the private storm drain pipe system again and flow to an underground storm water storage facility for detention. Area P1.2 is a self-mitigating area along the north property line of the project where a ditch captures perimeter surface runoff then pipe flows to the underground detention facility to confluence with P1.0 and P1.1. A weir bypass structure downstream of the detention system will control flow rates to meet hydromodification and peak 100-year storm flow rates before confluencing with Area P1.3. Area P1.3 generates surface runoff that drains into the project site from the adjacent hillside lot at the north east corner of the site. A new concrete ditch is proposed along the project's northeasterly boundary to capture off-site run-on from the hillside that will bypass treatment and detention. Detained and bypass flows will then confluence before exiting the project site through an existing 18" RCP storm drain pipe that flows out into the public storm drain system in Las Flores Drive.

Drainage Basin P2 consists of the proposed site's 2 lower level buildings (building 1 and 2), south amenity areas, and portion of the on-site access road. Areas P2.0 and P2.1 generate surface runoff that sheet flows southerly down the access road via curb and gutter into a curb inlet then flows via underground pipe to a proprietary biofiltration system within the southeast amenity area for the project. Treated flows and peak flows from the biofiltration system will then exit and pipe flow to an underground storm water storage facility for detention. Area P2.3 is a self-mitigating area that bypasses treatment but pipe flows to the detention system to confluence with areas P2.0 and P2.1. Subareas P2.4 and P2.5 generate runoff from a portion of the lower access road that sheet flows southerly via curb and gutter into a biofiltration system with a curb inlet, but will bypass detention. Treated and peak flows from the biofiltration system will then exit and pipe flow to confluence with the detention tank's outlet pipe flows. All flow from P2 will confluence with detained flows from P3 and P4 before exiting the project site through a new 18" RCP storm drain pipe and connect to the existing 60" RCP storm drain pipe in South Santa Fe Avenue.

Drainage Basin P3 consists of the proposed site's upper parking areas and building 5. Surface runoff will be captured in a ribbon gutter and routed to a curb inlet which leads to a proprietary biofiltration system. Treated flows and peak flows will enter the private storm drain pipe system then divert pipe flows to an underground storm water storage facility. Flows exiting the detention system will pipe flow down the access road to confluence with detained flows from P4 and P2 before exiting the project site through a new 18" RCP storm drain pipe and connect to the existing 60" RCP storm drain pipe in South Santa Fe Avenue.

Drainage Basin P4 consists of proposed buildings 6 and 7, and the 2:1 slopes between the two buildings. Runoff will be captured in area drains around both buildings that will then pipe flow a proprietary biofiltration system. Treated flows and peak flows will enter the private storm drain pipe system then divert pipe flows to an underground storm water storage facility within the amenity area north of Building 2. Flows exiting the detention system will pipe flow into the access road to confluence with P3 then pipe flow down the access road to confluence with P2 before exiting the project site through a new 18" RCP storm drain pipe and connect to the existing 60" RCP storm drain pipe in South Santa Fe Avenue.

Drainage Basin P5 consists of the adjacent property's existing commercial building, existing parking area and existing undeveloped hillside to the west of the project site. A new concrete ditch is proposed along the project site's westerly boundary along the new access road and a new ribbon gutter along the existing parking area to capture the P5 runoff without comingling with on-site project runoff. Surface flows from P5 then flow southerly via ribbon gutter and onto South Santa Fe Avenue curb and gutter via new curb outlet.

Drainage Basin P6 consists of downslopes on the northwestern side of the project site. Storm water runoff will surface flow onto the adjacent property. This area is infeasible to capture and is considered self-mitigating.

The BMPs will provide hydromodification management flow control and storm water pollutant control to meet the requirements the California Regional Water Quality Control Board San Diego Region municipal storm water permit (Order No. R9-2013-0001, referred to as MS4 Permit). For detailed pollutant control and HMP calculations refer to the report titled "Priority Development Project (PDP) Storm Water Quality Management Plan (SWQMP) for South Santa Fe Townhomes" dated December 2024, prepared by Pasco Laret Suiter & Associates.

Area weighted runoff coefficients were calculated (see Appendix A) using the methodology described in section 3.2.1 of the San Diego County Hydrology Manual and Table 3-1 Runoff Coefficients for Urban Areas. Using the Rational Method Procedure outlined in the San Diego County Hydrology Manual, a peak flow rate was calculated for the proposed condition 100-year, 6-hour storm event. The underground storm water storage facilities provide mitigation for the 100-year 6-hour storm event. A detention analysis was performed to evaluate the effects of the storage facilities on the 100-year, 6-hour storm event peak discharge rates. The following table summarizes the proposed condition hydrologic data.

Summary of Proposed Condition 100-yr Peak Discharge Rates

Drainage Basin ID	Area (ac)	Q100 (cfs) Undetained	Q100 (cfs) Detained
P1	0.74	3.82	0.44
P2	1.12	10.77	2.74
P3	0.40		
P4	0.50		
P5	0.29	2.04	N/A
P6	0.01	0.03	N/A

Refer to the proposed undetained and detained hydrologic calculations and detention analysis included in Sections 3.2, 3.3, 3.4 and Appendix B for detailed analysis.

1.4 Conclusions

Based upon the analyses included in this report, the proposed proprietary biofiltration devices and underground storage facilities are sized to accommodate the increase in peak runoff in the proposed condition and are designed to meet the requirements of the MS4 Permit for pollutant control and hydromodification management.

1.5 References

"San Diego County Hydrology Manual", revised June 2003, County of San Diego, Department of Public Works, Flood Control Section.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at 03.

2.0 METHODOLOGY

Pursuant to the San Diego County Hydrology Manual (SDCHM) dated June 2003, the Rational Method is recommended for analyzing the runoff response from drainage areas up to approximately 1 square mile in size. The proposed project and associated watershed basins are less than 1 square mile, therefore the Rational Method was used to analyze the project's hydrologic characteristics in the existing and proposed conditions.

2.1 Rational Method

The Rational Method (RM) formula estimates the peak rate of runoff based on the variables of area, runoff coefficient, and rainfall intensity. The rainfall intensity (I) is equal to:

$$I = 7.44 \times P_6 \times D^{-0.645}$$

Where:

I = Intensity (in/hr)
P_6 = 6-hour precipitation (in)
D = duration (min – use Tc)

Using the Time of Concentration (Tc) which is the time required for a given element of water that originates at the most remote point of the basin being analyzed to reach the point at which the runoff from the basin is being analyzed, the RM equation determines the storm water runoff rate (Q) for a given basin in terms of flow, typically in cubic feet per second (cfs). The RM equation is as follows:

$$Q = CIA$$

Where:

Q= flow (cfs)
C = runoff coefficient, ratio of rainfall that produces storm water runoff (runoff vs. infiltration/evaporation/absorption/etc)
I = average rainfall intensity for a duration equal to the Tc for the area (in/hr)
A = drainage area contributing to the basin (ac)

The RM equation assumes that the storm event being analyzed delivers precipitation to the entire basin uniformly, and therefore the peak discharge rate will occur when a raindrop that falls at the most remote portion of the basin arrives at the point of analysis. The RM also assumes that the fraction of rainfall that becomes runoff or the runoff coefficient, C, is not affected by the storm intensity, I, or the precipitation zone number.

2.2 County of San Diego Criteria

The County of San Diego has developed its own tables, nomographs, and methodologies for analyzing storm water runoff for areas within the County. The County has also developed precipitation isopluvial contour maps that show even lines of rainfall anticipated from a given storm event (i.e. 100-year, 6-hour storm). The 100-year 6-hour storm event rainfall isopluvial map is included in Appendix A.

One of the variables of the RM equation is the runoff coefficient, C, which is dependent upon land use and soil type. Table 3-1 Runoff Coefficients for Urban Areas in the SDCHM categorizes the land use, the associated development density (dwelling units per acre) and the percentage of impervious area. Each of the categories listed has an associated runoff coefficient for each soil type class. A composite runoff coefficient can also be calculated for an area based on soil type and impervious percentage using the following equation from Section 3.1.2 of the SDCHM:

$$C = 0.90 \times (\% \text{ Impervious}) + Cp \times (1 - \% \text{ Impervious})$$

Where: Cp = Pervious Coefficient Runoff Value for the soil type
(shown in Table 3-1 as Undisturbed Natural Terrain/Permanent Open Space, 0% Impervious)

The onsite hydrologic calculations contained herein figure a composite runoff coefficient for the onsite project areas based on the percentage of impervious area and the percentage of pervious or landscape area. Refer to Appendix A for runoff coefficient calculations.

The County has also illustrated in detail the methodology for determining the time of concentration, in particular the initial time of concentration. The County has adopted the Federal Aviation Agency's (FAA) overland time of flow equation. This equation essentially limits the flow path length for the initial time of concentration to lengths of 100 feet or less, and is dependent on land use and slope.

2.3 AES Rational Method Computer Model

The Rational Method computer program developed by Advanced Engineering Software (AES) satisfies the County of San Diego design criteria, therefore it is the computer model used for this study. The AES hydrologic model is capable of creating independent node-link models of each interior drainage basin and linking these sub-models together at confluence points to determine peak flow rates. The program utilizes base information input by the user to perform calculations for up to 15 hydrologic processes. The required base information includes drainage basin area, storm water facility locations and sizes, land uses, flow patterns, and topographic elevations. The hydrologic conditions were analyzed in accordance with the 2003 County of San Diego Hydrology Manual criteria as follows:

Design Storm	100-year, 6-hour
100-year, 6-hour Precipitation	3.3 inches

Rainfall Intensity	Based on the 2003 County of San Diego Hydrology Manual criteria	
Runoff Coefficient*	Pervious C soil	C = 0.30
	Pervious D soil	C =0.35
	Impervious C soil	C = 0.90
	Impervious D soil	C = 0.90
Soil Type	C & D	

*Weighted runoff coefficients were calculated where appropriate. Refer to Appendix A.

3.0 HYDROLOGIC ANALYSIS

Table 1 below compares and summarizes the hydrologic calculations provided in Sections 3.1, 3.2 and 3.4.

Table 1: Summary of 100-yr Peak Discharge Rates

Existing			**Proposed (Undetained)**			**Proposed (Detained)**		
Drainage Basin ID	*Area (ac)*	*Q100 (cfs)*	*Drainage Basin ID*	*Area (ac)*	*Q100 (cfs)*	*Drainage Basin ID*	*Area (ac)*	*Q100 (cfs)*
E1	1.24	2.35	P1	0.74	3.82	P1	0.74	0.44
E2	0.04	0.10	P2	1.12	10.77	P2	1.12	2.74
E3	1.65	5.16	P3	0.40		P3	0.40	
E4	0.14	0.37	P4	0.50		P4	0.50	
			P5	0.29	2.04			
			P6	0.01	0.03			

Existing (Cumulative)			**Proposed (Detained, Cumulative)**		
Drainage Basin ID	*Area (ac)*	*Q100 (cfs)*	*Drainage Basin ID*	*Area (ac)*	*Q100 (cfs)*
E1, E2 & E3	2.93	**7.61**	P1, P2, P3, P4 & P5	3.05	**5.72**
E4	0.12	0.31	P6	0.01	0.03

3.1 Existing Condition Hydrologic Model Output (100-Year Event)

3.2 Proposed Undetained Condition Hydrologic Model Output (100-Year Event)

3.3 Detention Analysis (100-Year Event)

The underground storm water storage facilities (BMPs) provide hydromodification management flow control and mitigation of the 100-year storm event peak flow rate. The 100-year storm event detention analysis was performed using HydroCAD Stormwater Modeling software. The inflow runoff hydrographs to the BMPs were modeled using RatHydro which is a Rational Method Design Storm Hydrograph software that creates a hydrograph using the results of the Rational Method calculations. HydroCAD has the ability to route the 100-year 6-hour storm event inflow hydrograph through the BMPs. Based on the BMP cross sectional geometry, stage storage and outlet structure data, HydroCAD calculates the detained peak flow rate and detained time to peak.

Each underground storm water storage facility has a low-flow orifice to comply with HMP requirements and an overflow weir for larger storm events. Refer to the plans for facility details.

The proposed BMP at the high side of the project site in Drainage Basin 1 will discharge via proposed storm drain to the east and into the existing public storm drain system within Las Flores Drive. The proposed BMPs throughout the rest of the project site will discharge via proposed storm drain pipe to the south and into the existing public storm drain system within South Santa Fe Drive.

For the proposed detained hydrologic analysis, the effects of the detention provided by the four (4) underground storage facilities were incorporated into the AES analysis. This was done by inserting the results from the HydroCAD analysis, detained peak flow rate and detained time to peak, into the proposed undetained condition AES model to create the proposed detained condition model. Refer to Section 3.4 for the detained AES output.

Based on the results of the HydroCAD analysis, mitigation for the 100-year storm event peak flow rate is provided. Refer to Appendix B for the HydroCAD detention detailed output.

3.4 Proposed Detained Condition Hydrologic Model Output (100-Year Event)

3.5 Hydromodification Management

To satisfy the requirements of the MS4 Permit, a hydromodification management strategy has been developed for the project based on the Final Hydromodification Management Plan dated March 2011, (Final HMP). A continuous simulation model, the Environmental Protection Agency (EPA) Storm Water Management Model (SWMM) version 5.1, was selected to size mitigation measures. The SWMM model is capable of modeling hydromodification management facilities to mitigate the effects of increased runoff from the post-development conditions and use changes that may cause negative impacts (i.e. erosion) to downstream channels. For HMP calculations refer to the report titled "Priority Development Project (PDP) Storm Water Quality Management Plan (SWQMP) for South Santa Fe Townhomes" dated December 2024, prepared by Pasco Laret Suiter & Associates.

3.6 Storm Water Pollutant Control

To meet the requirements of the MS4 Permit, the Modular Wetlands Systems are designed to treat onsite storm water pollutants for the 24-hour, 85th percentile storm event. For detailed pollutant control calculations refer to the report titled "Priority Development Project (PDP) Storm Water Quality Management Plan (SWQMP) for South Santa Fe Townhomes" dated December 2024, prepared by Pasco Laret Suiter & Associates.

APPENDIX A

Hydrology Support Material

County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 6 Hours

Isopluvial (inches)

PROJECT SITE

Orange County

Riverside County

Imperial County

Pacific Ocean

Mexico

OCEANSIDE
VISTA
CARLSBAD
ESCONDIDO
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
S.D. COUNTY
SANTEE
SAN DIEGO
EL CAJON
LA MESA
LEMON GROVE
CORONADO
SD
CHULA VISTA
IMPERIAL BEACH

117°30' 117°15' 117°00' 116°45' 116°30' 116°15'
33°30' 33°15' 33°00' 32°45' 32°30'

DPW GIS
Department of Public Works
Geographic Information Services

SanGIS
We Have San Diego Covered!

THIS MAP IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
Copyright SanGIS. All Rights Reserved.

This products may contain information from the SANDAG Regional Information System which cannot be reproduced without the written permission of SANDAG.

This product may contain information which has been reproduced with permission granted by Thomas Brothers Maps.

N W E S

3 0 3 Miles

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Diego County Area, California

July 27, 20

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Information for All Uses.....8
Soil Properties and Qualities.....8
Soil Qualities and Features.....8
Hydrologic Soil Group (2972/2982 South Santa Fe Avenue).....8
References.....13

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Map—Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)

Map Scale: 1:1,060 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 15, May 27, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 24, 2020—Feb 12, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DaD	Diablo clay, 9 to 15 percent slopes, warm MAAT	C	1.7	72.6%
HrC	Huerhuero loam, 2 to 9 percent slopes	D	0.6	27.4%
Totals for Area of Interest			**2.3**	**100.0%**

Rating Options—Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

South Santa Fe Townhomes
PLSA Project No. 3527
12/6/2024

C = 0.9(%Impervious)+Cp(1 - %Impervious)

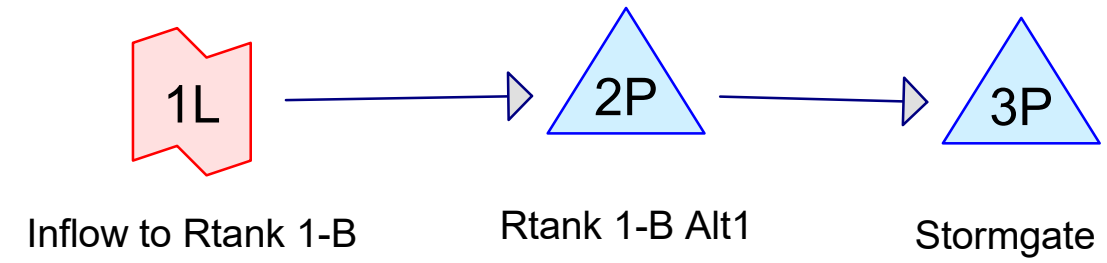
Runoff Coefficient Table		
Soil Type	C	D
Impervious	0.9	0.9
Pervious, Cp	0.3	0.35

EXISTING CONDITION						
Drainage Basin ID	**Total Area (sf)**	**Soil Type**	**Impervious Area (sf)**	**Pervious Area (sf)**	**% Impervious**	**Weighted Runoff Coefficient, C**
E1	53762	C	0	53762	0	0.30
E2	1834	C	0	1834	0	0.30
E3	71987	D	12919	59068	17.9%	0.45
E4	5960	C	0	5960	0	0.30

PROPOSED CONDITION						
Drainage Basin ID	**Total Area (sf)**	**Soil Type**	**Impervious Area (sf)**	**Pervious Area (sf)**	**% Impervious**	**Weighted Runoff Coefficient, C**
P1.0	1783	C	1199	584	67.2%	0.70
P1.1	20578	C	14667	5911	71.3%	0.73
P1.2	2103	C	703	1400	33.4%	0.50
P1.3	7799	C	396	7403	5.1%	0.33
P2.0	3477	C	3195	282	91.9%	0.85
P2.1	15761	C	13663	2098	86.7%	0.82
P2.2	19061	D	10476	8585	55.0%	0.65
P2.3	3163	D	0	3163	0.0%	0.35
P2.4	3221	D	3086	135	95.8%	0.88
P2.5	4215	D	2857	1358	67.8%	0.72
P3.0	4239	C	3477	762	82.0%	0.79
P3.1	2184	C	1577	607	72.2%	0.73
P3.2	11168	C	7807	3361	69.9%	0.72
P4.0	1524	C	1364	160	89.5%	0.84
P4.1	6639	C	4489	2150	67.6%	0.71
P4.2	13806	D	5971	7835	43.2%	0.59
P5.0	5461	D	4391	1070	80.4%	0.79
P5.1	7098	D	7098	0	100.0%	0.90
P6.0	204	C	0	204	0.0%	0.30

APPENDIX B

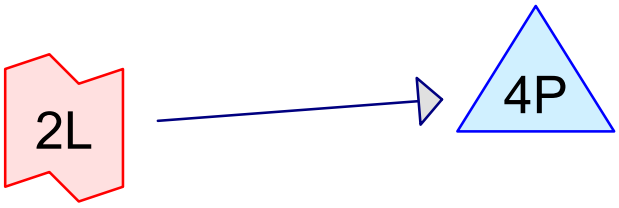
Detention Support Material



Inflow to Rtank 1-B

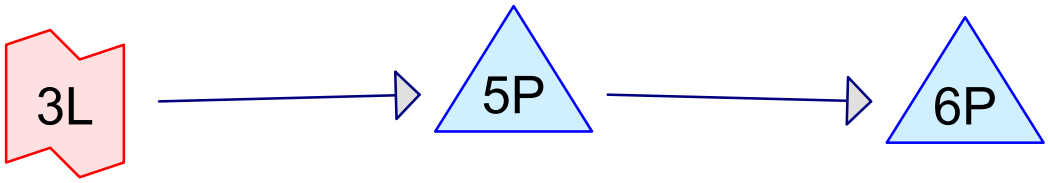
Rtank 1-B Alt1

Stormgate 1



Inflow to StormTrap 2-B

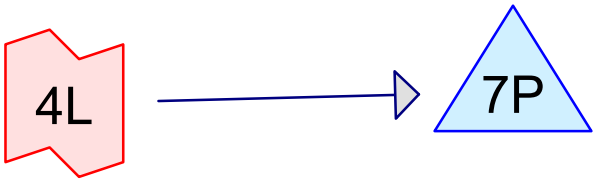
StormTrap 2-B Alt 1



Inflow to Rtank 3-B

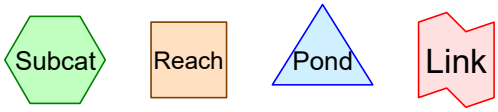
Rtank 3-B Alt1

Stormgate 2



Inflow to StormTrap 4-B

StormTrap 4-B Alt1



Routing Diagram for 3527

Prepared by Pasco Laret Suiter & Assoc, Printed 12/4/2024

HydroCAD® 10.20-5c s/n 10097 © 2023 HydroCAD Software Solutions LLC

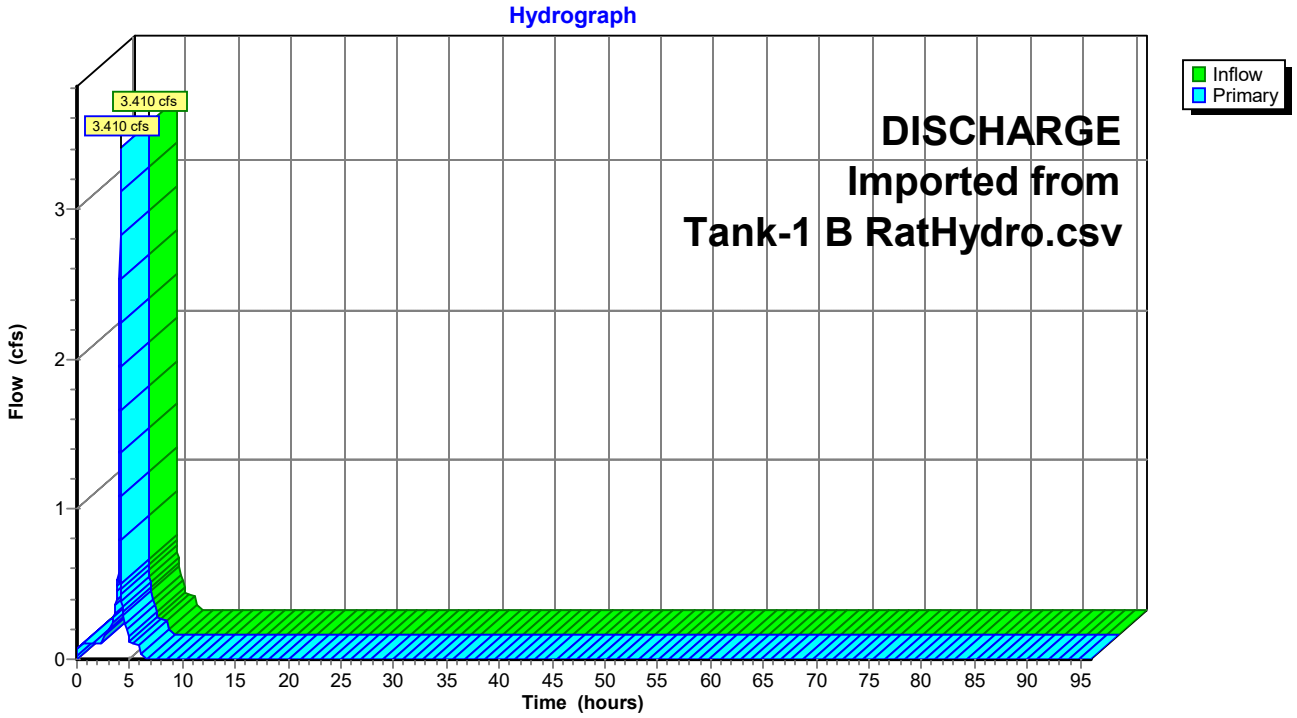
Summary for Link 1L: Inflow to Rtank 1-B

Inflow = 3.410 cfs @ 4.10 hrs, Volume= 0.109 af
Primary = 3.410 cfs @ 4.10 hrs, Volume= 0.109 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 2P : Rtank 1-B Alt1

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

DISCHARGE Imported from Tank-1 B RatHydro.csv

Link 1L: Inflow to Rtank 1-B



Summary for Pond 2P: Rtank 1-B Alt1

Inflow = 3.410 cfs @ 4.10 hrs, Volume= 0.109 af
Outflow = 0.045 cfs @ 6.06 hrs, Volume= 0.109 af, Atten= 99%, Lag= 117.3 min
Primary = 0.045 cfs @ 6.06 hrs, Volume= 0.109 af
Routed to Pond 3P : Stormgate 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 528.62' @ 6.06 hrs Surf.Area= 2,200 sf Storage= 4,212 cf

Plug-Flow detention time= 1,087.8 min calculated for 0.109 af (100% of inflow)
Center-of-Mass det. time= 1,087.6 min (1,300.2 - 212.6)

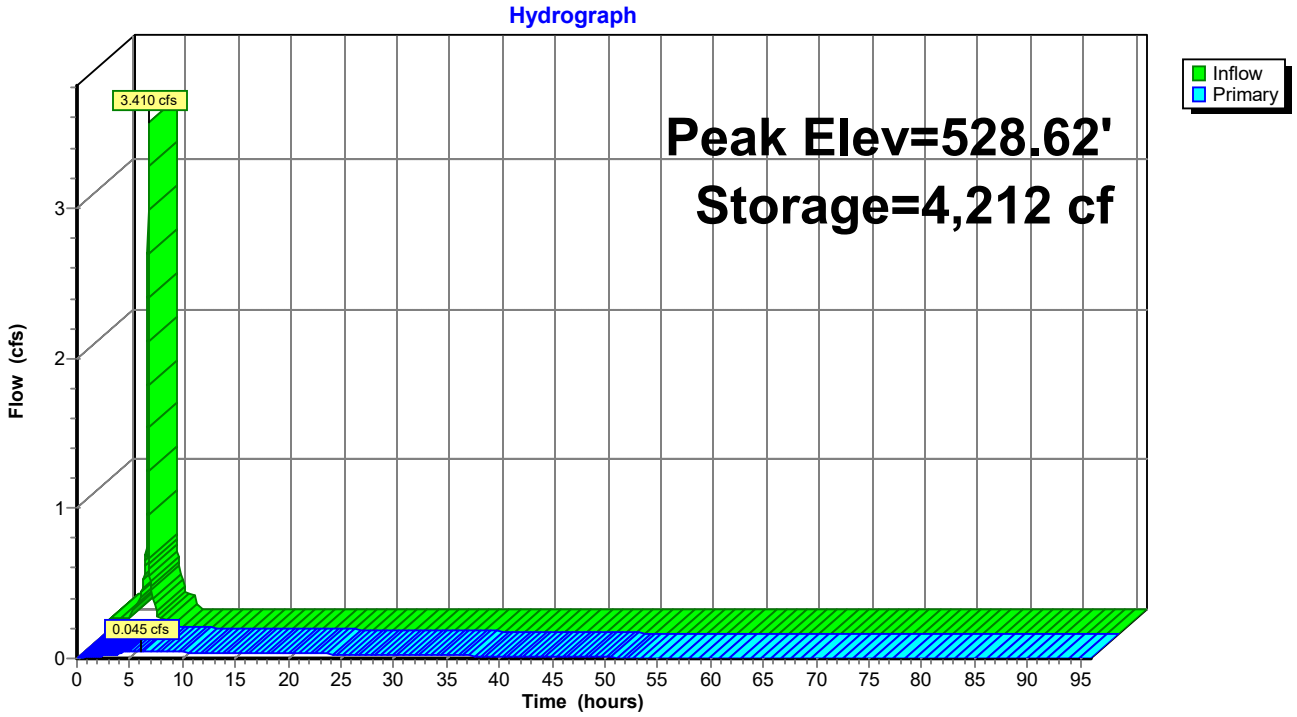
Volume	Invert	Avail.Storage	Storage Description
#1	526.60'	10,701 cf	**Tank 1-B (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.60	2,200	0.0	0	0	2,200
527.00	2,200	95.0	836	836	2,267
528.00	2,200	95.0	2,090	2,926	2,433
529.00	2,200	95.0	2,090	5,016	2,599
530.00	2,200	95.0	2,090	7,106	2,765
531.72	2,200	95.0	3,595	10,701	3,051

Device	Routing	Invert	Outlet Devices
#1	Primary	526.60'	**12.00" Round Culvert** L= 6.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 526.60' / 526.53' S= 0.0117 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	526.60'	**1.10" Vert. Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.045 cfs @ 6.06 hrs HW=528.62' TW=526.63' (Dynamic Tailwater)
↑**1=Culvert** (Passes 0.045 cfs of 4.655 cfs potential flow)
↑**2=Orifice** (Orifice Controls 0.045 cfs @ 6.76 fps)

Pond 2P: Rtank 1-B Alt1



Summary for Pond 3P: Stormgate 1

Inflow	=	0.045 cfs @	6.06 hrs,	Volume=	0.109 af
Outflow	=	0.045 cfs @	6.06 hrs,	Volume=	0.109 af, Atten= 0%, Lag= 0.3 min
Primary	=	0.045 cfs @	6.06 hrs,	Volume=	0.109 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 526.63' @ 6.06 hrs Surf.Area= 16 sf Storage= 2 cf

Plug-Flow detention time= 0.9 min calculated for 0.109 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (1,301.0 - 1,300.2)

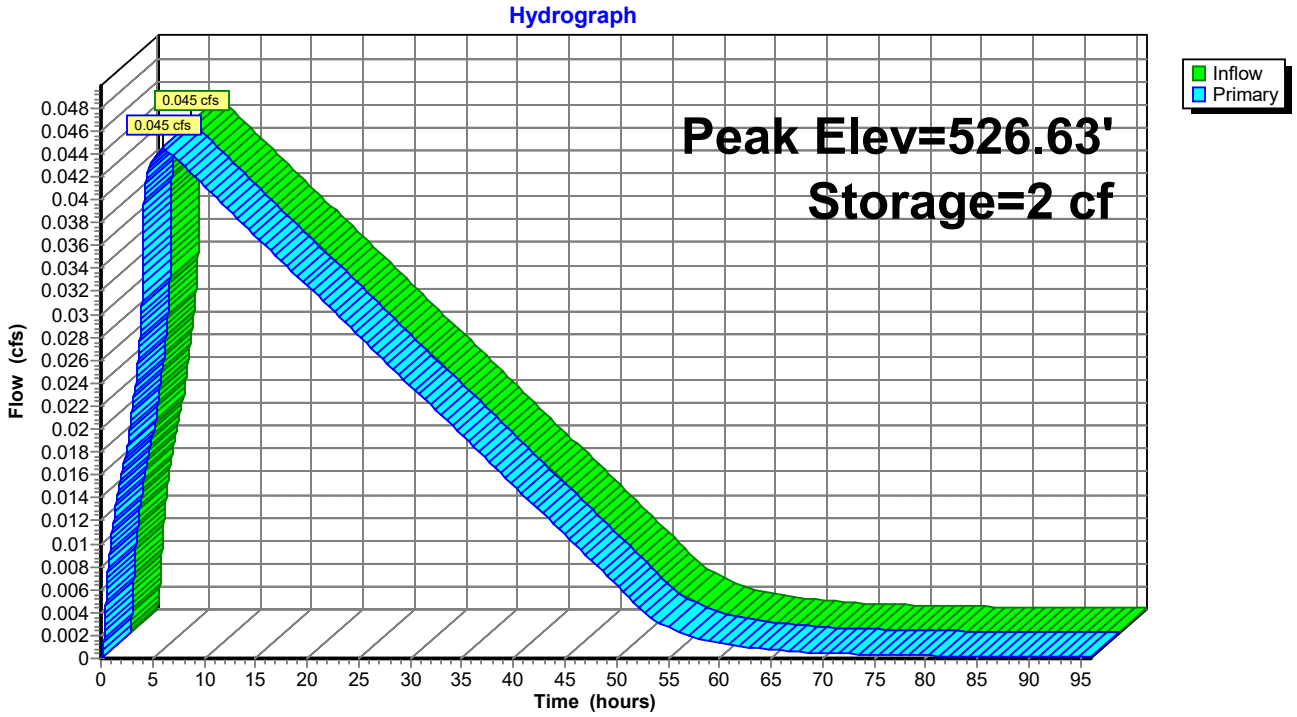
Volume	Invert	Avail.Storage	Storage Description
#1	526.53'	91 cf	**Stormgate (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.53	16	0.0	0	0	16
527.00	16	100.0	8	8	23
528.00	16	100.0	16	24	37
529.00	16	100.0	16	40	51
530.00	16	100.0	16	56	65
531.72	16	100.0	28	83	90
532.22	16	100.0	8	91	97

Device	Routing	Invert	Outlet Devices
#1	Primary	526.53'	**12.00" Round Culvert** L= 13.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 526.53' / 526.08' S= 0.0346 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Primary	531.72'	**Custom Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.50 0.50 Width (feet) 4.00 4.00 0.00

Primary OutFlow Max=0.045 cfs @ 6.06 hrs HW=526.63' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.045 cfs @ 1.08 fps)
└─**2=Custom Weir** (Controls 0.000 cfs)

Pond 3P: Stormgate 1



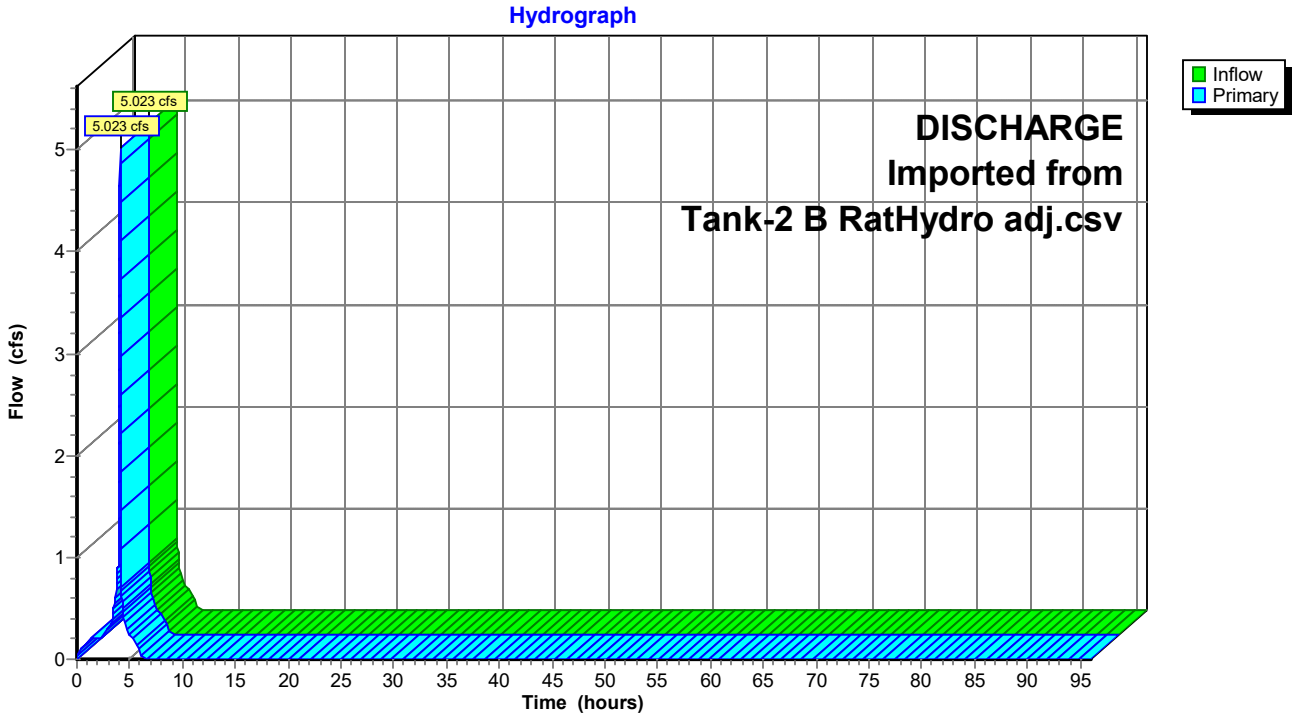
Summary for Link 2L: Inflow to StormTrap 2-B

Inflow = 5.023 cfs @ 4.08 hrs, Volume= 0.182 af
Primary = 5.023 cfs @ 4.08 hrs, Volume= 0.182 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 4P : StormTrap 2-B Alt 1

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

DISCHARGE Imported from Tank-2 B RatHydro adj.csv

Link 2L: Inflow to StormTrap 2-B



Summary for Pond 4P: StormTrap 2-B Alt 1

Inflow	=	5.023 cfs @	4.08 hrs, Volume=	0.182 af	
Outflow	=	1.089 cfs @	4.19 hrs, Volume=	0.148 af,	Atten= 78%, Lag= 6.4 min
Primary	=	1.089 cfs @	4.19 hrs, Volume=	0.148 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 491.85' @ 4.19 hrs Surf.Area= 1,400 sf Storage= 5,858 cf

Plug-Flow detention time= 1,380.3 min calculated for 0.148 af (81% of inflow)
Center-of-Mass det. time= 1,361.2 min (1,573.6 - 212.4)

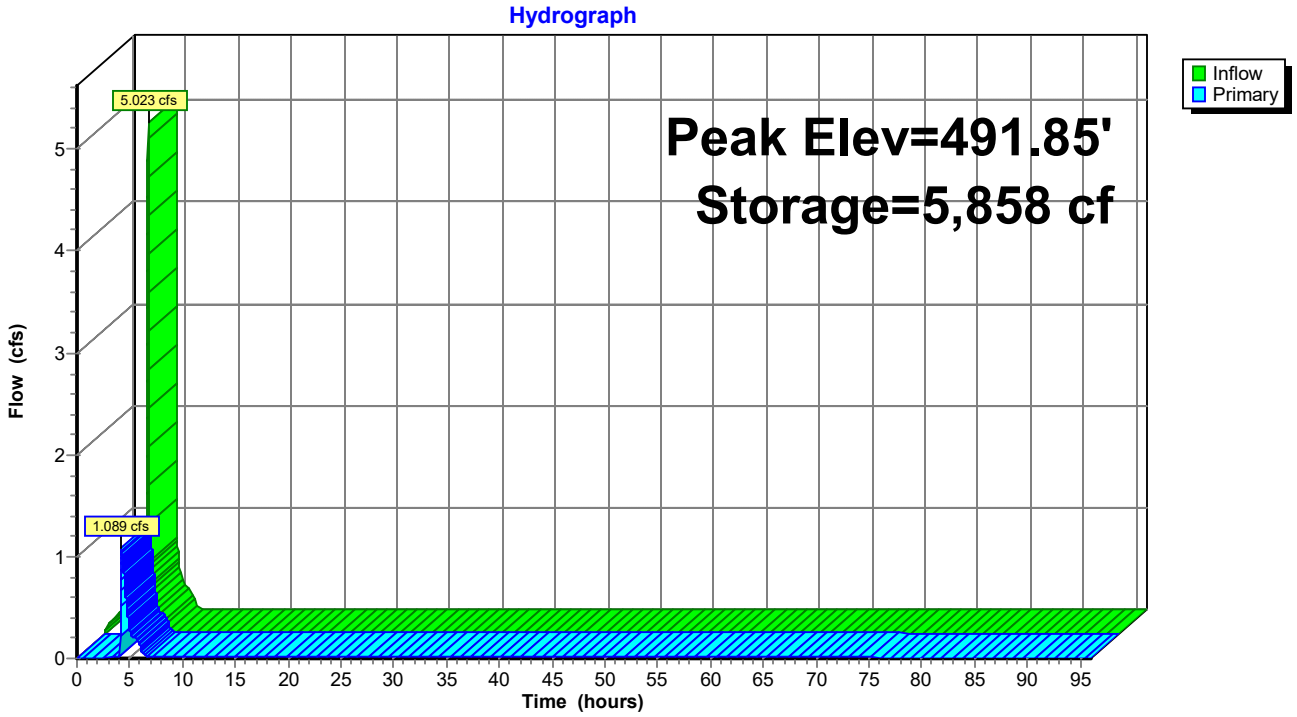
Volume	Invert	Avail.Storage	Storage Description
#1	486.93'	6,747 cf	**Tank 2-B (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
486.93	1,400	0.0	0	0	1,400
488.00	1,400	85.0	1,273	1,273	1,542
489.00	1,400	85.0	1,190	2,463	1,675
490.00	1,400	85.0	1,190	3,653	1,807
490.93	1,400	85.0	1,107	4,760	1,931
491.00	1,400	85.0	83	4,843	1,940
492.00	1,400	85.0	1,190	6,033	2,072
492.60	1,400	85.0	714	6,747	2,152

Device	Routing	Invert	Outlet Devices
#1	Primary	486.93'	**12.00" Round Culvert** L= 34.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 486.93' / 486.59' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	486.93'	**0.50" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	490.93'	**12.00" W x 3.00" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	492.10'	**Custom Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.50 0.50 Width (feet) 5.00 5.00 0.00

Primary OutFlow Max=1.089 cfs @ 4.19 hrs HW=491.85' (Free Discharge)
└**1=Culvert** (Passes 1.089 cfs of 7.953 cfs potential flow)
  ├**2=Orifice** (Orifice Controls 0.015 cfs @ 10.66 fps)
  ├**3=Orifice** (Orifice Controls 1.074 cfs @ 4.30 fps)
  └**4=Custom Weir** (Controls 0.000 cfs)

Pond 4P: StormTrap 2-B Alt 1



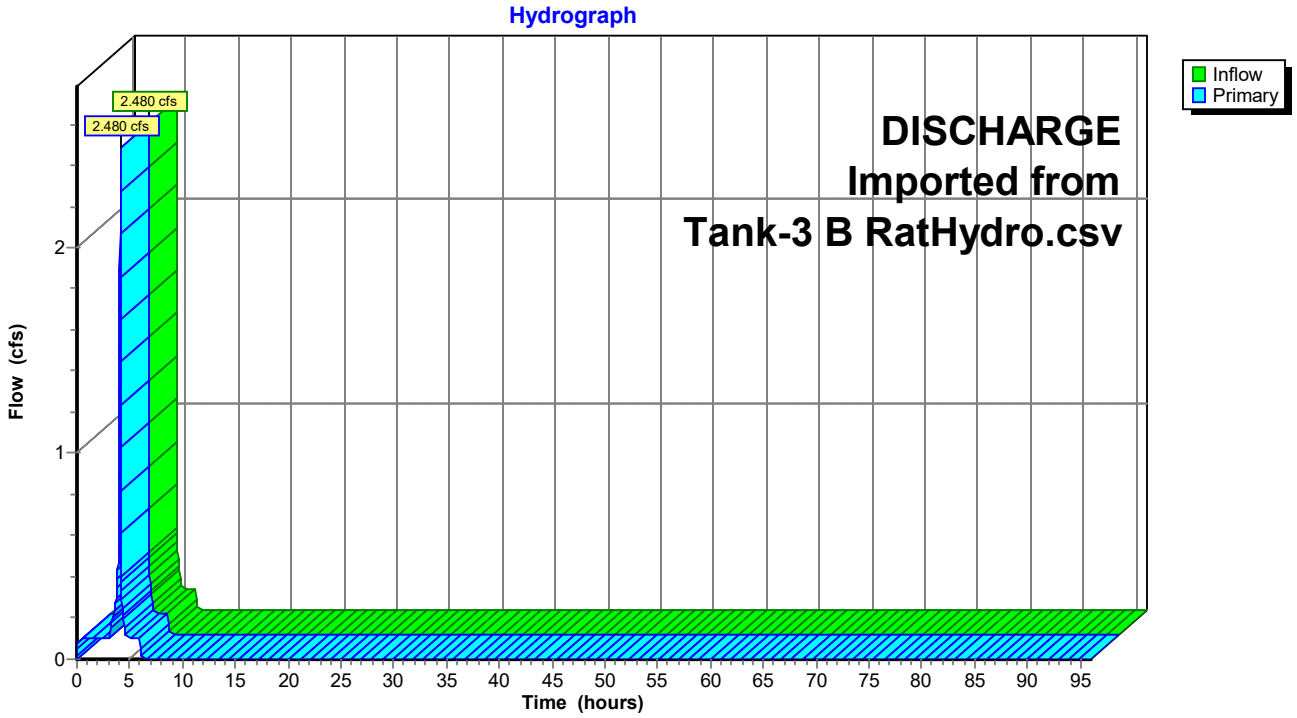
Summary for Link 3L: Inflow to Rtank 3-B

Inflow = 2.480 cfs @ 4.10 hrs, Volume= 0.088 af
Primary = 2.480 cfs @ 4.10 hrs, Volume= 0.088 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 5P : Rtank 3-B Alt1

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

DISCHARGE Imported from Tank-3 B RatHydro.csv

Link 3L: Inflow to Rtank 3-B



Summary for Pond 5P: Rtank 3-B Alt1

Inflow = 2.480 cfs @ 4.10 hrs, Volume= 0.088 af
Outflow = 0.032 cfs @ 6.07 hrs, Volume= 0.088 af, Atten= 99%, Lag= 118.1 min
Primary = 0.032 cfs @ 6.07 hrs, Volume= 0.088 af
Routed to Pond 6P : Stormgate 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 522.92' @ 6.07 hrs Surf.Area= 1,264 sf Storage= 3,435 cf

Plug-Flow detention time= 1,224.1 min calculated for 0.088 af (100% of inflow)
Center-of-Mass det. time= 1,223.7 min (1,431.6 - 207.9)

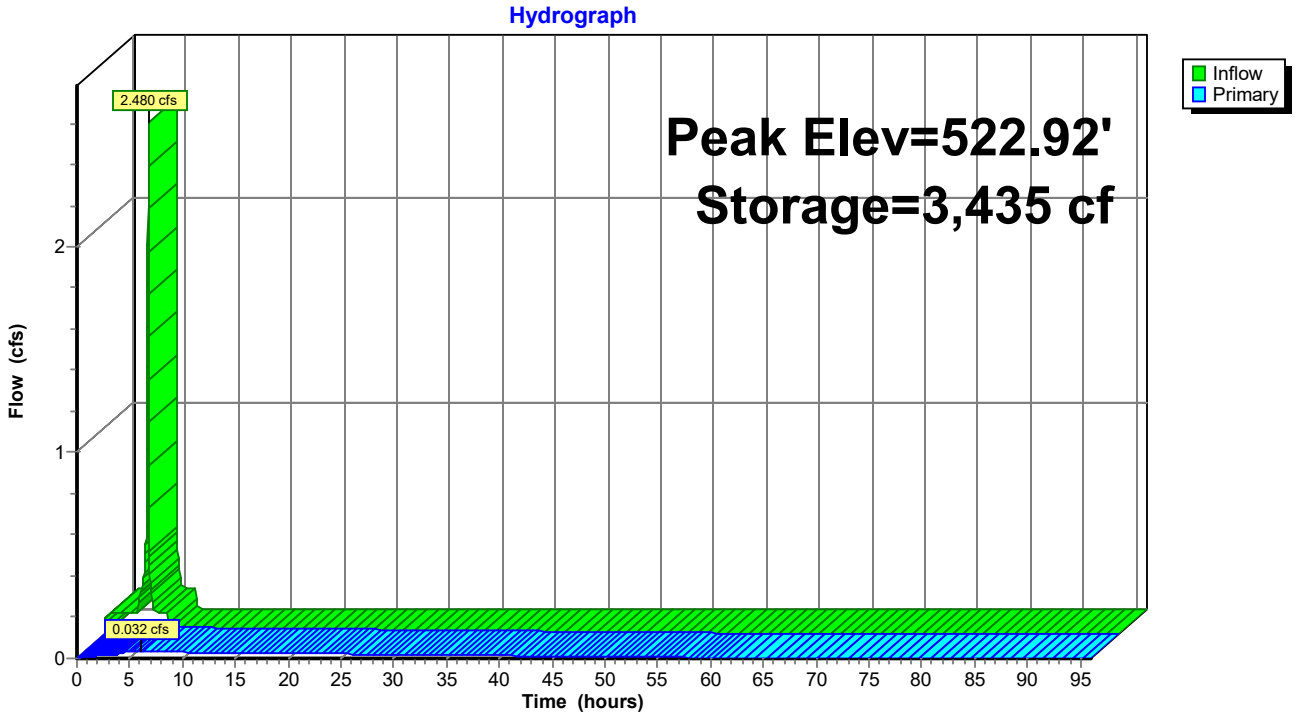
Volume	Invert	Avail.Storage	Storage Description
#1	520.06'	8,406 cf	**Tank 3-B (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.06	1,264	0.0	0	0	1,264
521.00	1,264	95.0	1,129	1,129	1,382
522.00	1,264	95.0	1,201	2,330	1,509
523.00	1,264	95.0	1,201	3,530	1,635
524.00	1,264	95.0	1,201	4,731	1,761
525.00	1,264	95.0	1,201	5,932	1,887
526.00	1,264	95.0	1,201	7,133	2,013
527.06	1,264	95.0	1,273	8,406	2,146

Device	Routing	Invert	Outlet Devices
#1	Primary	520.06'	**12.00" Round Culvert** L= 14.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 520.06' / 519.94' S= 0.0086 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	520.06'	**0.85" Vert. Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.032 cfs @ 6.07 hrs HW=522.92' TW=520.02' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 0.032 cfs of 5.810 cfs potential flow)
↑—**2=Orifice** (Orifice Controls 0.032 cfs @ 8.09 fps)

Pond 5P: Rtank 3-B Alt1



Summary for Pond 6P: Stormgate 2

Inflow = 0.032 cfs @ 6.07 hrs, Volume= 0.088 af
Outflow = 0.032 cfs @ 6.07 hrs, Volume= 0.088 af, Atten= 0%, Lag= 0.4 min
Primary = 0.032 cfs @ 6.07 hrs, Volume= 0.088 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 520.02' @ 6.07 hrs Surf.Area= 16 sf Storage= 1 cf

Plug-Flow detention time= 1.0 min calculated for 0.088 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (1,432.5 - 1,431.6)

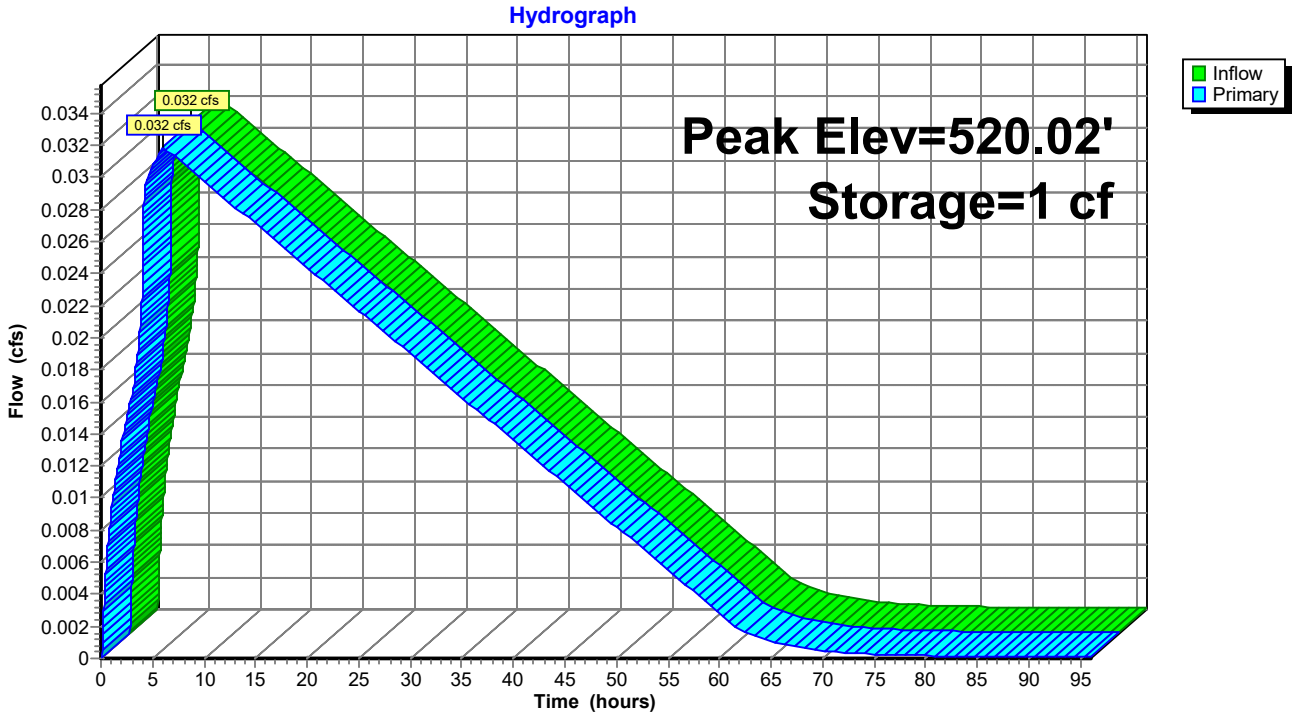
Volume	Invert	Avail.Storage	Storage Description
#1	519.94'	120 cf	**Stormgate 2 (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
519.94	16	0.0	0	0	16
521.00	16	100.0	17	17	31
522.00	16	100.0	16	33	45
523.00	16	100.0	16	49	59
524.00	16	100.0	16	65	74
525.00	16	100.0	16	81	88
526.00	16	100.0	16	97	102
527.06	16	100.0	17	114	117
527.46	16	100.0	6	120	123

Device	Routing	Invert	Outlet Devices
#1	Primary	519.94'	**12.00" Round Culvert** L= 290.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 519.94' / 490.01' S= 0.1032 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Primary	527.06'	**Custom Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.40 0.40 Width (feet) 4.00 4.00 0.00

Primary OutFlow Max=0.032 cfs @ 6.07 hrs HW=520.02' (Free Discharge)
1=Culvert (Inlet Controls 0.032 cfs @ 0.99 fps)
2=Custom Weir (Controls 0.000 cfs)

Pond 6P: Stormgate 2



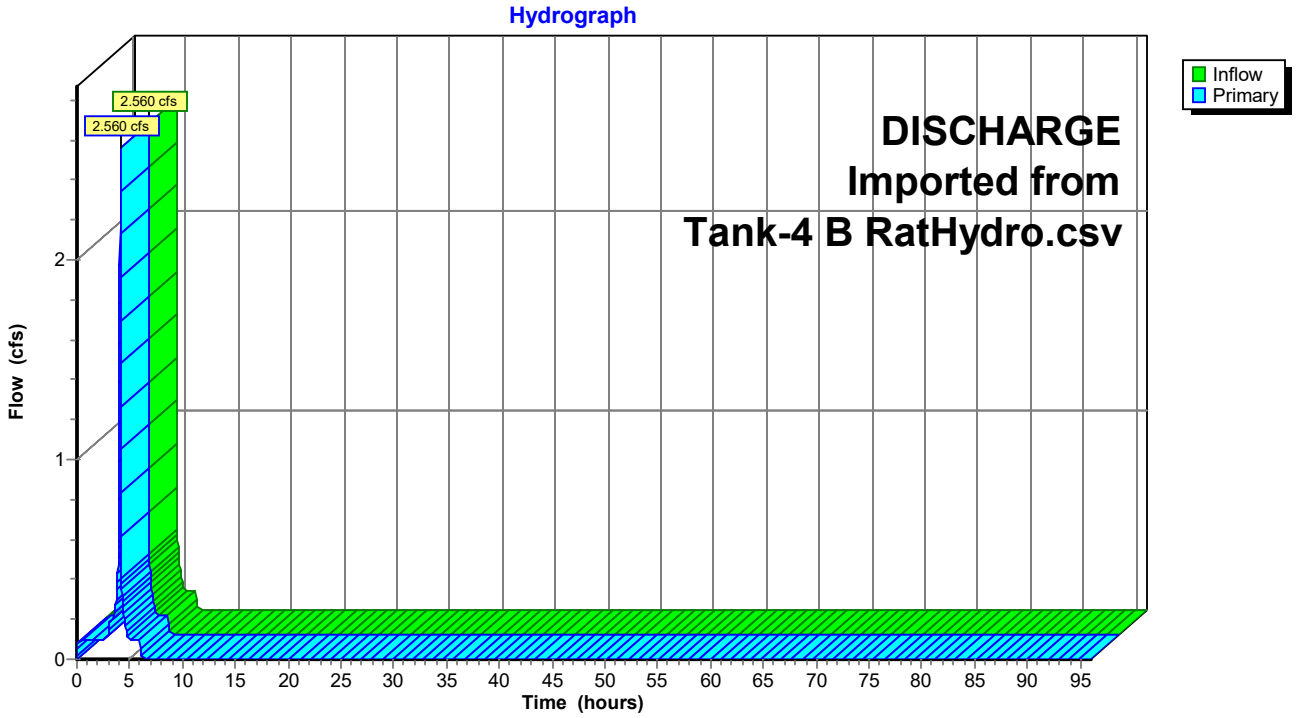
Summary for Link 4L: Inflow to StormTrap 4-B

Inflow = 2.560 cfs @ 4.10 hrs, Volume= 0.092 af
Primary = 2.560 cfs @ 4.10 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 7P : StormTrap 4-B Alt1

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

DISCHARGE Imported from Tank-4 B RatHydro.csv

Link 4L: Inflow to StormTrap 4-B



Summary for Pond 7P: StormTrap 4-B Alt1

Inflow	=	2.560 cfs @	4.10 hrs, Volume=	0.092 af	
Outflow	=	1.225 cfs @	4.16 hrs, Volume=	0.088 af,	Atten= 52%, Lag= 3.7 min
Primary	=	1.225 cfs @	4.16 hrs, Volume=	0.088 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 495.15' @ 4.16 hrs Surf.Area= 600 sf Storage= 2,456 cf

Plug-Flow detention time= 1,094.2 min calculated for 0.088 af (95% of inflow)
Center-of-Mass det. time= 1,087.6 min (1,296.9 - 209.3)

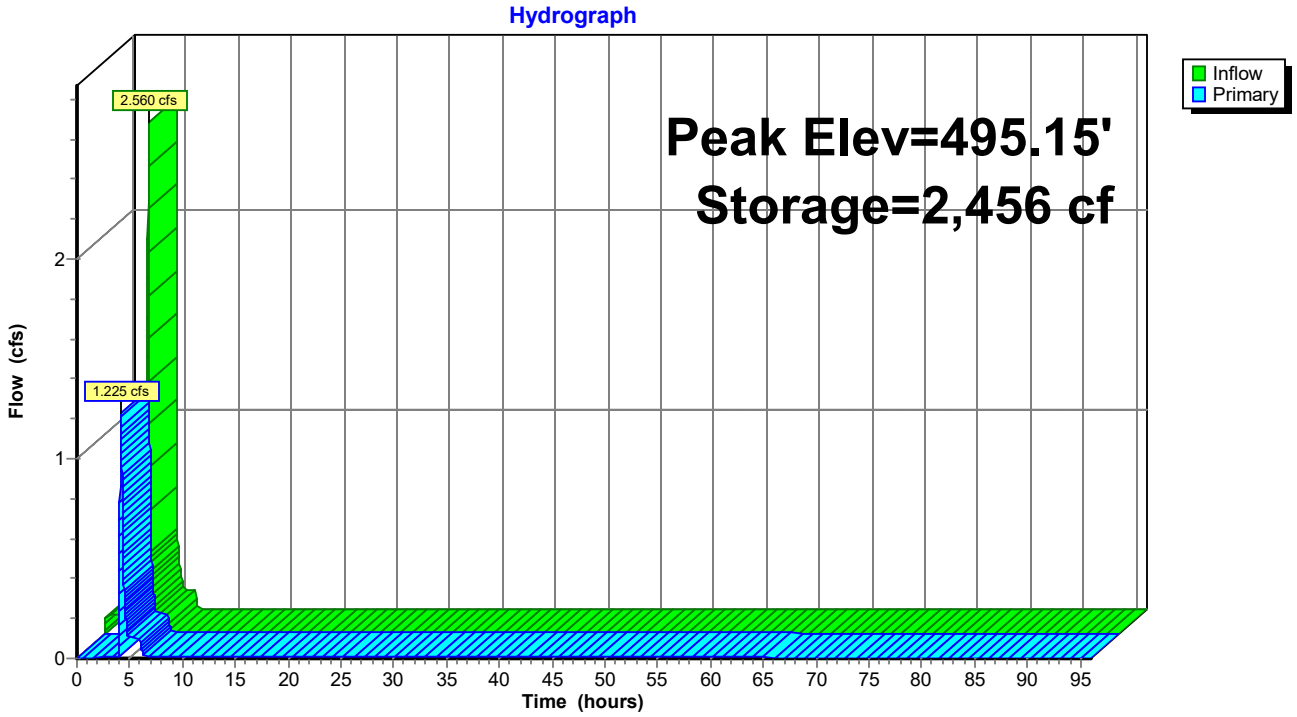
Volume	Invert	Avail.Storage	Storage Description
#1	490.33'	2,892 cf	**Tank 4-B (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.33	600	0.0	0	0	600
491.00	600	85.0	342	342	658
492.00	600	85.0	510	852	745
493.00	600	85.0	510	1,362	832
494.00	600	85.0	510	1,872	919
495.00	600	85.0	510	2,382	1,006
496.00	600	85.0	510	2,892	1,092

Device	Routing	Invert	Outlet Devices
#1	Primary	490.33'	**12.00" Round Culvert** L= 32.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 490.33' / 490.01' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	490.33'	**0.40" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	494.00'	**12.00" W x 3.00" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Primary	495.50'	**Custom Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.50 0.50 Width (feet) 2.50 2.50 0.00

Primary OutFlow Max=1.224 cfs @ 4.16 hrs HW=495.15' (Free Discharge)
- **1=Culvert** (Passes 1.224 cfs of 7.856 cfs potential flow)
  - **2=Orifice** (Orifice Controls 0.009 cfs @ 10.55 fps)
  - **3=Orifice** (Orifice Controls 1.215 cfs @ 4.86 fps)
- **4=Custom Weir** (Controls 0.000 cfs)

Pond 7P: StormTrap 4-B Alt1



APPENDIX C

Existing and Proposed Hydrology Maps

EXISTING CONDITION HYDROLOGY EXHIBIT

SOUTH SANTA FE TOWNHOMES

EX. 60-INCH RCP
EX. 18-INCH RCP
EX. CURB INLET
S. SANTA FE AVENUE
EX. P/L
APN: 217-16-25
PROPERTY BOUNDARY
NODE #155, ELEV=527.29
Q100=0.37 CFS
V100=4.38 FPS
N23°19'42"E
222.07'
PROPERTY BOUNDARY
N23°50'13"E
32.84'
E4.0
A=0.14 AC
L=34'
PROPERTY BOUNDARY
N66°38'44"W
250.78'
PROP. P/L PER
SEPARATE LLA
APN: 217-16-17
NODE #150
ELEV=538.66
PROPERTY BOUNDARY
N71°25'47"W
102.01'
EX. P/L TO BE ADJUSTED
PER SEPARATE LLA
EX. P/L
N23°37'25"E
302.74'
NODE #145
ELEV=494.68
Q100=5.16 CFS
V100=3.24 FPS
L=270'
E3.1
A=1.43 AC
E3.0
A=0.22 AC
NODE #110
ELEV=532.40
528.18 IE
E1.1
A=1.11 AC
EX. CMP RISER
NODE #135
ELEV=538.13
EX. 18-INCH RCP
EX. TYPE B-1 INLET
PROPERTY BOUNDARY
N71°08'14"E
28.75'
PROPERTY BOUNDARY
N23°32'36"E
0.60'
PROPERTY BOUNDARY
N71°30'04"E
8.15'
PROPERTY BOUNDARY
N66°25'12"E
3.98'
EX. P/L TO BE
REMOVED
EX. P/L TO BE
REMOVED
NODE #140
ELEV=517.74
NODE #125
ELEV=523.57
517.12 IE
L=100'
EX. TYPE F
CATCH BASIN
EX. 18-INCH RCP
NODE #130
516.53 IE
Q100=0.10 CFS
V100=2.39 FPS
L=50'
E2.0
A=0.04 AC
L=97'
L=149'
EX. 60-INCH RCP
EX. 36-INCH RCP
EX. 60-INCH RCP
EX. ROW
EX. CURB INLET
EX. 18-INCH RCP
EX. 24-INCH RCP
EX. TYPE B-1 INLET
EX. 18-INCH RCP
EX. 42-INCH RCP
LAS FLORES DRIVE
EX. ROW
EX. TYPE A-4 CLEANOUT
EX. 18-INCH RCP
EX. TYPE A-4 CLEANOUT
NODE #120
ELEV=543.68
NODE #115
526.08 IE
Q100=2.35 CFS
V100=6.21 FPS
PROJECT BOUNDARY
N23°34'48"
167.99'
NODE #105
ELEV=538.97
L=106'
E1.0
A=0.13 AC
NODE #100
ELEV=575.97

LEGEND

- RIGHT OF WAY
- PROPERTY BOUNDARY
- BASIN BOUNDARY
- SUBAREA BOUNDARY
- EXISTING CONTOURS
- LIMITS OF EXISTING BUILDING
- LIMITS OF EXISTING AC PAVEMENT
- STREET CENTERLINE
- SURFACE DRAINAGE DEPTH
- UNDERGROUND PIPE DRAINAGE PATH
- STORM DRAINAGE PIPE

EXISTING CONDITION HYDROLOGY EXHIBIT
SOUTH SANTA FE TOWNHOMES
CITY OF SAN MARCOS

0 20' 40' 60'
GRAPHIC SCALE: 1" = 20'

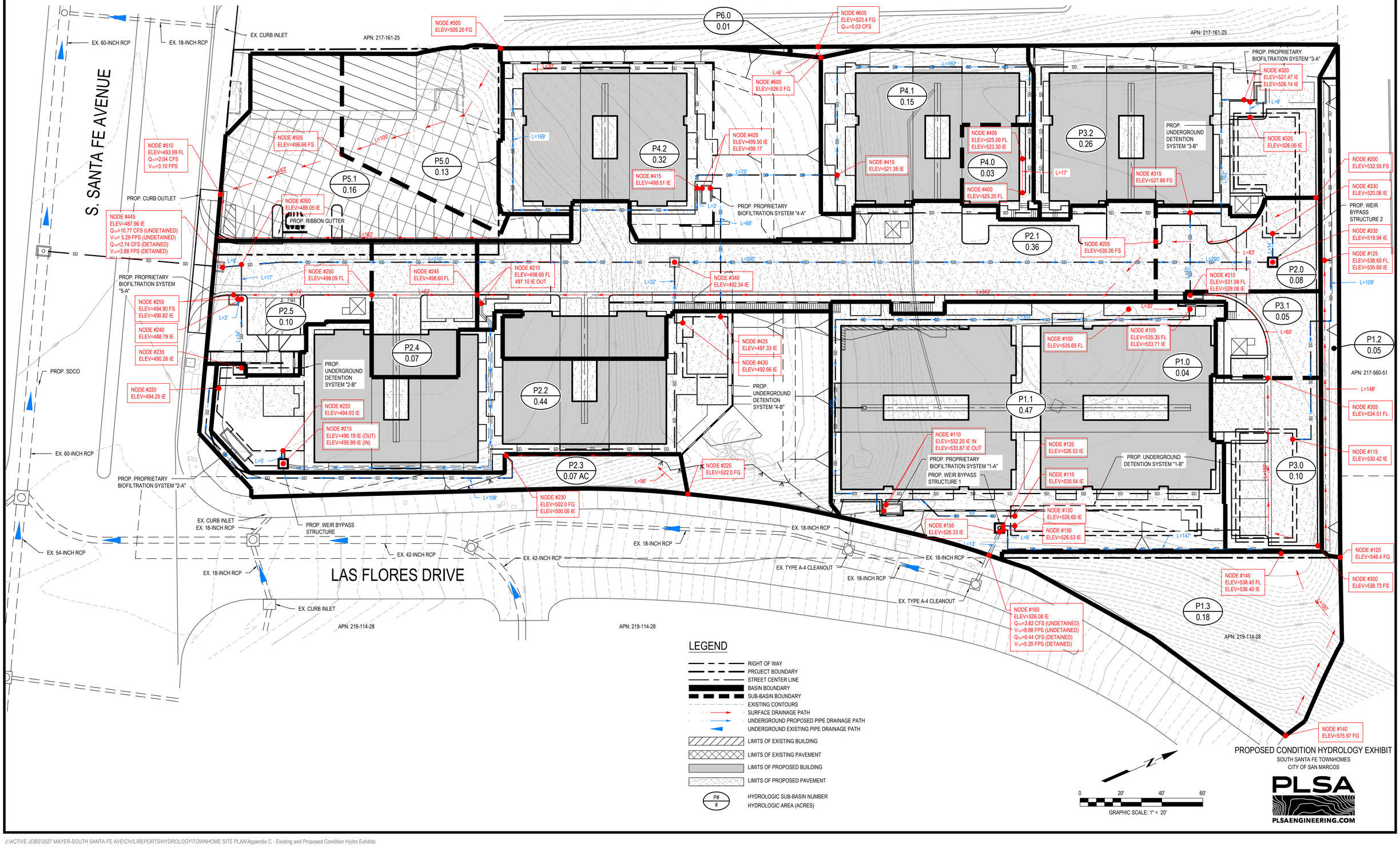
PLSA
PLSAENGINEERING.COM

J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\REPORTS\HYDROLOGY\TOWNHOME SITE PLAN\Appendix C - Existing and Proposed Condition Hydro Exhibits

1805

PROPOSED CONDITION HYDROLOGY EXHIBIT

SOUTH SANTA FE TOWNHOMES



ATTACHMENT D.9

STORMWATER QUALITY MANAGEMENT PLAN

CITY OF SAN MARCOS

PRIORITY DEVELOPMENT PROJECT (PDP)
STORM WATER QUALITY MANAGEMENT PLAN (SWQMP)
FOR
SOUTH SANTA FE TOWNHOMES

2972 & 2982 S SANTA FE AVENUE
SAN MARCOS, CA 92069

ASSESSOR'S PARCEL NUMBER(S):
217-161-18 & 217-161-19, PORTION OF 217-161-17-00

ENGINEER OF WORK:

_____

WILLIAM J. SUITER, RCE 68964

PREPARED FOR:

SANTA FE FLORES LP
P.O. BOX 903
RANCHO SANTA FE, CA 92067
(858) 888-2488

PDP SWQMP PREPARED BY:

PLSA
34270 PACIFIC COAST HIGHWAY, SUITE B
DANA POINT, CA 92629
(949) 661-6695

DATE OF SWQMP:

DECEMBER 2024
JUNE 2025

GRADING PLANS PREPARED BY:

PLSA
34270 PACIFIC COAST HIGHWAY, SUITE B
DANA POINT, CA 92629
(949) 661-6695

Page intentionally left blank

TABLE OF CONTENTS

TABLE OF CONTENTS 3
ACRONYMS 4
PDP SWQMP PREPARER'S CERTIFICATION PAGE 5
PDP SWQMP PROJECT OWNER'S CERTIFICATION PAGE 7
SUBMITTAL RECORD 9
PROJECT VICINITY MAP 10
FORM I-1 APPLICABILITY OF STORM WATER BMP REQUIREMENTS 11
FORM I-2 PROJECT TYPE DETERMINATION CHECKLIST 13
FORM I-3B SITE INFORMATION CHECKLIST FOR PDPS 15
FORM I-4 SOURCE CONTROL BMP CHECKLIST FOR ALL DEVELOPMENT PROJECTS 25
FORM I-5 SITE DESIGN BMP CHECKLIST FOR ALL DEVELOPMENT PROJECTS 27
FORM I-6 SUMMARY OF PDP STRUCTURAL BMPS 29
ATTACHMENT 1 BACKUP FOR PDP POLLUTANT CONTROL BMPS 39
ATTACHMENT 2 BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES 41
ATTACHMENT 3 STRUCTURAL BMP MAINTENANCE INFORMATION 43
ATTACHMENT 4 COPY OF PLAN SHEETS WITH PERMANENT STORM WATER BMPS 45

ACRONYMS

APN	Assessor's Parcel Number
BMP	Best Management Practice
HMP	Hydromodification Management Plan
HSG	Hydrologic Soil Group
MS4	Municipal Separate Storm Sewer System
N/A	Not Applicable
NRCS	Natural Resources Conservation Service
PDP	Priority Development Project
PE	Professional Engineer
SC	Source Control
SD	Site Design
SDRWQCB	San Diego Regional Water Quality Control Board
SIC	Standard Industrial Classification
SWQMP	Storm Water Quality Management Plan

PDP SWQMP PREPARER'S CERTIFICATION PAGE

Project Name: South Santa Fe Townhomes
Permit Application Number: [Insert Permit Application Number]

PREPARER'S CERTIFICATION

I hereby declare that I am the Engineer in Responsible Charge of design of storm water best management practices (BMPs) for this project, and that I have exercised responsible charge over the design of the BMPs as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the PDP requirements of the City of San Marcos BMP Design Manual, which is a design manual for compliance with local City of San Marcos and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2015-0100) requirements for storm water management.

I have read and understand that the City Engineer has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the BMP Design Manual. I certify that this PDP SWQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this PDP SWQMP by the City Engineer is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of storm water BMPs for this project, of my responsibilities for project design.

_____
Engineer of Work's Signature, PE Number & Expiration Date

W. Justin Suiter
Print Name

PLSA
Company

_____
Date

Engineer's Seal:

Page intentionally blank

PDP SWQMP PROJECT OWNER'S CERTIFICATION PAGE

Project Name: South Santa Fe Townhomes
Permit Application Number: [Insert Permit Application Number]

PROJECT OWNER'S CERTIFICATION

This PDP SWQMP has been prepared for Santa Fe Flores, LP by PLSA. The PDP SWQMP is intended to comply with the PDP requirements of the City of San Marcos BMP Design Manual, which is a design manual for compliance with local City of San Marcos and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2015-0100) requirements for storm water management.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan. Once the undersigned transfers its interests in the property, its successor-in-interest shall bear the aforementioned responsibility to implement the best management practices (BMPs) described within this plan, including ensuring on-going operation and maintenance of structural BMPs. A signed copy of this document shall be available on the subject property into perpetuity.

_____
Project Owner's Signature

Paul Mayer_____
Print Name

Santa Fe Flores LP_____
Company

_____
Date

Page intentionally blank

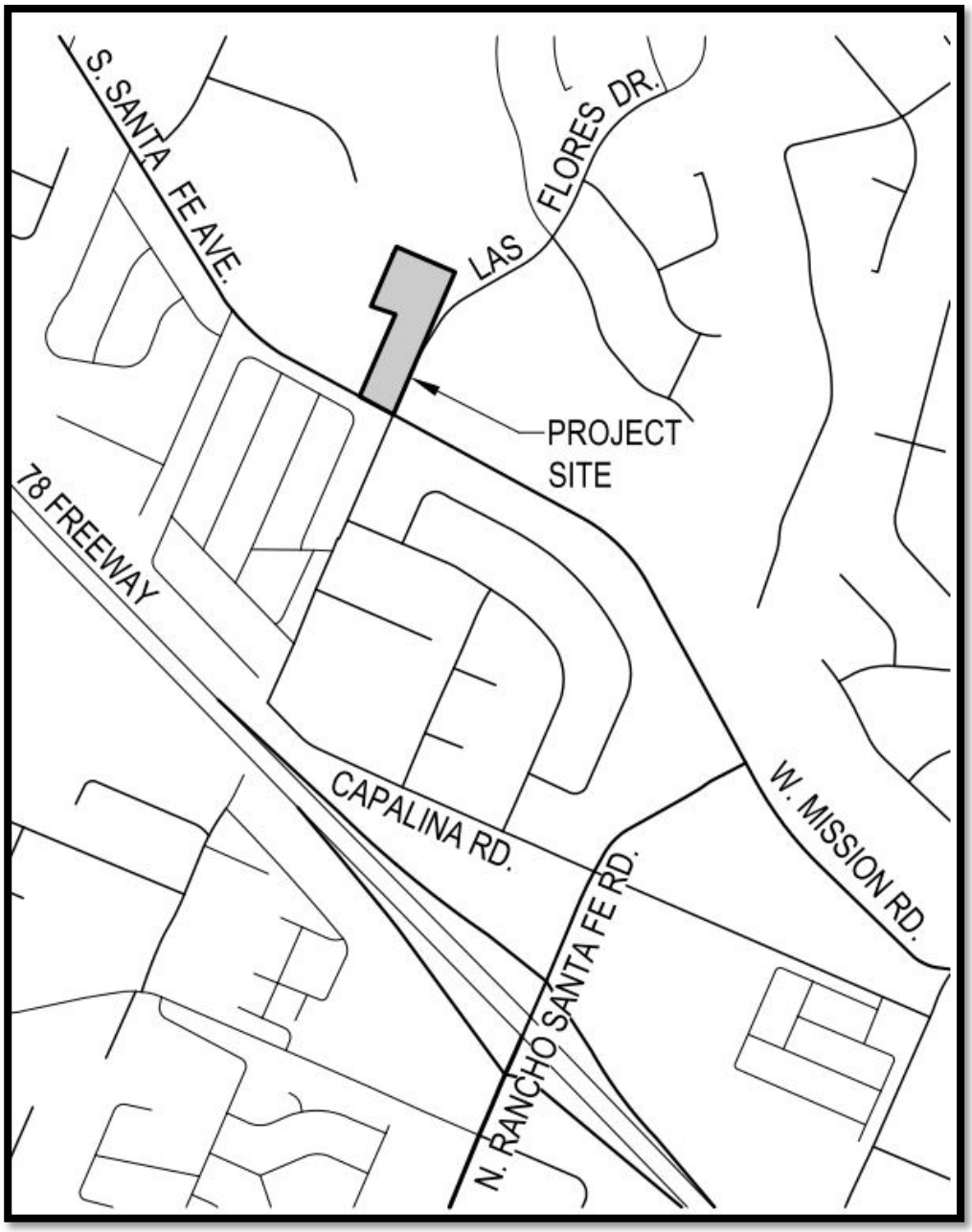
SUBMITTAL RECORD

Use this Table to keep a record of submittals of this PDP SWQMP. Each time the PDP SWQMP is re-submitted, provide the date and status of the project. In column 4 summarize the changes that have been made or indicate if response to plan check comments is included. When applicable, insert response to plan check comments behind this page.

Submittal Number	Date	Project Status	Summary of Changes
1	December 2024	☑Preliminary Design / Planning/ CEQA ☐ Final Design	Initial Submittal
2	June 2025	☑Preliminary Design / Planning/ CEQA Final Design	
3		☐ Preliminary Design / Planning/ CEQA ☐ Final Design	
4		☐ Preliminary Design / Planning/ CEQA ☐ Final Design	

PROJECT VICINITY MAP

Project Name: South Santa Fe Townhomes
Permit Application Number: [Insert Permit Application Number]



FORM I-1 APPLICABILITY OF STORM WATER BMP REQUIREMENTS

Applicability of Storm Water Best Management Practices (BMP) Requirements **(Storm Water Intake Form for all Development Permit Applications)** **For detailed information please visit:** **http://www.san-marcos.net/departments/development-services/stormwater/development-planning**	**Form I-1** [March 15, 2016]

Project Identification	
Project Name: South Santa Fe Townhomes	
Description: Proposed 46-unit multifamily development with parking lots, access drive, outdoor garden area, miscellaneous hardscape and landscaping.	
Permit Application Number (if applicable):	Date: 12/10/2024
Project Address: 2972/2982 South Santa Fe Avenue	

Determination of Requirements

This form is required as part of the City's application process. The purpose of this form is to identify potential land development planning storm water requirements that apply to development projects.

Development projects are defined as construction, rehabilitation, redevelopment, or reconstruction of any public or private projects. In addition, the identification of a development project, as it relates to storm water regulations, would truly apply to development and redevelopment activities that have the potential to contact storm water and contribute a source of pollutants, or reduce the natural absorption and infiltration abilities of the land.

To access the BMP Design Manual, Storm Water Quality Management Plan (SWQMP) templates, and other pertinent information related to this program please refer to:
http://www.san-marcos.net/departments/development-services/stormwater/development-planning

Please answer each of the following steps below, starting with Step 1 and progressing through each step until reaching "Stop".

Step	Answer	Progression
Step 1: Based on the above, Is the project a "development project" (See definition above)? See Section 1.3 of the BMP Design Manual for further guidance if necessary.	☑ Yes	Go to Step 2.
	☐ No	Permanent BMP requirements do not apply. No SWQMP will be required. Provide brief discussion below. **STOP.**
Discussion / justification if the project is not a "development project" (e.g., the project includes *only* interior remodels within an existing building):		
Step 2: Is the project a Standard Project, Priority Development Project (PDP), or exception to PDP definitions? **To answer this item, complete Form I-2, Project Type Determination. See Section 1.4 of the BMP Design Manual *in its entirety* for guidance.** **In addition to Section 1.4, please refer to the City's SWQMP Submittal Requirements form.**	☐ Standard Project	Only Standard Project requirements apply, including Standard Project SWQMP. **STOP.**
	☑ PDP	Standard and PDP requirements apply, including PDP SWQMP. **Go to Step 3 on the following page.**
	☐ Exception to PDP definitions	Standard Project requirements apply, and any additional requirements specific to the type of project. Provide discussion and list any additional requirements below. Prepare Standard Project SWQMP. **STOP.**

Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:		
Form I-1 Page 2, Form Date: March 15, 2016		
Step 3 (PDPs only). Please answer the list of questions in this section to determine if hydromodification requirements reply to the proposed PDP. Does the project:		
Step 3a. Discharge storm water runoff directly to the Pacific Ocean?	☐ Yes	**STOP**. Hydromodification requirements do not apply.
	☑ No	Continue to Step 3b.
Step 3b. Discharge storm water runoff directly to an enclosed embayment, not within protected areas?	☐ Yes	**STOP**. Hydromodification requirements do not apply.
	☑ No	Continue to Step 3c.
Step 3c. Discharge storm water runoff directly to a water storage reservoir or lake, below spillway or normal operating level?	☐ Yes	**STOP**. Hydromodification requirements do not apply.
	☑ No	Continue to Step 3d.
Step 3d. Discharge storm water runoff directly to an area identified in WMAA?	☐ Yes	**STOP**. Hydromodification requirements do not apply.
	☑ No	Hydromodification requirements apply to the project. Go to Step 4.
Discussion / justification if hydromodification control requirements do not apply:		
Step 4 (PDPs subject to hydromodification control requirements only). Does protection of critical coarse sediment yield areas apply based on review of WMAA Potential Critical Coarse Sediment Yield Area Map? See Section 6.2 of the BMP Design Manual for guidance.	☐ Yes	Management measures required for protection of critical coarse sediment yield areas (Chapter 6.2). Stop.
	☑ No	Management measures not required for protection of critical coarse sediment yield areas. Provide brief discussion below. Stop.

FORM I-2 PROJECT TYPE DETERMINATION CHECKLIST

Project Type Determination Checklist			Form I-2 [March 15, 2016]
Project Information			
Project Name/Description: South Santa Fe Townhomes			
Permit Application Number (if applicable):			Date: 12/10/2024
Project Address: 2972/2982 South Santa Fe Avenue			
Project Type Determination: Standard Project or Priority Development Project (PDP)			
The project is (select one): ☑ New Development Redevelopment			
The total proposed newly created or replaced impervious area is: 75,064 ft^2 (1.72) acres			
Is the project in any of the following categories, (a) through (f)?			
Yes ☑	No	(a)	New development projects that create 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes	No ☑	(b)	Redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes	No ☑	(c)	New and redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site), and support one or more of the following uses: (i) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (Standard Industrial Classification (SIC) code 5812). (ii) Hillside development projects. This category includes development on any natural slope that is twenty-five percent or greater. (iii) Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce. (iv) Streets, roads, highways, freeways, and driveways. This category is defined as any paved impervious surface used for the transportation of automobiles, trucks, motorcycles, and other vehicles.

Form I-2 Page 2, Form Date: March 15, 2016			
Yes	No ☑	(d)	New or redevelopment projects that create and/or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharging directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands). *Note: ESAs are areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Board and San Diego Water Board; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and San Diego Water Board; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees. See BMP Design Manual Section 1.4.2 for additional guidance.*
Yes	No ☑	(e)	New development projects, or redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface, that support one or more of the following uses: (i) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. (ii) Retail gasoline outlets (RGOs). This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.
Yes	No ☑	(f)	New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction. *Note: See BMP Design Manual Section 1.4.2 for additional guidance.*

Does the project meet the definition of one or more of the Priority Development Project categories (a) through (f) listed above?

No – the project is <u>not</u> a Priority Development Project (Standard Project).

☑ Yes – the project is a Priority Development Project (PDP).

The following is for redevelopment PDPs only:

The area of existing (pre-project) impervious area at the project site is: _____ ft^2 (A)
The total proposed newly created or replaced impervious area is _____ ft^2 (B)
Percent impervious surface created or replaced (B/A)*100: _____%
The percent impervious surface created or replaced is (select one based on the above calculation):

less than or equal to fifty percent (50%) – only new impervious areas are considered PDP

OR

greater than fifty percent (50%) – the entire project site is a PDP

FORM I-3B SITE INFORMATION CHECKLIST FOR PDPS

Site Information Checklist For PDPs	Form I-3B (PDPs) [March 15, 2016]
Project Summary Information	
Project Name	South Santa Fe Townhomes
Project Address	2972 & 2982 South Santa Fe Avenue San Marcos, CA 92069
Assessor's Parcel Number(s) (APN(s))	217-161-18 & 217-161-19, Portion of 217-161-17-00
Permit Application Number	
Project Hydrologic Unit	Select One: ☐ Santa Margarita 902 ☐ San Luis Rey 903 ☑ Carlsbad 904 ☐ San Dieguito 905 ☐ Penasquitos 906 ☐ San Diego 907 ☐ Pueblo San Diego 908 ☐ Sweetwater 909 ☐ Otay 910 ☐ Tijuana 911
Project Watershed (Complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	Agua Hedionda (904.2)
Parcel Area (total area of Assessor's Parcel(s) associated with the project)	2.60 Acres (113,143 Square Feet)
Area to be Disturbed by the Project (Project Area)	2.62 Acres (114,115 Square Feet)
Project Proposed Impervious Area (subset of Project Area)	1.72 Acres (75,064 Square Feet)
Project Proposed Pervious Area (subset of Project Area)	0.77 Acres (39,051 Square Feet)
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be more than the Parcel Area.	

Form I-3B Page 2 of 10, Form Date: March 15, 2016
Description of Existing Site Condition
Current Status of the Site (select all that apply): ☐ Existing development ☐ Previously graded but not built out ☐ Demolition completed without new construction ☐ Agricultural or other non-impervious use ☑ Vacant, undeveloped/natural Description / Additional Information: Project site partially graded and storm drain improvements installed during construction of Las Flores abutment along the east side of the project site.
Existing Land Cover Includes (select all that apply): ☑ Vegetative Cover ☑ Non-Vegetated Pervious Areas ☑ Impervious Areas Description / Additional Information:
Underlying Soil belongs to Hydrologic Soil Group (select all that apply): ☐ NRCS Type A ☐ NRCS Type B ☑ NRCS Type C ☑ NRCS Type D
Approximate Depth to Groundwater (GW): ☐ GW Depth < 5 feet ☐ 5 feet < GW Depth < 10 feet ☐ 10 feet < GW Depth < 20 feet ☑ GW Depth > 20 feet
Existing Natural Hydrologic Features (select all that apply): ☐ Watercourses ☐ Seeps ☐ Springs ☐ Wetlands ☑ None Description / Additional Information:

Description of Existing Site Drainage Patterns

How is storm water runoff conveyed from the site? At a minimum, this description should answer:
(1) whether existing drainage conveyance is natural or urban;
(2) Is runoff from offsite conveyed through the site? if yes, quantify all offsite drainage areas, design flows, and locations where offsite flows enter the project site, and summarize how such flows are conveyed through the site;
(3)Provide details regarding existing project site drainage conveyance network, including any existing storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels; and
(4) Identify all discharge locations from the existing project site along with a summary of conveyance system size and capacity for each of the discharge locations. Provide summary of the pre-project drainage areas and design flows to each of the existing runoff discharge locations.

Describe existing site drainage patterns (Refer to the "Preliminary Hydrology Study for South Santa Fe Townhomes" prepared by Pasco Laret Suiter & Associates dated December 2024.):

The site is surrounded by residential homes to the north, east and south, and industrial offices to the west. The site is primarily undeveloped with a shared access driveway at the property's southerly boundary. The driveway also provides access to the adjacent commercial property's parking lot and commercial building. The southern portion of the site is relatively flat while the central portion slopes up to an elevated pad at the north end of the site. Las Flores Drive along the property's eastern boundary has approximately a 15-20% grade upward to the north to allow vehicle access over the railroad tracks north of the property. Elevations across the site range from a high of approximately 546 feet in the northeast corner of the property to a low of approximately 494.50 feet at the southwest corner of the property. The existing site is divided into four drainage basins:

The first drainage basin consists of the northerly half graded pad where runoff flows overland and into an existing storm drain inlet structure in the center of the pad. Captured runoff exits the site through an existing 18" RCP at the easterly boundary and into the public storm drain system within Las Flores Drive.

The second drainage basin is a similar, but much smaller, sump condition into a storm drain inlet structure exists just southerly of the north half sump condition mentioned above. Captured runoff also exits the site through a separate 18" RCP at the easterly boundary and into the public storm drain system within Las Flores Drive where it confluences with the north half pad runoff. Pipe flows continue to travel southerly down Las Flores Drive before combining with flows from a 54" RCP and 24" RCP. Combined pipe flows are then diverted to the west along South Santa Fe Avenue through a 60" RCP.

The third drainage basin consists of the southern half of the site where runoff generated from the adjacent liquor store property and the project site combines to surface flow southerly. Surface runoff exits the drainage basin through the existing shared access driveway on South Santa Fe Avenue then into the public street's curb and gutter and flows northerly approximately 100' before being captured by an existing curb inlet structure. Captured runoff is diverted across South Santa Fe Avenue through an 18" RCP storm drain pipe and into a 60" RCP that continues flowing westerly.

The fourth drainage basin is located along the west edge of Drainage Basin E1 north half pad, a small area of existing graded slopes that surface flows to the west and onto the adjacent property.

Description of Proposed Site Development

Project Description / Proposed Land Use and/or Activities:
A Multi-Family Site Development Plan and Tentative Subdivision Map (TSP) for Condominium Purposes to allow 46 dwelling units on a 2.60 acre site.

List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):

The project proposes to develop the existing vacant property and construct a new multi-family residential development with approximately 46 dwelling units, at-grade parking lots, access drives, hardscape and landscape, and associated improvements including proprietary biofiltration storm water devices that meet the requirements for pollutant control and an underground storm water storage facilities to comply with hydromodification management flow control and to mitigate the 100-year storm event peak discharge rate.

List/describe proposed pervious features of the project (e.g., landscape areas):

Proposed pervious features include landscape areas.

Does the project include grading and changes to site topography?
☑ Yes
☐ No

Description / Additional Information:

The project site will be graded to create pads suitable for the construction of structures, improvements and associated underground utilities.

Description of Proposed Site Drainage Patterns

Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)?

☑ Yes

☐ No

If yes, provide details regarding the proposed project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels, and the method for conveying offsite flows through or around the proposed project site. Identify all discharge locations from the proposed project site along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide a summary of pre- and post-project drainage areas and design flows to each of the runoff discharge locations. Reference the drainage study for detailed calculations.

Describe proposed site drainage patterns (refer to "Preliminary Hydrology Study for South Santa Fe Townhomes prepared by Pasco Laret Suiter & Associates dated December 2024.):

The proposed site is divided into six (6) drainage basins:

Drainage Basin P1 consists of the proposed site's upper level buildings, buildings 3 and 4, and a portion of existing hillside area from an adjacent lot that drains into the project site at the northeast corner of the property. Runoff from areas P1.0 and P1.1 will be captured by a series of area drains around the buildings and a ribbon gutter within the building drive aisles then drain to a proprietary biofiltration system. Treated flows and peak flows then enter the private storm drain pipe system again and flow to an underground storm water storage facility for detention. Area P1.2 is a self-mitigating area along the north property line of the project where a ditch captures perimeter surface runoff then pipe flows to the underground detention facility to confluence with P1.0 and P1.1. A weir bypass structure downstream of the detention system will control flow rates to meet hydromodification and peak 100-year storm flow rates before confluencing with Area P1.3. Area P1.3 generates surface runoff that drains into the project site from the adjacent hillside lot at the north east corner of the site. A new concrete ditch is proposed along the project's northeasterly boundary to capture off-site run-on from the hillside that will bypass treatment and detention. Detained and bypass flows will then confluence before exiting the project site through an existing 18" RCP storm drain pipe that flows out into the public storm drain system in Las Flores Drive.

Drainage Basin P2 consists of the proposed site's 2 lower level buildings (building 1 and 2), south amenity areas, and portion of the on-site access road. Areas P2.0 and P2.1 generate surface runoff that sheet flows southerly down the access road via curb and gutter into a curb inlet then flows via underground pipe to a proprietary biofiltration system within the southeast amenity area for the project. Treated flows and peak flows from the biofiltration system will then exit and pipe flow to an underground storm water storage facility for detention. Area P2.3 is a self-mitigating area that bypasses treatment but pipe flows to the detention system to confluence with areas P2.0 and P2.1. Subareas P2.4 and P2.5 generate runoff from a portion of the lower access road that sheet flows southerly via curb and gutter into a biofiltration system with a curb inlet, but will bypass detention. Treated and peak flows from the biofiltration system will then exit and pipe flow to confluence with the detention tank's outlet pipe flows. All flow from P2 will confluence with detained flows from P3 and P4 before exiting the project site through a new 18" RCP storm drain pipe and connect to the existing 60" RCP storm drain pipe in South Santa Fe Avenue.

Drainage Basin P3 consists of the proposed site's upper parking areas and building 5. Surface runoff will be captured in a ribbon gutter and routed to a curb inlet which leads to a proprietary biofiltration system. Treated flows and peak flows will enter the private storm drain pipe system then divert pipe flows to an underground storm water storage facility. Flows exiting the detention system will pipe flow down the access road to confluence with detained flows from P4 and P2 before exiting the project site through a new 18" RCP storm drain pipe and connect to the existing 60" RCP storm drain pipe in South Santa Fe Avenue.

Drainage Basin P4 consists of proposed buildings 6 and 7, and the 2:1 slopes between the two buildings. Runoff will be captured in area drains around both buildings that will then pipe flow a proprietary biofiltration system. Treated flows and peak flows will enter the private storm drain pipe system then divert pipe flows to an underground storm water storage facility within the amenity area north of Building 2. Flows exiting the detention system will pipe flow into the access road to confluence with P3 then pipe flow down the access road to confluence with P2 before exiting the project site through a new 18" RCP storm drain pipe and connect to the existing 60" RCP storm drain pipe in South Santa Fe Avenue.

Drainage Basin P5 consists of the adjacent property's existing commercial building, existing parking area and existing undeveloped hillside to the west of the project site. A new concrete ditch is proposed along the project site's westerly boundary along the new access road and a new ribbon gutter along the existing parking area to capture the P5 runoff without comingling with on-site project runoff. Surface flows from P5 then flow southerly via ribbon gutter and onto South Santa Fe Avenue curb and gutter via new curb outlet.

Drainage Basin P6 consists of downslopes on the northwestern side of the project site. Storm water runoff will surface flow onto the adjacent property. This area is infeasible to capture and is considered self-mitigating.

Identify whether any of the following features, activities, and/or pollutant source areas will be present (select all that apply):

☑ On-site storm drain inlets
☑ Interior floor drains and elevator shaft sump pumps
☐ Interior parking garages
☐ Need for future indoor & structural pest control
☑ Landscape/Outdoor Pesticide Use
☐ Pools, spas, ponds, decorative fountains, and other water features
☐ Food service
☑ Refuse areas
☐ Industrial processes
☐ Outdoor storage of equipment or materials
☐ Vehicle and Equipment Cleaning
☐ Vehicle/Equipment Repair and Maintenance
☐ Fuel Dispensing Areas
☐ Loading Docks
☐ Fire Sprinkler Test Water
☐ Miscellaneous Drain or Wash Water
☑ Plazas, sidewalks, and parking lots

Description / Additional Information:

Form I-3B Page 7 of 10, Form Date: March 15, 2016		
Identification and Narrative of Receiving Water and Pollutants of Concern		
Describe flow path of storm water from the project site discharge location(s), through urban storm conveyance systems as applicable, to receiving creeks, rivers, and lagoons as applicable, and ultimate discharge to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable): Storm water runoff that leaves the project site enters the existing 60" RCP in South Santa Fe Avenue then diverts flow westerly approximately 600' down South Santa Fe Avenue then heads southerly approximately 400' down Community drive before entering an unlined vegetated channel/stream. Runoff continues to travel westerly downstream through the Agua Hedionda Hydrologic Area eventually outlets into the Agua Hedionda Lagoon and the Pacific Ocean.		
List any 303(d) impaired water bodies within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies:		
303(d) Impaired Water Body	**Pollutant(s)/Stressor(s)**	**TMDLs / WQIP Highest Priority Pollutant**
Agua Hedionda Creek	Benthic Community Effects, Bifenthrin, Chlorpyrifos, Cypermethrin, Cyfluthrin, Cyhalothrin, Lambda, Deltamehrin, Indicator Bacteria, Manganese, Pyrethroids, Malathion, Nitrogen, Phosphorus, Selenium, Total Dissolved Solids, Toxicity, Turbidity	Benthic Community Effects, Bifenthrin, Chlorpyrifos, Cypermethrin, Cyfluthrin, Cyhalothrin, Lambda, Deltamehrin, Indicator Bacteria, Manganese, Pyrethroids, Malathion, Nitrogen, Phosphorus, Selenium, Total Dissolved Solids, Toxicity, Turbidity
Agua Hedionda Lagoon	Toxicity	Toxicity

Identification of Project Site Pollutants*

***Identification of project site pollutants is only required if flow-thru treatment BMPs are implemented onsite in lieu of retention or biofiltration BMPs (note the project must also participate in an alternative compliance program unless prior lawful approval to meet earlier PDP requirements is demonstrated)**

Identify pollutants expected from the project site based on all proposed use(s) of the site (see BMP Design Manual Appendix B.6):

Pollutant	Not Applicable to the Project Site	Expected from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment		X	X
Nutrients		X	X
Heavy Metals			
Organic Compounds			
Trash & Debris		X	X
Oxygen Demanding Substances		X	
Oil & Grease		X	
Bacteria & Viruses		Potential	X
Pesticides		X	

Hydromodification Management Requirements

Do hydromodification management requirements apply (see Section 1.6 of the BMP Design Manual)?

☑ Yes, hydromodification management flow control structural BMPs required.

☐ No, the project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐ No, the project will discharge runoff directly to conveyance channels whose bed and bank are concrete-lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐ No, the project will discharge runoff directly to an area identified as appropriate for an exemption by the WMAA for the watershed in which the project resides.

Description / Additional Information (to be provided if a 'No' answer has been selected above):

Critical Coarse Sediment Yield Areas*

***This Section only required if hydromodification management requirements apply**

Based on the maps provided within the WMAA, do potential critical coarse sediment yield areas exist within the project drainage boundaries?

☐ Yes

☑ No, No critical coarse sediment yield areas to be protected based on WMAA maps

If yes, have any of the optional analyses presented in Section 6.2 of the BMP Design Manual been performed?

☐ 6.2.1 Verification of Geomorphic Landscape Units (GLUs) Onsite

☐ 6.2.2 Downstream Systems Sensitivity to Coarse Sediment

☐ 6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite

☑ No optional analyses performed, the project will avoid critical coarse sediment yield areas identified based on WMAA maps

If optional analyses were performed, what is the final result?

☑ No critical coarse sediment yield areas to be protected based on verification of GLUs onsite

☐ Critical coarse sediment yield areas exist but additional analysis has determined that protection is not required. Documentation attached in Attachment 2.b of the SWQMP.

☐ Critical coarse sediment yield areas exist and require protection. The project will implement management measures described in Sections 6.2.4 and 6.2.5 as applicable, and the areas are identified on the SWQMP Exhibit.

Discussion / Additional Information:

Form I-3B Page 9 of 10, Form Date: March 15, 2016
Flow Control for Post-Project Runoff*   ***This Section only required if hydromodification management requirements apply**
List and describe point(s) of compliance (POCs) for flow control for hydromodification management (see Section 6.3.1). For each POC, provide a POC identification name or number correlating to the project's HMP Exhibit and a receiving channel identification name or number correlating to the project's HMP Exhibit. There is one (1) POCs for the project, POC-1. POC-1 is located southwest of the project site where the existing curb inlet 18” lateral confluences with the 60” main in South Santa Fe Avenue (See Attachment 1a and 2a).
Has a geomorphic assessment been performed for the receiving channel(s)? ☑ No, the low flow threshold is 0.1Q2 (default low flow threshold) ☐ Yes, the result is the low flow threshold is 0.1Q2 ☐ Yes, the result is the low flow threshold is 0.3Q2 ☐ Yes, the result is the low flow threshold is 0.5Q2 If a geomorphic assessment has been performed, provide title, date, and preparer: Discussion / Additional Information: (optional)

Form I-3B Page 10 of 10, Form Date: March 15, 2016
Other Site Requirements and Constraints
When applicable, list other site requirements or constraints that will influence storm water management design, such as zoning requirements including setbacks and open space, or local codes governing minimum street width, sidewalk construction, allowable pavement types, and drainage requirements. N/A
Optional Additional Information or Continuation of Previous Sections As Needed
This space provided for additional information or continuation of information from previous sections as needed.

FORM I-4 SOURCE CONTROL BMP CHECKLIST FOR ALL DEVELOPMENT PROJECTS

Source Control BMP Checklist for All Development Projects (Standard Projects and Priority Development Projects)	Form I-4 [March 15, 2016]

Project Identification

Project Name: South Santa Fe Townhomes

Permit Application Number

Source Control BMPs

All development projects must implement source control BMPs SC-1 through SC-6 where applicable and feasible. See Chapter 4 and Appendix E of the Model BMP Design Manual for information to implement source control BMPs shown in this checklist.

Answer each category below pursuant to the following.

- "Yes" means the project will implement the source control BMP as described in Chapter 4 and/or Appendix E of the Model BMP Design Manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas). Discussion / justification may be provided.

Source Control Requirement	Applied?		
SC-1 Prevention of Illicit Discharges into the MS4	☑ Yes	☐ No	☐ N/A
Discussion / justification if SC-1 not implemented:			
SC-2 Storm Drain Stenciling or Signage	☑ Yes	☐ No	☐ N/A
Discussion / justification if SC-2 not implemented:			
SC-3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☑ N/A
Discussion / justification if SC-3 not implemented:			
SC-4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☑ N/A
Discussion / justification if SC-4 not implemented:			

Form I-4 Page 2 of 2, Form Date: March 15, 2016			
Source Control Requirement	**Applied?**		
SC-5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☑ Yes	☐ No	☐ N/A
Discussion / justification if SC-5 not implemented:			
SC-6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below)			
☐ On-site storm drain inlets	☑ Yes	☐ No	☐ N/A
☐ Interior floor drains and elevator shaft sump pumps	☑ Yes	☐ No	☐ N/A
☐ Interior parking garages	☐ Yes	☐ No	☑ N/A
☐ Need for future indoor & structural pest control	☐ Yes	☐ No	☑ N/A
☐ Landscape/Outdoor Pesticide Use	☑ Yes	☐ No	☐ N/A
☐ Pools, spas, ponds, decorative fountains, and other water features	☐ Yes	☐ No	☑ N/A
☐ Food service	☐ Yes	☐ No	☑ N/A
☐ Refuse areas	☑ Yes	☐ No	☐ N/A
☐ Industrial processes	☐ Yes	☐ No	☑ N/A
☐ Outdoor storage of equipment or materials	☐ Yes	☐ No	☑ N/A
☐ Vehicle and Equipment Cleaning	☐ Yes	☐ No	☑ N/A
☐ Vehicle/Equipment Repair and Maintenance	☐ Yes	☐ No	☑ N/A
☐ Fuel Dispensing Areas	☐ Yes	☐ No	☑ N/A
☐ Loading Docks	☐ Yes	☐ No	☑ N/A
☐ Fire Sprinkler Test Water	☑ Yes	☐ No	☐ N/A
☐ Miscellaneous Drain or Wash Water	☑ Yes	☐ No	☐ N/A
☐ Plazas, sidewalks, and parking lots	☑Yes	☐ No	☐ N/A
Discussion / justification if SC-6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for <u>all</u> "No" answers shown above.			

FORM I-5 SITE DESIGN BMP CHECKLIST FOR ALL DEVELOPMENT PROJECTS

Site Design BMP Checklist for All Development Projects (Standard Projects and Priority Development Projects)	Form I-5 [March 15, 2016]

Project Identification

Project Name: South Santa Fe Townhomes

Permit Application Number

Site Design BMPs

All development projects must implement site design BMPs SD-1 through SD-8 where applicable and feasible. See Chapter 4 and Appendix E of the Model BMP Design Manual for information to implement site design BMPs shown in this checklist.

Answer each category below pursuant to the following.

- "Yes" means the project will implement the site design BMP as described in Chapter 4 and/or Appendix E of the Model BMP Design Manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project site has no existing natural areas to conserve). Discussion / justification may be provided.

Site Design Requirement	Applied?		
SD-1 Maintain Natural Drainage Pathways and Hydrologic Features	☐ Yes	☐ No	☑ N/A
Discussion / justification if SD-1 not implemented:			
SD-2 Conserve Natural Areas, Soils, and Vegetation	☐ Yes	☑ No	☐ N/A
Discussion / justification if SD-2 not implemented:			
SD-3 Minimize Impervious Area	☑ Yes	☐ No	☐ N/A
Discussion / justification if SD-3 not implemented:			
SD-4 Minimize Soil Compaction	☑ Yes	☐ No	☐ N/A
Discussion / justification if SD-4 not implemented:			
SD-5 Impervious Area Dispersion	☑ Yes	☐ No	☐ N/A
Discussion / justification if SD-5 not implemented:			

Form I-5 Page 2 of 2, Form Date: March 15, 2016			
Site Design Requirement	**Applied?**		
SD-6 Runoff Collection	☑ Yes	☐ No	☐ N/A
Discussion / justification if SD-6 not implemented:			
SD-7 Landscaping with Native or Drought Tolerant Species	☑ Yes	☐ No	☐ N/A
Discussion / justification if SD-7 not implemented:			
SD-8 Harvesting and Using Precipitation	☐ Yes	☑ No	☐ N/A
Discussion / justification if SD-8 not implemented: Harvest and use is not feasible for this project.			

FORM I-6 SUMMARY OF PDP STRUCTURAL BMPS

Summary of PDP Structural BMPs	Form I-6 (PDPs) [March 15, 2016]
Project Identification	
Project Name: South Santa Fe Townhomes	
Permit Application Number	
PDP Structural BMPs	
All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the BMP Design Manual). Selection of PDP structural BMPs for storm water pollutant control must be based on the selection process described in Chapter 5. PDPs subject to hydromodification management requirements must also implement structural BMPs for flow control for hydromodification management (see Chapter 6 of the BMP Design Manual). Both storm water pollutant control and flow control for hydromodification management can be achieved within the same structural BMP(s). PDP structural BMPs must be verified by the local jurisdiction at the completion of construction. This may include requiring the project owner or project owner's representative and engineer of record to certify construction of the structural BMPs (see Section 1.12 of the BMP Design Manual). PDP structural BMPs must be maintained into perpetuity, and the local jurisdiction must confirm the maintenance (see Section 7 of the BMP Design Manual). Use this form to provide narrative description of the general strategy for structural BMP implementation at the project site in the box below. Then complete the PDP structural BMP summary information sheet (page 3 of this form) for each structural BMP within the project (copy the BMP summary information page as many times as needed to provide summary information for each individual structural BMP).	
Describe the general strategy for structural BMP implementation at the site. This information must describe how the steps for selecting and designing storm water pollutant control BMPs presented in Section 5.1 of the BMP Design Manual were followed, and the results (type of BMPs selected). For projects requiring hydromodification flow control BMPs, indicate whether pollutant control and flow control BMPs are integrated or separate. **DMAs 1-5/ BMPs 1A-5A** Step 1A: The DMA is not self-mitigating, de minimis, or self-retaining. Step 1B: There are no site design BMPs proposed for the project for which the runoff factor can be adjusted. Step 2: Harvest and use is not feasible. Refer to Attachment 1c. Step 3: Pursuant to the geotechnical report and Worksheet C.4-1, infiltration is not feasible. Step 4: Proprietary Biofiltration BMPs (BF-3) have been selected and sized per the design criteria to meet pollutant control requirements and an underground storm water storage facility has been selected and sized per the design criteria to meet hydromodification management flow control requirements and to mitigate the project site's 100-year peak flows **DMAs 6-11** According to section 5.2.1 of the BMP Design Manual for the City of San Marcos, these DMAs qualify as de-minimis or self-mitigating since the vegetation in the landscaped area is native and/or non-native/ non-invasive drought tolerant species that do not require regular application of fertilizers and pesticides, soils are undisturbed native topsoil, or disturbed soils that have been amended and aerated, impervious	

area within the self-mitigated area is only hydraulically connected to a brow ditch and not any other impervious areas, and the self-mitigating areas are hydraulically separated from DMAs that contain permanent pollutant control BMPs.

Structural BMP Summary Information
(Copy this page as needed to provide information for each individual proposed structural BMP)

Structural BMP ID No. 1A	DMA Nos: 1
Construction Plan Sheet No.	

Type of structural BMP:
☐ Retention by harvest and use (HU-1)
☐ Retention by infiltration basin (INF-1)
☐ Retention by bioretention (INF-2)
☐ Retention by permeable pavement (INF-3)
☐ Partial retention by biofiltration with partial retention (PR-1)
☐ Biofiltration (BF-1)
☐ Biofiltration with Nutrient Sensitive Media Design (BF-2)
☑ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F
☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)
☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)
☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)
☐ Detention pond or vault for hydromodification management
☐ Other (describe in discussion section below)

Purpose:
☑ Pollutant control only
☐ Hydromodification control only
☐ Combined pollutant control and hydromodification control
☐ Pre-treatment/forebay for another structural BMP
☐ Other (describe in discussion section below)

Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 34270 Pacific Coast Hwy, Suite B Dana Point, CA 92629
Who will be the final owner of this BMP?	Santa Fe Flores LP
Who will maintain this BMP into perpetuity?	Santa Fe Flores LP
What is the funding mechanism for maintenance?	Santa Fe Flores LP

Form I-6 Page 3 of 10 Form Date: March 15, 2016	
Structural BMP Summary Information **(Copy this page as needed to provide information for each individual proposed structural BMP)**	
Structural BMP ID No. 2A	DMA Nos: 2
Construction Plan Sheet No.	
Type of structural BMP: ☐ Retention by harvest and use (HU-1) ☐ Retention by infiltration basin (INF-1) ☐ Retention by bioretention (INF-2) ☐ Retention by permeable pavement (INF-3) ☐ Partial retention by biofiltration with partial retention (PR-1) ☐ Biofiltration (BF-1) ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2) ☑ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐ Detention pond or vault for hydromodification management ☐ Other (describe in discussion section below)	
Purpose: ☑ Pollutant control only ☐ Hydromodification control only ☐ Combined pollutant control and hydromodification control ☐ Pre-treatment/forebay for another structural BMP ☐ Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 34270 Pacific Coast Hwy, Suite B Dana Point, CA 92629
Who will be the final owner of this BMP?	Santa Fe Flores LP
Who will maintain this BMP into perpetuity?	Santa Fe Flores LP
What is the funding mechanism for maintenance?	Santa Fe Flores LP

Form I-6 Page 4 of 10 Form Date: March 15, 2016	
Structural BMP Summary Information **(Copy this page as needed to provide information for each individual proposed structural BMP)**	
Structural BMP ID No. 3A	DMA Nos: 3
Construction Plan Sheet No.	
Type of structural BMP: ☐ Retention by harvest and use (HU-1) ☐ Retention by infiltration basin (INF-1) ☐ Retention by bioretention (INF-2) ☐ Retention by permeable pavement (INF-3) ☐ Partial retention by biofiltration with partial retention (PR-1) ☐ Biofiltration (BF-1) ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2) ☑ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐ Detention pond or vault for hydromodification management ☐ Other (describe in discussion section below)	
Purpose: ☑ Pollutant control only ☐ Hydromodification control only ☐ Combined pollutant control and hydromodification control ☐ Pre-treatment/forebay for another structural BMP ☐ Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 34270 Pacific Coast Hwy, Suite B Dana Point, CA 92629
Who will be the final owner of this BMP?	Santa Fe Flores LP
Who will maintain this BMP into perpetuity?	Santa Fe Flores LP
What is the funding mechanism for maintenance?	Santa Fe Flores LP

Structural BMP Summary Information
(Copy this page as needed to provide information for each individual proposed structural BMP)

Structural BMP ID No. 4A	DMA Nos: 4
Construction Plan Sheet No.	

Type of structural BMP:
- ☐ Retention by harvest and use (HU-1)
- ☐ Retention by infiltration basin (INF-1)
- ☐ Retention by bioretention (INF-2)
- ☐ Retention by permeable pavement (INF-3)
- ☐ Partial retention by biofiltration with partial retention (PR-1)
- ☐ Biofiltration (BF-1)
- ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2)
- ☑ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F
- ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)
- ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)
- ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)
- ☐ Detention pond or vault for hydromodification management
- ☐ Other (describe in discussion section below)

Purpose:
- ☑ Pollutant control only
- ☐ Hydromodification control only
- ☐ Combined pollutant control and hydromodification control
- ☐ Pre-treatment/forebay for another structural BMP
- ☐ Other (describe in discussion section below)

Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 34270 Pacific Coast Hwy, Suite B Dana Point, CA 92629
Who will be the final owner of this BMP?	Santa Fe Flores LP
Who will maintain this BMP into perpetuity?	Santa Fe Flores LP
What is the funding mechanism for maintenance?	Santa Fe Flores LP

Structural BMP Summary Information
(Copy this page as needed to provide information for each individual proposed structural BMP)

Structural BMP ID No. 5A	DMA Nos: 5
Construction Plan Sheet No.	

Type of structural BMP:
- ☐ Retention by harvest and use (HU-1)
- ☐ Retention by infiltration basin (INF-1)
- ☐ Retention by bioretention (INF-2)
- ☐ Retention by permeable pavement (INF-3)
- ☐ Partial retention by biofiltration with partial retention (PR-1)
- ☐ Biofiltration (BF-1)
- ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2)
- ☑ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F
- ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)
- ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)
- ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)
- ☐ Detention pond or vault for hydromodification management
- ☐ Other (describe in discussion section below)

Purpose:
- ☑ Pollutant control only
- ☐ Hydromodification control only
- ☐ Combined pollutant control and hydromodification control
- ☐ Pre-treatment/forebay for another structural BMP
- ☐ Other (describe in discussion section below)

Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 34270 Pacific Coast Hwy, Suite B Dana Point, CA 92629
Who will be the final owner of this BMP?	Santa Fe Flores LP
Who will maintain this BMP into perpetuity?	Santa Fe Flores LP
What is the funding mechanism for maintenance?	Santa Fe Flores LP

Structural BMP Summary Information
(Copy this page as needed to provide information for each individual proposed structural BMP)

Structural BMP ID No. 1B	DMA Nos: 1, 7
Construction Plan Sheet No.	

Type of structural BMP:
- ☐ Retention by harvest and use (HU-1)
- ☐ Retention by infiltration basin (INF-1)
- ☐ Retention by bioretention (INF-2)
- ☐ Retention by permeable pavement (INF-3)
- ☐ Partial retention by biofiltration with partial retention (PR-1)
- ☐ Biofiltration (BF-1)
- ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2)
- ☐ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F
- ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)
- ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)
- ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)
- ☑ Detention pond or vault for hydromodification management
- ☐ Other (describe in discussion section below)

Purpose:
- ☐ Pollutant control only
- ☑ Hydromodification control only
- ☐ Combined pollutant control and hydromodification control
- ☐ Pre-treatment/forebay for another structural BMP
- ☐ Other (describe in discussion section below)

Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 34270 Pacific Coast Hwy, Suite B Dana Point, CA 92629
Who will be the final owner of this BMP?	Santa Fe Flores LP
Who will maintain this BMP into perpetuity?	Santa Fe Flores LP
What is the funding mechanism for maintenance?	Santa Fe Flores LP

Structural BMP Summary Information
(Copy this page as needed to provide information for each individual proposed structural BMP)

Structural BMP ID No. 2B	DMA Nos: 2, 8
Construction Plan Sheet No.	

Type of structural BMP:
- ☐ Retention by harvest and use (HU-1)
- ☐ Retention by infiltration basin (INF-1)
- ☐ Retention by bioretention (INF-2)
- ☐ Retention by permeable pavement (INF-3)
- ☐ Partial retention by biofiltration with partial retention (PR-1)
- ☐ Biofiltration (BF-1)
- ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2)
- ☐ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F
- ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)
- ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)
- ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)
- ☑ Detention pond or vault for hydromodification management
- ☐ Other (describe in discussion section below)

Purpose:
- ☐ Pollutant control only
- ☑ Hydromodification control only
- ☐ Combined pollutant control and hydromodification control
- ☐ Pre-treatment/forebay for another structural BMP
- ☐ Other (describe in discussion section below)

Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 34270 Pacific Coast Hwy, Suite B Dana Point, CA 92629
Who will be the final owner of this BMP?	Santa Fe Flores LP
Who will maintain this BMP into perpetuity?	Santa Fe Flores LP
What is the funding mechanism for maintenance?	Santa Fe Flores LP

Structural BMP Summary Information
(Copy this page as needed to provide information for each individual proposed structural BMP)

Structural BMP ID No. 3B	DMA Nos: 3
Construction Plan Sheet No.	

Type of structural BMP:
- ☐ Retention by harvest and use (HU-1)
- ☐ Retention by infiltration basin (INF-1)
- ☐ Retention by bioretention (INF-2)
- ☐ Retention by permeable pavement (INF-3)
- ☐ Partial retention by biofiltration with partial retention (PR-1)
- ☐ Biofiltration (BF-1)
- ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2)
- ☐ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F
- ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)
- ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)
- ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)
- ☑ Detention pond or vault for hydromodification management
- ☐ Other (describe in discussion section below)

Purpose:
- ☐ Pollutant control only
- ☑ Hydromodification control only
- ☐ Combined pollutant control and hydromodification control
- ☐ Pre-treatment/forebay for another structural BMP
- ☐ Other (describe in discussion section below)

Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 34270 Pacific Coast Hwy, Suite B Dana Point, CA 92629
Who will be the final owner of this BMP?	Santa Fe Flores LP
Who will maintain this BMP into perpetuity?	Santa Fe Flores LP
What is the funding mechanism for maintenance?	Santa Fe Flores LP

Structural BMP Summary Information
(Copy this page as needed to provide information for each individual proposed structural BMP)

Structural BMP ID No. 4B	DMA Nos: 4
Construction Plan Sheet No.	

Type of structural BMP:
- ☐ Retention by harvest and use (HU-1)
- ☐ Retention by infiltration basin (INF-1)
- ☐ Retention by bioretention (INF-2)
- ☐ Retention by permeable pavement (INF-3)
- ☐ Partial retention by biofiltration with partial retention (PR-1)
- ☐ Biofiltration (BF-1)
- ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2)
- ☐ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F
- ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)
- ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)
- ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)
- ☑ Detention pond or vault for hydromodification management
- ☐ Other (describe in discussion section below)

Purpose:
- ☐ Pollutant control only
- ☑ Hydromodification control only
- ☐ Combined pollutant control and hydromodification control
- ☐ Pre-treatment/forebay for another structural BMP
- ☐ Other (describe in discussion section below)

Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 34270 Pacific Coast Hwy, Suite B Dana Point, CA 92629
Who will be the final owner of this BMP?	Santa Fe Flores LP
Who will maintain this BMP into perpetuity?	Santa Fe Flores LP
What is the funding mechanism for maintenance?	Santa Fe Flores LP

ATTACHMENT 1 BACKUP FOR PDP POLLUTANT CONTROL BMPS

This is the cover sheet for Attachment 1.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 1a	DMA Exhibit (Required) See DMA Exhibit Checklist on the back of this Attachment cover sheet.	☑ Included
Attachment 1b	Tabular Summary of DMAs Showing DMA ID matching DMA Exhibit, DMA Area, and DMA Type (Required)* *Provide table in this Attachment OR on DMA Exhibit in Attachment 1a	☑ Included on DMA Exhibit in Attachment 1a ☐ Included as Attachment 1b, separate from DMA Exhibit
Attachment 1c	Form I-7, Harvest and Use Feasibility Screening Checklist (Required unless the entire project will use infiltration BMPs) Refer to Appendix B.3-1 of the BMP Design Manual to complete Form I-7.	☑ Included ☐ Not included because the entire project will use infiltration BMPs
Attachment 1d	Form I-8, Categorization of Infiltration Feasibility Condition (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the BMP Design Manual to complete Form I-8.	☑ Included ☐ Not included because the entire project will use harvest and use BMPs
Attachment 1e	Pollutant Control BMP Design Worksheets / Calculations (Required) Refer to Appendices B and E of the BMP Design Manual for structural pollutant control BMP design guidelines	☑ Included

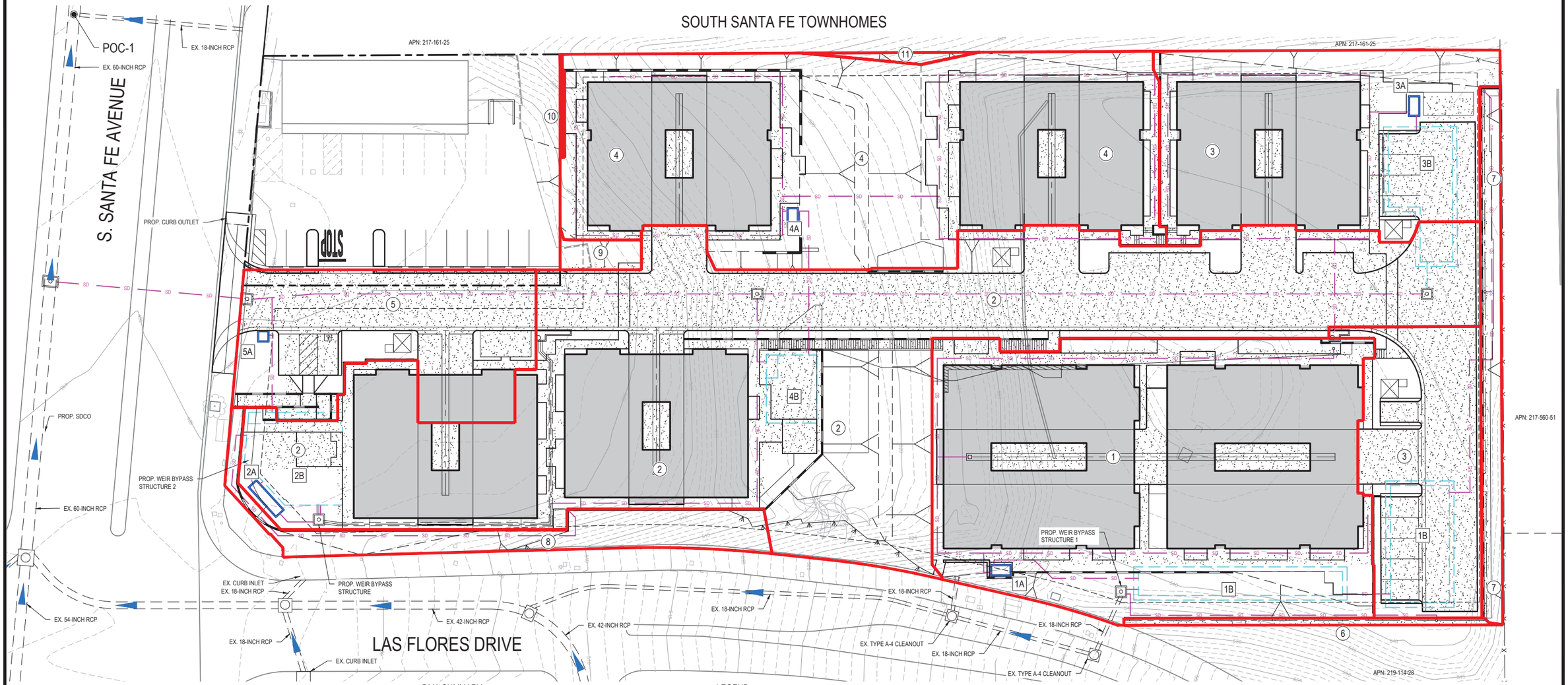
Use this checklist to ensure the required information has been included on the DMA Exhibit:

The DMA Exhibit must identify:

- ☐ Underlying hydrologic soil group
- ☐ Approximate depth to groundwater
- ☐ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
- ☐ Critical coarse sediment yield areas to be protected
- ☐ Existing topography and impervious areas
- ☐ Existing and proposed site drainage network and connections to drainage offsite
- ☐ Proposed demolition
- ☐ Proposed grading
- ☐ Proposed impervious features
- ☐ Proposed design features and surface treatments used to minimize imperviousness
- ☐ Drainage management area (DMA) boundaries, DMA ID numbers, and DMA areas (square footage or acreage), and DMA type (i.e., drains to BMP, self-retaining, or self-mitigating)
- ☐ Potential pollutant source areas and corresponding required source controls (see Chapter 4, Appendix E.1, and Form I-3B)
- ☐ Structural BMPs (identify location, type of BMP, and size/detail)

DMA EXHIBIT

SOUTH SANTA FE TOWNHOMES



DMA SUMMARY

DRAINAGE MANAGEMENT AREA (DMA)	TOTAL AREA (SF/AC)	TOTAL IMPV. AREA (SF/AC)	TOTAL PERV. AREA (SF/AC)	DMA TYPE	BMP TYPE	BMP #	BMP SIZE PROVIDED
①	22,359/ 0.51	15,866/ 0.36	6,493/ 0.15	DRAINS TO BMP	PROPRIETARY BIOFILTRATION	1A	4'x8'
				DRAINS TO BMP	DETENTION VAULT	1B	2,200 SF 5.12' HIGH
②	38,299/ 0.88	27,334/ 0.63	10,965/ 0.25	DRAINS TO BMP	PROPRIETARY BIOFILTRATION	2A	4'x17'
				DRAINS TO BMP	DETENTION VAULT	2B	1,400 SF 5.67' HIGH
③	17,591/ 0.40	12,861/ 0.29	4,730/ 0.11	DRAINS TO BMP	PROPRIETARY BIOFILTRATION	3A	4'x8'
				DRAINS TO BMP	DETENTION VAULT	3B	1,264 SF 7' HIGH
④	21,969/ 0.50	11,824/ 0.27	10,145/ 0.23	DRAINS TO BMP	PROPRIETARY BIOFILTRATION	4A	4'x8'
				DRAINS TO BMP	DETENTION VAULT	4B	600 SF 5.67' HIGH
⑤	7,436/ 0.17	5,943/ 0.14	1,493/ 0.03	DRAINS TO BMP	PROPRIETARY BIOFILTRATION	5A	4'x4'
⑥	479/ 0.01	396/ 0.009	83/ 0.001	DE MINIMIS	-	-	
⑦	2,103/ 0.05	742/ 0.02	1,361/ 0.03	SELF MITIGATING	DETENTION VAULT	1B	
⑧	3,163/ 0.07	0/ 0.00	3,163/ 0.07	SELF MITIGATING	DETENTION VAULT	2B	
⑨	467/ 0.01	98/ 0.002	369/ 0.008	SELF MITIGATING	-	-	
⑩	45/ 0.001	0/ 0.00	45/ 0.001	SELF MITIGATING	-	-	
⑪	204/ 0.005	0/ 0.00	204/ 0.005	SELF MITIGATING	-	-	

LEGEND

- RIGHT OF WAY
- PROJECT BOUNDARY
- STREET CENTER LINE
- BASIN BOUNDARY
- EXISTING CONTOURS
- PROPOSED STORM DRAIN
- PROPOSED UNDERGROUND DETENTION SYSTEM
- PROPOSED PROPRIETARY BIOFILTRATION SYSTEM
- UNDERGROUND EXISTING PIPE DRAINAGE PATH
- LIMITS OF PROPOSED BUILDING
- LIMITS OF PROPOSED PAVEMENT
- (X) DMA AREA #
- [X] DMA AREA #

0 20' 40' 60'

GRAPHIC SCALE: 1" = 20'

DMA EXHIBIT
SOUTH SANTA FE TOWNHOMES
CITY OF SAN MARCOS

PLSA
PLSAENGINEERING.COM

1848

J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\REPORTS\SWQMP\TOWNHOME SITE PLAN\Attachments\Attachment 1- Backup for BMPs\Att 1a - DMA Exhibit

ATTACHMENT 1c

Appendix B: Stormwater Pollutant Control Hydrologic Calculations and Sizing Methods

Worksheet B.2-1. DCV

DMA-1

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.75	inches
2	Area tributary to BMP (s)	A=	0.51	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.67	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	933	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	15,866	0.9	14,279	
Pervious	6,493	0.1	649	
Total	22,359		14,929	0.67

DMA-2

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.75	inches
2	Area tributary to BMP (s)	A=	0.88	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.67	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	1606	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	27,334	0.9	24,601	
Pervious	10,965	0.1	1,097	
Total	38,299		25,697	0.67

DMA-3

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.75	inches
2	Area tributary to BMP (s)	A=	0.40	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.68	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	753	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	12,861	0.9	11,575	
Pervious	4,730	0.1	473	
Total	17,591		12,048	0.68

DMA-4

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.75	inches
2	Area tributary to BMP (s)	A=	0.50	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.53	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	729	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	11,824	0.9	10,642	
Pervious	10,145	0.1	1,015	
Total	21,969		11,656	0.53

DMA-5

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.75	inches
2	Area tributary to BMP (s)	A=	0.17	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.74	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	344	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	5,943	0.9	5,349	
Pervious	1,493	0.1	149	
Total	7,436		5,498	0.74

Harvest and Use Feasibility Screening	**Worksksheet B.3-1**

1. Is there a demand for harvested water (check all that apply) at the project site that is reliably present during the wet season?

∨ Toilet and urinal flushing
√ Landscape irrigation
Other:_____

2. If there is a demand; estimate the anticipated average wet season demand over a period of 36 hours. Guidance for planning level demand calculations for toilet/urinal flushing and landscape irrigation is provided in Section B.3.2.

Toilet/Urinal Flushing

(9.3 gal/person-day) x (0.13368 cuft/gal) x (1.5 days) = 1.86 cuft/person-36hr

Assume (3 people per unit x 46 units) x (1.86 cuft/person-36 hr) = 256.68 cuft/36hr

Landscape Irrigation

(0.90 ac irrigated) x (390 gal/ac-36hr) x (0.13368 cuft/gal) = 46.92 cuft/36hr

Total = 257 cuft + 47 cuft = 304 cuft

3. Calculate the DCV using worksheet B-2.1.

DCV = 4,365 cuft

3a. Is the 36-hour demand greater than or equal to the DCV?	3b. Is the 36-hour demand greater than 0.25DCV but less than the full DCV?	3c. Is the 36-hour demand less than 0.25DCV?
Yes / ∨ No	Yes / ∨ No	∨ Yes
Harvest and use appears to be feasible. Conduct more detailed evaluation and sizing calculations to confirm that DCV can be used at an adequate rate to meet drawdown criteria.	Harvest and use may be feasible. Conduct more detailed evaluation and sizing calculations to determine feasibility. Harvest and use may only be able to be used for a portion of the site, or (optionally) the storage may need to be upsized to meet long term capture targets while draining in longer than 36 hours.	∨ Harvest and use is considered to be infeasible.

ATTACHMENT 1d

October 18, 2021 CTE Job No. 10-16426G

Mr. Paul Mayer
P.O. Box 903
Rancho Santa Fe, California
Phone: (858) 888-2488 Via Email: pm@pemcor.net

Subject: Site Percolation Testing and Infiltration Feasibility Evaluation
Proposed S. Santa Fe Multi-Family Housing Development
2927 S. Santa Fe Avenue
San Marcos, California

References: At End of Document – Appendix A

Mr. Mayer:

In accordance with your request and our proposal No. G-5522 dated August 30, 2021, CTE, Inc. has performed percolation testing at the site and provides an evaluation of the infiltration characteristics and feasibility for the proposed project located at the subject site. This report presents the accumulated field and laboratory data collected and provides preliminary conclusions and recommendations regarding the site's suitability for design and development of stormwater infiltration BMP devices.

Our evaluation of the site's infiltration characteristics and feasibility was performed in general accordance with the guidelines set forth in the *City of San Marcos BMP design Manual (Updated February 2016).*

Based on our geotechnical analysis of the accumulated data and information, and in consideration of the potential for geotechnical hazards associated with onsite infiltration, CTE has determined that infiltration in any amount at the site is not feasible and should not be allowed. Any/all basins for storage of stormwater runoff should be lined with an impermeable liner and piped offsite via a suitable discharge outlet.

1.0 SITE DESCRIPTION & PERCOLATION TESTING

1.1 Site Description

The subject site is located at 2927 S. Santa Fe Avenue. The proposed development is bounded by S. Santa Fe Avenue to the southwest, N. Las Flores Drive to the east, and commercial structures to the north and west.

The subject site generally descends to the southwest with approximate elevations ranging from a high of 540 feet above mean sea level (msl) at the northeast end of the site, to a low of 495 feet above msl at the southern end of the site. The site currently consists of three undeveloped terraced building pads that are separated by an approximately 10-foot-tall 2:1 (horizontal distance: vertical distance) slope.

1.2 Field Exploration

Due to the sloping nature of the site, and in consideration of the proposed multi-story structures that are planned to be terraced into the sloping site, CTE determined that the southern-lower area of the site is the only potential suitable/feasible area for development of infiltration BMP devices. As such, our percolation testing was only performed in this area.

Two percolation test borings were excavated on September 30, 2021 using a Diedrich D50 truck-mounted drill rig equipped with eight-inch diameter hollow-stem augers to depths of five feet below the existing ground surface. The test holes were excavated such that the percolation testing was performed at or near the anticipated bottom elevation of proposed infiltration basin/s.

Groundwater was not encountered in either of the percolation test excavations. In addition, groundwater was not encountered in any of the previous subsurface explorations (extending to a maximum depth of approximately 51.5 feet below existing ground surface) performed by Ghostrider, Inc., as referenced in their Limited Geotechnical Investigation Report, dated July 1st, 2020.

1.3 Site-Specific Geologic and Soil Information

Reference to the published regional geologic map, *Geologic Map of the Oceanside 30'x60' Quadrangle, Kennedy & Tan, 2007*, indicates that the site is underlain by Tertiary-age Santiago Formation (May Symbol: Tsa). However, during our subsurface field explorations within the southern-lower portion of the site, young alluvial deposits were encountered at the surface and extended to the maximum explored depth of 5 feet bgs. As observed in the exploratory excavations, the encountered alluvial materials consist of stiff to very stiff, dark brown, moist, Sandy Clay (CL) with some gravel. Detailed logs of the percolation test borings are provided in the attached Appendix C.

1.4 Percolation Test Methods

Percolation testing was performed on October 1st, 2021, subsequent to a twenty-hour presoak period, and in general accordance with applicable regional standards outlined in the *Riverside County – Low Impact Development BMP Design Handbook (09/2011)*. The percolation rate test results are presented in the following section in Table 2.2 and are included in Appendix B.

2.0 CALCULATED INFILTRATION RATE

As per the regionally accepted methods outlined in the *Riverside County – Low Impact Development BMP Design Handbook (09/2011),* percolation test rates are to be converted to infiltration rates using the Porchet Method. The intent of calculating the converted infiltration rate is to take into account bias inherent in percolation test borehole sidewall infiltration that would not occur at a basin bottom where such sidewalls may not present.

The infiltration rate (I_t) is derived by the equation:

$$I_t = \frac{\Delta H\, \pi r^2\, 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
r = effective radius of test hole
H_{avg} = average head over the time interval, inches

Given the measured percolation rates, the calculated infiltration rates are presented with and without a Factor of Safety applied in Table 2.2 below. A completed C.4-1 Worksheet is included in Appendix D. The civil engineer of record should determine an appropriate factor of safety to be applied via completion of Worksheet D.5-1 provided in Appendix D of the *City of San Marcos BMP design Manual (Updated February 2016).* However, CTE does not recommend using a factor of safety of less than 2.0.

TABLE 2.0
RESULTS OF PERCOLATION TESTING WITH FACTOR OF SAFETY APPLIED

Test Location	Test Depth (inches)	Procedure	Geologic Unit	Percolation Rate (inches per hour)	Infiltration Rate (inches per hour)	Infiltration Rate with FOS of 2 Applied (inches per hour)
P-1	60	Non-Sandy	Qya	1.250	0.052	0.026
P-2	60	Non-Sandy	Qya	1.250	0.052	0.026

NOTES Water level was measured from a fixed point at the top of the hole.
Weather was sunny during percolation testing.
Qya = Quaternary Young Alluvial Deposits
The test holes were eight inches in diameter.

3.0 CONCLUSIONS

The percolation testing and converted infiltration rates indicate that partial infiltration at the site appears feasible, however, based on the sloping nature of the site, the planned development, the presence of high to very high expansion potential soils, the fine-grained nature of the encountered soils, and the potential for lateral migration of infiltration water into relatively close proximity public right-of-way and utility trenches, it is CTE opinion that the site is not considered suitable for infiltration in any amount. Any/all basins for storage of stormwater runoff should be lined with an impermeable liner and piped offsite via a suitable discharge outlet.

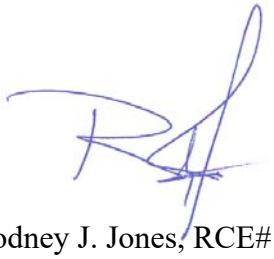
4.0 LIMITATIONS

CTE's conclusions and recommendations are based on an analysis of the observed conditions in the explored locations,the data collected and our evaluation of potential geotechnical hazards related to onsite infiltration.

The opportunity to be of service on this project is appreciated. If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Respectfully submitted,

CONSTRUCTION TESTING & ENGINEERING, INC.



Rodney J. Jones, RCE# 84232
Senior Engineer

Attachments:

Figure 1 Percolation Test Location Map

Appendix A References
Appendix B Percolation Test Data and Infiltration Rate Conversion Calculations
Appendix C Percolation Test Boring Logs
Appendix D Laboratory Test Results
Appendix E Worksheet C.4-1

40' 0 20' 40'

LEGEND

P-2 APPROXIMATE PERC TEST LOCATION

Qya QUATERNARY YOUNG ALLUVIAL FLOOD PLAIN DEPOSITS

Tsa TERTIARY SANTIAGO FORMATION

APPROXIMATE GEOLOGIC CONTACT

CTE A Universal Engineering Sciences Company — Construction Testing & Engineering, Inc.
Inspection | Testing | Geotechnical | Environmental & Construction Engineering | Civil Engineering | Surveying

GEOLOGIC/PERC TEST LOCATION MAP
S. SANTA FE MULTI-FAMILY HOUSING DEVELOPMENT
2927 S. SANTA FE AVENUE
SAN MARCOS, CALIFORNIA

SCALE:	DATE:
1"=40'	10/21
CTE JOB NO.: 10-16426G	FIGURE: 1

S:\Projects\10-16426G (S. Santa Fe Ave Perc Testing)\Figure 1.dwg

APPENDIX A

REFERENCES

1. Ghostrider, Inc., Limited Geotechnical Investigation, 2972 South Santa Fe Avenue, San Marcos, Project No. 19-2118C, dated July 1, 2020.

2. Kennedy, M.P. and Tan, S.S., 2007, "Geologic Map of the Oceanside 30' x 60' Quadrangle, California", California Geological Survey, Map No. 2.

3. Riverside County, Revised 9/2011, "Design Handbook for Low Impact Development BMPs"".

4. City of San Marcos, February 2016, "BMP Design Manual For Permanent Site Design, Storm Water Treatment and Hydromodification Management"

APPENDIX B

PERCOLATION TEST DATA AND INFILTRATION RATE CONVERSION CALCULATIONS

Project:	**S. SANTA FE MULTI-FAMILY HOUSING**						
Project No.:	**10-16426G**						Tables P-1
Percolation Field Data and Calculated Rates							
P-1					**Total Depth:**	**60 inches**	
Time	Test Interval Time	Test Refill	Water Level Initial/Start	Water Level End/Final	Incremental Water Level Change	Percolation Rate	Percolation Rate
	(minutes)	Depth /Inches	Depth /Inches	Depth /Inches	(inches)	inches/minute	inches/hour
7:25:00	Initial	None	12.88	initial	-		
7:55:00	30	12	12.88	14.63	1.75	0.058	3.500
8:25:00	30	12.75	12.00	14.13	2.13	0.071	4.250
8:55:00	30	12.875	12.75	14.13	1.38	0.046	2.750
9:25:00	30	12.125	12.88	14.00	1.13	0.038	2.250
9:55:00	30	13.75	12.13	13.75	1.63	0.054	3.250
10:25:00	30	11.625	13.75	14.63	0.88	0.029	1.750
10:55:00	30	13	11.63	13.00	1.38	0.046	2.750
11:25:00	30	13.875	13.00	13.88	0.88	0.029	1.750
11:55:00	30	12.625	13.88	14.50	0.63	0.021	1.250
12:25:00	30	13.375	12.63	13.38	0.75	0.025	1.500
12:55:00	30	13.5	13.38	14.00	0.63	0.021	1.250
13:25:00	30	NO	13.50	14.13	0.63	0.021	1.250
P-2					**Total Depth:**	**60 inches**	
Time	Test Interval Time	Test Refill	Water Level Initial/Start	Water Level End/Final	Incremental Water Level Change	Percolation Rate	Percolation Rate
	(minutes)	Depth /Inches	Depth /Inches	Depth /Inches	(inches)	inches/minute	inches/hour
7:25:00	Initial	None	11.50	initial	-		
7:55:00	30	12.25	11.50	15.13	3.625	0.121	7.250
8:25:00	30	12.125	12.25	15.63	3.375	0.113	6.750
8:55:00	30	12.5	12.13	15.13	3.000	0.100	6.000
9:25:00	30	12	12.50	15.50	3.000	0.100	6.000
9:55:00	30	10	12.00	15.75	3.750	0.125	7.500
10:25:00	30	11.125	10.00	14.13	4.125	0.138	8.250
10:55:00	30	13.625	11.13	13.63	2.500	0.083	5.000
11:25:00	30	12.625	13.63	14.63	1.000	0.033	2.000
11:55:00	30	13.625	12.63	13.63	1.000	0.033	2.000
12:25:00	30	12.75	13.63	14.25	0.625	0.021	1.250
12:55:00	30	13.5	12.75	13.50	0.750	0.025	1.500
13:25:00	30	NO	13.50	14.13	0.625	0.021	1.250

Percolation Rate Conversion P-1

		Inches
Time Interval,	Δt =	30
Final Depth of Water,	D_f =	14.13
Test Hole Radius,	r =	4
Initial Depth to Water,	D_0 =	13.50
Total Depth of Test Hole,	D_T =	60

H_o =	46.5	in
H_f =	45.875	in
$\Delta H = \Delta D$ =	0.625	in
H_{avg} =	46.1875	in
I_t =	0.052	in/hr

Percolation Rate Conversion P-2

		Inches
Time Interval,	Δt =	30
Final Depth of Water,	D_f =	14.13
Test Hole Radius,	r =	4
Initial Depth to Water,	D_0 =	13.50
Total Depth of Test Hole,	D_T =	60

H_o =	46.5	in
H_f =	45.875	in
$\Delta H = \Delta D$ =	0.625	in
H_{avg} =	46.1875	in
I_t =	0.052	in/hr

TABLE RESULTS OF PERCOLATION TESTING WITH 2.0 FACTOR OF SAFETY APPLIED						
Test Location	Test Depth (inches)	Procedure	Soil Type* (USCS Classification)	Percolation Rate (inches per hour)	Infiltration Rate (inches per hour)	Infiltration Rate with FOS of 2 Applied (inches per hour)
P-1	60	Non-Sandy	Qya	1.250	0.052	0.026
P-2	60	Non-Sandy	Qya	1.250	0.052	0.026

APPENDIX C

PERCOLATION TEST BORING LOGS

A Universal Engineering Sciences Company

Construction Testing & Engineering, Inc.

Inspection | Testing | Geotechnical | Environmental & Construction Engineering | Civil Engineering | Surveying

DEFINITION OF TERMS

PRIMARY DIVISIONS			SYMBOLS	SECONDARY DIVISIONS
COARSE GRAINED SOILS MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS < 5% FINES	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES LITTLE OR NO FINES
			GP	POORLY GRADED GRAVELS OR GRAVEL SAND MIXTURES, LITTLE OF NO FINES
		GRAVELS WITH FINES	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, NON-PLASTIC FINES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, PLASTIC FINES
	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS < 5% FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES	SM	SILTY SANDS, SAND-SILT MIXTURES, NON-PLASTIC FINES
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES, PLASTIC FINES
FINE GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT IS LESS THAN 50		ML	INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, SLIGHTLY PLASTIC CLAYEY SILTS
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY, SANDY, SILTS OR LEAN CLAYS
			OL	ORGANIC SILTS AND ORGANIC CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTY CLAYS
HIGHLY ORGANIC SOILS			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS

GRAIN SIZES

BOULDERS	COBBLES	GRAVEL		SAND			SILTS AND CLAYS
		COARSE	FINE	COARSE	MEDIUM	FINE	

12" 3" 3/4" 4 10 40 200

CLEAR SQUARE SIEVE OPENING U.S. STANDARD SIEVE SIZE

ADDITIONAL TESTS

(OTHER THAN TEST PIT AND BORING LOG COLUMN HEADINGS)

MAX- Maximum Dry Density
GS- Grain Size Distribution
SE- Sand Equivalent
EI- Expansion Index
CHM- Sulfate and Chloride Content , pH, Resistivity
COR - Corrosivity
SD- Sample Disturbed
PM- Permeability
SG- Specific Gravity
HA- Hydrometer Analysis
AL- Atterberg Limits
RV- R-Value
CN- Consolidation
CP- Collapse Potential
HC- Hydrocollapse
REM- Remolded
PP- Pocket Penetrometer
WA- Wash Analysis
DS- Direct Shear
UC- Unconfined Compression
MD- Moisture/Density
M- Moisture
SC- Swell Compression
OI- Organic Impurities

FIGURE: BL1

A Universal Engineering Sciences Company

Construction Testing & Engineering, Inc.

Inspection | Testing | Geotechnical | Environmental & Construction Engineering | Civil Engineering | Surveying

PROJECT:	DRILLER:	SHEET: of
CTE JOB NO:	DRILL METHOD:	DRILLING DATE:
LOGGED BY:	SAMPLE METHOD:	ELEVATION:

BORING LEGEND

Depth (Feet) | Bulk Sample | Driven Type | Blows/Foot | Dry Density (pcf) | Moisture (%) | U.S.C.S. Symbol | Graphic Log

DESCRIPTION

Laboratory Tests

0

Block or Chunk Sample

Bulk Sample

5

Standard Penetration Test

10

Modified Split-Barrel Drive Sampler (Cal Sampler)

Thin Walled Army Corp. of Engineers Sample

15

Groundwater Table

Soil Type or Classification Change

20

? ——— ? ——— ? ——— ? ——— ? ——— ? ——— ? –

Formation Change [(Approximate boundaries queried (?)]

"SM"

Quotes are placed around classifications where the soils exist in situ as bedrock

25

FIGURE: BL2

A Universal Engineering Sciences Company

Construction Testing & Engineering, Inc.

Inspection | Testing | Geotechnical | Environmental & Construction Engineering | Civil Engineering | Surveying

PROJECT:	S. SANTA FE MULTI-FAMILY HOUSING DE\	DRILLER:	PACIFIC DRILLING	SHEET:	1 of 1
CTE JOB NO:	10-16426G	DRILL METHOD:	HOLLOW-STEM AUGER	DRILLING DATE:	9/30/2021
LOGGED BY:	DJT	SAMPLE METHOD:	SPT	ELEVATION:	~497 FEET

BORING: P-1

Depth (Feet)	Bulk Sample	Driven Type	Blows/6"	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0						CL		**QUATERNARY YOUNG ALLUVIAL DEPOSITS:** Very stiff, slightly moist, dark brown, sandy CLAY with gravel.	
		▮	5 8 9						GS
5								Total Depth: 5' No Groundwater Encountered Backfilled with Soil Cuttings	
10									
15									
20									
25									

A Universal Engineering Sciences Company

Construction Testing & Engineering, Inc.

Inspection | Testing | Geotechnical | Environmental & Construction Engineering | Civil Engineering | Surveying

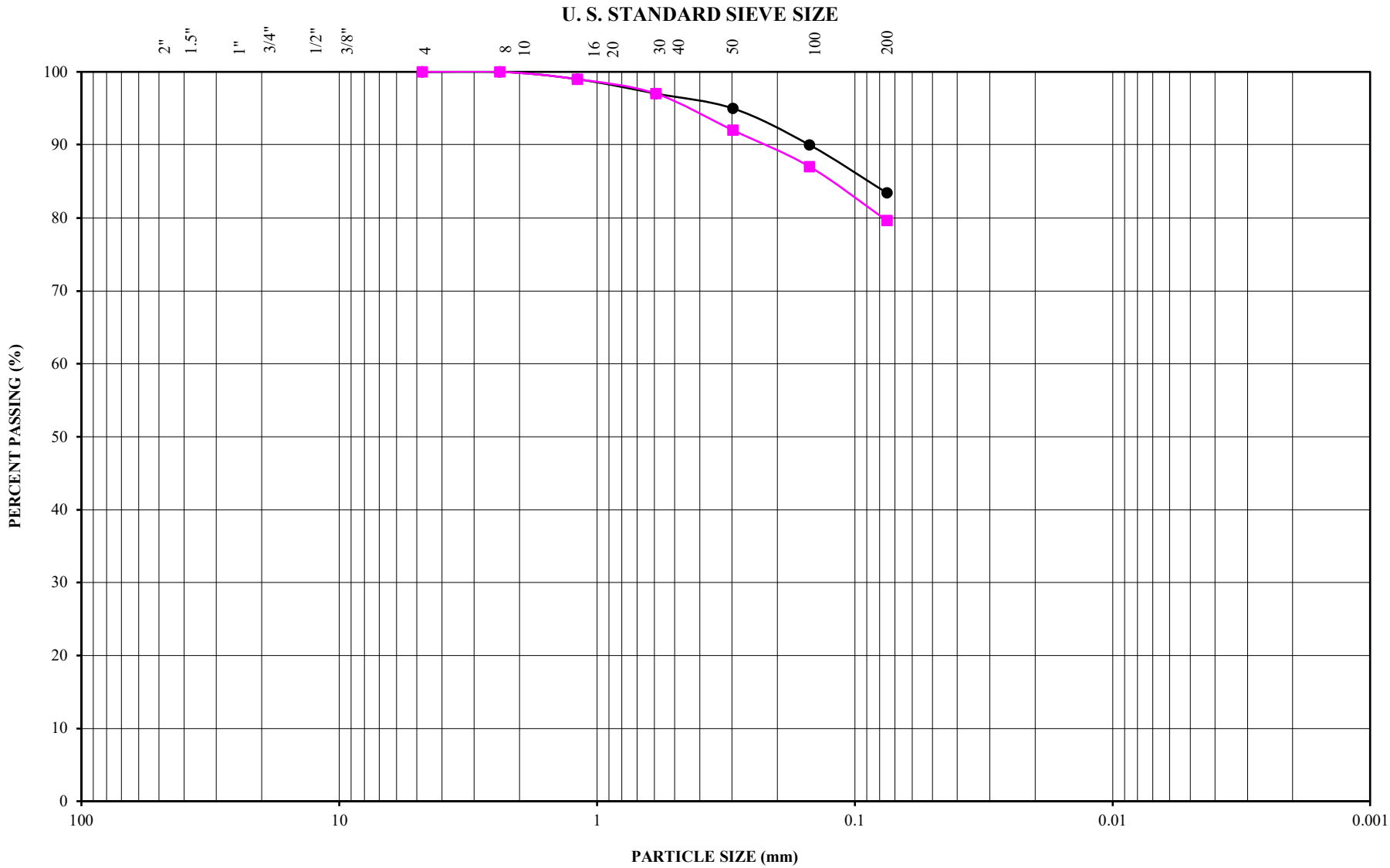
PROJECT:	S. SANTA FE MULTI-FAMILY HOUSING DE	DRILLER:	PACIFIC DRILLING	SHEET:	1 of 1
CTE JOB NO:	10-16426G	DRILL METHOD:	HOLLOW-STEM AUGER	DRILLING DATE:	9/30/2021
LOGGED BY:	DJT	SAMPLE METHOD:	SPT	ELEVATION:	~497 FEET

BORING: P-2

Depth (Feet)	Bulk Sample	Driven Type	Blows/6"	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0						CL		**QUATERNARY YOUNG ALLUVIAL DEPOSITS:** Very stiff, slightly moist, dark brown, sandy CLAY with gravel.	
			4 8 8						GS
5								Total Depth: 5' No Groundwater Encountered Backfilled with Soil Cuttings	
10									
15									
20									
25									

APPENDIX D

LABORATORY TEST RESULTS



PARTICLE SIZE ANALYSIS

CTE A Universal Engineering Sciences Company
Construction Testing & Engineering, Inc.
Inspection | Testing | Geotechnical | Environmental & Construction Engineering | Civil Engineering | Surveying

Sample Designation	Sample Depth (feet)	Symbol	Liquid Limit (%)	Plasticity Index	Classification
P-1	4-5	●			CL
P-2	4-5	■			CL
CTE JOB NUMBER:		10-16426G		FIGURE:	C-1

1870

APPENDIX E

C.4-1 WORKSHEET

Worksheet C.4-1: Categorization of Infiltration Feasibility Condition

Categorization of Infiltration Feasibility Condition		Worksheet C.4-1	
Part 1 - Full Infiltration Feasibility Screening Criteria **Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?**			
Criteria	Screening Question	**Yes**	**No**
1	**Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		X
Provide basis: N/A Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
2	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	N/A	
Provide basis: N/A Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			

Worksheet C.4-1 Page 2 of 4			
Criteria	Screening Question	**Yes**	**No**
3	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	N/A	
Provide basis: N/A Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	N/A	
Provide basis: N/A Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
Part 1 Result*	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2		

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by City Engineer to substantiate findings.

Worksheet C.4-1 Page 3 of 4

Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria

Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
5	**Do soil and geologic conditions allow for infiltration in any appreciable rate or volume?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		X

Provide basis:

Refer to CTE's "Site Percolation Testing and Infiltration Feasibility Evaluation" letter report, dated October 18, 2021, CTE Job No. 10-16426G.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

6	**Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.		X

Provide basis:

Refer to CTE's "Site Percolation Testing and Infiltration Feasibility Evaluation" letter report, dated October 18, 2021, CTE Job No. 10-16426G.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

Worksheet C.4-1 Page 4 of 4			
Criteria	Screening Question	**Yes**	**No**
7	**Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	N/A	
Provide basis: N/A Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
8	**Can infiltration be allowed without violating downstream water rights**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	N/A	
Provide basis: N/A Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
Part 2 Result*	If all answers from row 5-8 are yes then partial infiltration design is potentially feasible. The feasibility screening category is **Partial Infiltration.** If any answer from row 5-8 is no, then infiltration of any volume is considered to be **infeasible** within the drainage area. The feasibility screening category is **No Infiltration.**	CTE concludes that the site is in a "no infiltration" conditions.	

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

ATTACHMENT 1e

Appendix B: Storm Water Pollutant Control Hydrologic Calculations and Sizing Methods

Worksheet B.6-1: Flow-Thru Design Flows

DMA-1

Flow-thru Design Flows		Worksheet B.6-1		
4	DCV requiring flow-thru	$DCV_{flow\text{-}thru}$	1882	cubic-feet
6	Design rainfall intensity	i=	0.20	in/hr
7	Area tributary to BMP (s)	A=	0.51	acres
8	Area-weighted runoff factor (estimate using Appendix B.2)	C=	0.67	unitless
9	Calculate Flow Rate = (C x i x A)	Q=	0.07	cfs
		1.5Q=	0.103	cfs

Modular Wetlands-4-8 treats 0.115 cfs

	Area (sq ft)	unoff Facto	A x RF	Weighted RF
Impervious	15,866	0.9	14,279	
Pervious	6,493	0.1	649	
Total	22,359		14,929	0.67

DMA-2

Flow-thru Design Flows		Worksheet B.6-1		
4	DCV requiring flow-thru	$DCV_{flow\text{-}thru}$	1108	cubic-feet
6	Design rainfall intensity	i=	0.20	in/hr
7	Area tributary to BMP (s)	A=	0.88	acres
8	Area-weighted runoff factor (estimate using Appendix B.2)	C=	0.67	unitless
9	Calculate Flow Rate = (C x i x A)	Q=	0.12	cfs
		1.5Q=	0.177	cfs

Modular Wetlands-4-17 treats 0.206 cfs

	Area (sq ft)	unoff Facto	A x RF	Weighted RF
Impervious	27,334	0.9	24,601	
Pervious	10,965	0.1	1,097	
Total	38,299		25,697	0.67

DMA-3

Flow-thru Design Flows		Worksheet B.6-1		
4	DCV requiring flow-thru	$DCV_{flow\text{-}thru}$	922	cubic-feet
6	Design rainfall intensity	i=	0.20	in/hr
7	Area tributary to BMP (s)	A=	0.40	acres
8	Area-weighted runoff factor (estimate using Appendix B.2)	C=	0.68	unitless
9	Calculate Flow Rate = (C x i x A)	Q=	0.06	cfs
		1.5Q=	0.083	cfs

Modular Wetlands-4-8 treats 0.083 cfs

	Area (sq ft)	unoff Facto	A x RF	Weighted RF
Impervious	12,861	0.9	11,575	
Pervious	4,730	0.1	473	
Total	17,591		12,048	0.68

DMA-4

Flow-thru Design Flows		Worksheet B.6-1		
4	DCV requiring flow-thru	$DCV_{flow\text{-}thru}$	922	cubic-feet
6	Design rainfall intensity	i=	0.20	in/hr
7	Area tributary to BMP (s)	A=	0.50	acres
8	Area-weighted runoff factor (estimate using Appendix B.2)	C=	0.53	unitless
9	Calculate Flow Rate = (C x i x A)	Q=	0.05	cfs
		1.5Q=	0.080	cfs

Modular Wetlands-4-8 treats 0.115 cfs

	Area (sq ft)	unoff Facto	A x RF	Weighted RF
Impervious	11,824	0.9	10,642	
Pervious	10,145	0.1	1,015	
Total	21,969		11,656	0.53

DMA-5

Flow-thru Design Flows		Worksheet B.6-1		
4	DCV requiring flow-thru	$DCV_{flow\text{-}thru}$	922	cubic-feet
6	Design rainfall intensity	i=	0.20	in/hr
7	Area tributary to BMP (s)	A=	0.17	acres
8	Area-weighted runoff factor (estimate using Appendix B.2)	C=	0.74	unitless
9	Calculate Flow Rate = (C x i x A)	Q=	0.03	cfs
		1.5Q=	0.038	cfs

Modular Wetlands-4-4 treats 0.052 cfs

	Area (sq ft)	unoff Facto	A x RF	Weighted RF
Impervious	5,943	0.9	5,349	
Pervious	1,493	0.1	149	
Total	7,436		5,498	0.74

ATTACHMENT 2 BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES

This is the cover sheet for Attachment 2.

☐ Mark this box if this attachment is empty because the project is exempt from PDP hydromodification management requirements.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 2a	Hydromodification Management Exhibit (Required)	☑ Included See Hydromodification Management Exhibit Checklist on the back of this Attachment cover sheet.
Attachment 2b	Management of Critical Coarse Sediment Yield Areas (WMAA Exhibit is required, additional analyses are optional) See Section 6.2 of the BMP Design Manual.	☑ Exhibit showing project drainage boundaries marked on WMAA Critical Coarse Sediment Yield Area Map (Required) Optional analyses for Critical Coarse Sediment Yield Area Determination ☐ 6.2.1 Verification of Geomorphic Landscape Units Onsite ☐ 6.2.2 Downstream Systems Sensitivity to Coarse Sediment ☐ 6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite
Attachment 2c	Geomorphic Assessment of Receiving Channels (Optional) See Section 6.3.4 of the BMP Design Manual.	☑ Not performed ☐ Included ☐ Submitted as separate stand-alone document
Attachment 2d	Flow Control Facility Design, including Structural BMP Drawdown Calculations and Overflow Design Summary (Required) See Chapter 6 and Appendix G of the BMP Design Manual	☑ Included ☐ Submitted as separate stand-alone document
Attachment 2e	Vector Control Plan (Required when structural BMPs will not drain in 96 hours)	☑ Included (to be provided in Final Engineering) ☐ Not required because BMPs will drain in less than 96 hours

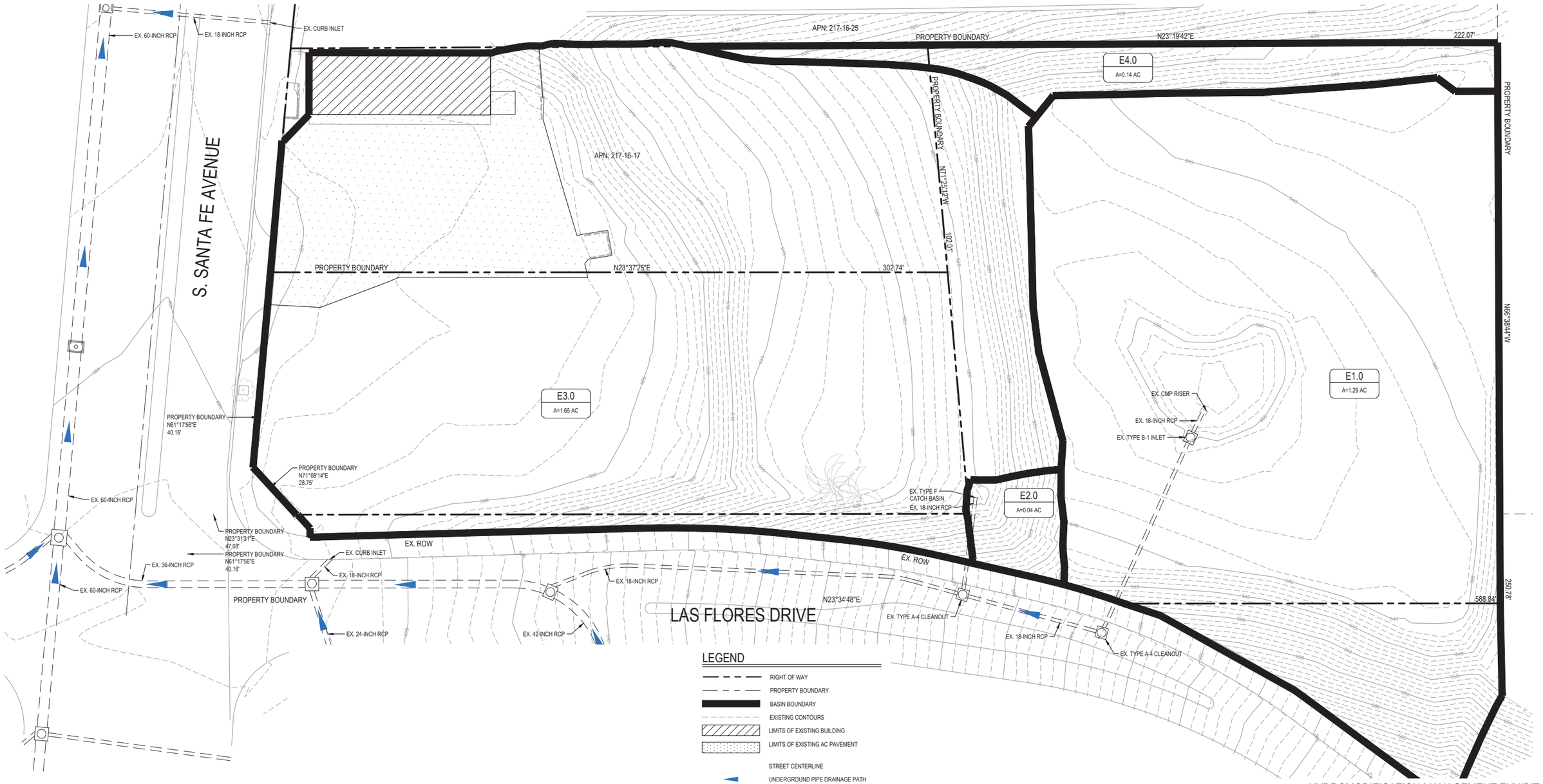
Use this checklist to ensure the required information has been included on the Hydromodification Management Exhibit:

The Hydromodification Management Exhibit must identify:

- ☐ Underlying hydrologic soil group
- ☐ Approximate depth to groundwater
- ☐ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
- ☐ Critical coarse sediment yield areas to be protected
- ☐ Existing topography
- ☐ Existing and proposed site drainage network and connections to drainage offsite
- ☐ Proposed grading
- ☐ Proposed impervious features
- ☐ Proposed design features and surface treatments used to minimize imperviousness
- ☐ Point(s) of Compliance (POC) for Hydromodification Management
- ☐ Existing and proposed drainage boundary and drainage area to each POC (when necessary, create separate exhibits for pre-development and post-project conditions)
- ☐ Structural BMPs for hydromodification management (identify location, type of BMP, and size/detail)

HYDROMODIFICATION MANAGEMENT EXHIBIT

PRE-PROJECT CONDITIONS
SOUTH SANTA FE TOWNHOMES



LEGEND

- RIGHT OF WAY
- PROPERTY BOUNDARY
- BASIN BOUNDARY
- EXISTING CONTOURS
- LIMITS OF EXISTING BUILDING
- LIMITS OF EXISTING AC PAVEMENT
- STREET CENTERLINE
- UNDERGROUND PIPE DRAINAGE PATH
- STORM DRAINAGE PIPE
- DMA ID / DMA AREA (AC) — DMA REFERENCE CALLOUT

SCALE: 1" = 20'

20 10 0 20 40 60

HYDROMODIFICATION MANAGEMENT EXHIBIT
PRE-PROJECT CONDITIONS
SAN MARCOS RESIDENCES
CITY OF SAN MARCOS

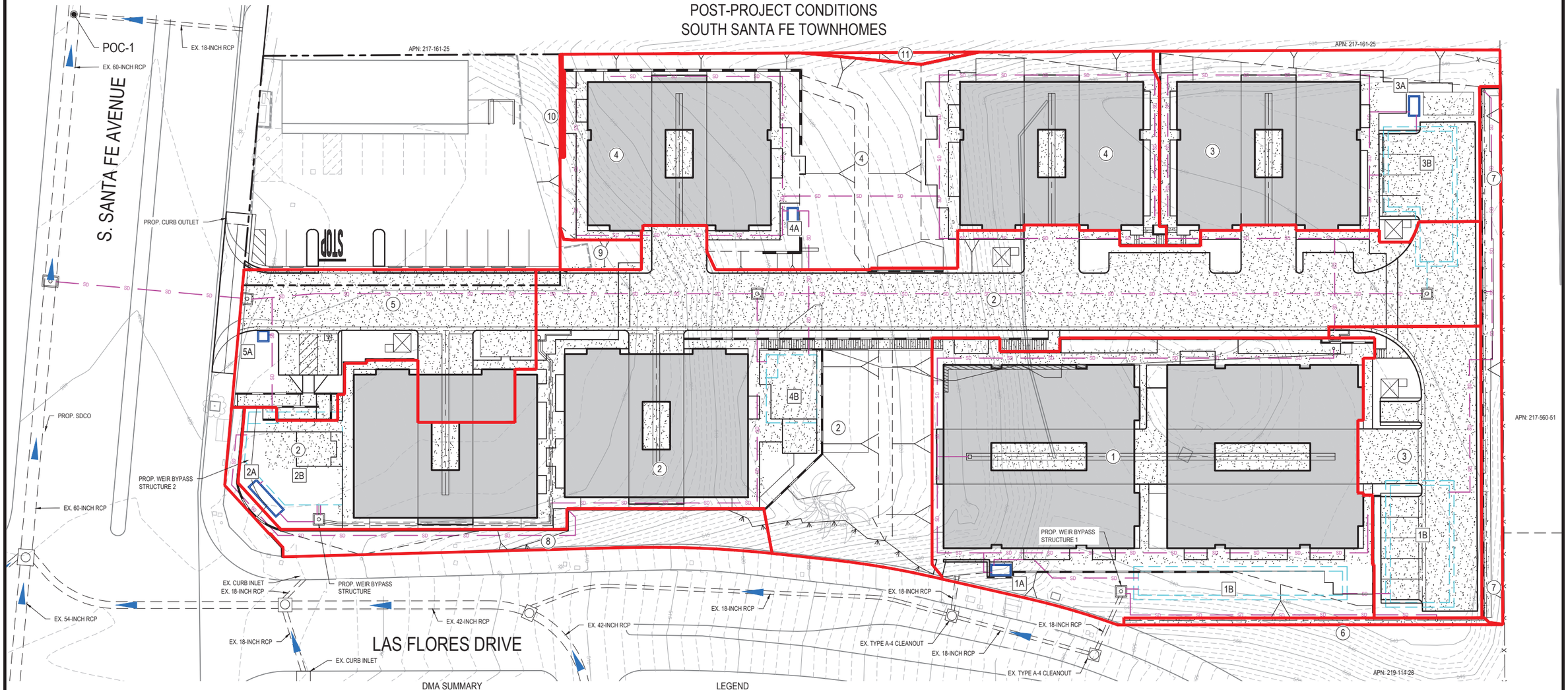
PASCO LARET SUITER & ASSOCIATES
San Diego | Solana Beach | Orange County
Phone 858.259.8212 | www.plsaengineering.com

1881

SAVE DATE: 12/6/2024 ~ PLOT DATE: 6/6/2025 ~ FILE NAME: J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\REPORTS\SWQMP\TOWNHOME SITE PLAN\Attachments\Attachment 2 - Backup for Hydromodification Control Measures\Att 2a - Hydromod Exhibits\3527-WQMP-Hydromod Exhibit, Pre Project.dwg

HYDROMODIFICATION MANAGEMENT EXHIBIT

POST-PROJECT CONDITIONS
SOUTH SANTA FE TOWNHOMES



DMA SUMMARY

DRAINAGE MANAGEMENT AREA (DMA)	TOTAL AREA (SF/AC)	TOTAL IMPV. AREA (SF/AC)	TOTAL PERV. AREA (SF/AC)	DMA TYPE	BMP TYPE	BMP #	BMP SIZE PROVIDED
(1)	22,359/ 0.51	15,866/ 0.36	6,493/ 0.15	DRAINS TO BMP	PROPRIETARY BIOFILTRATION	1A	4'x8'
				DRAINS TO BMP	DETENTION VAULT	1B	2,200 SF 5.12' HIGH
(2)	38,299/ 0.88	27,334/ 0.63	10,965/ 0.25	DRAINS TO BMP	PROPRIETARY BIOFILTRATION	2A	4'x17'
				DRAINS TO BMP	DETENTION VAULT	2B	1,400 SF 5.67' HIGH
(3)	17,591/ 0.40	12,861/ 0.29	4,730/ 0.11	DRAINS TO BMP	PROPRIETARY BIOFILTRATION	3A	4'x8'
				DRAINS TO BMP	DETENTION VAULT	3B	1,264 SF 7' HIGH
(4)	21,969/ 0.50	11,824/ 0.27	10,145/ 0.23	DRAINS TO BMP	PROPRIETARY BIOFILTRATION	4A	4'x8'
				DRAINS TO BMP	DETENTION VAULT	4B	600 SF 5.67' HIGH
(5)	7,436/ 0.17	5,943/ 0.14	1,493/ 0.03	DRAINS TO BMP	PROPRIETARY BIOFILTRATION	5A	4'x4'
(6)	479/ 0.01	396/ 0.009	83/ 0.001	DE MINIMIS	-	-	
(7)	2,103/ 0.05	742/ 0.02	1,361/ 0.03	SELF MITIGATING	DETENTION VAULT	1B	
(8)	3,163/ 0.07	0/ 0.00	3,163/ 0.07	SELF MITIGATING	DETENTION VAULT	2B	
(9)	467/ 0.01	98/ 0.002	369/ 0.008	SELF MITIGATING	-	-	
(10)	45/ 0.001	0/ 0.00	45/ 0.001	SELF MITIGATING	-	-	
(11)	204/ 0.005	0/ 0.00	204/ 0.005	SELF MITIGATING	-	-	

LEGEND

- RIGHT OF WAY
- PROJECT BOUNDARY
- STREET CENTER LINE
- BASIN BOUNDARY
- EXISTING CONTOURS
- SD — PROPOSED STORM DRAIN
- PROPOSED UNDERGROUND DETENTION SYSTEM
- PROPOSED PROPRIETARY BIOFILTRATION SYSTEM
- UNDERGROUND EXISTING PIPE DRAINAGE PATH
- LIMITS OF PROPOSED BUILDING
- LIMITS OF PROPOSED PAVEMENT
- (X) DMA AREA #
- [X] DMA AREA #

0 20' 40' 60'

GRAPHIC SCALE: 1" = 20'

HYDROMODIFICATION MANAGEMENT EXHIBIT
POST-PROJECT CONDITIONS
SOUTH SANTA FE TOWNHOMES
CITY OF SAN MARCOS

PLSA
PLSAENGINEERING.COM

1882

J:\ACTIVE JOBS\3527 MAYER-SOUTH SANTA FE AVE\CIVIL\REPORTS\SWQMP\TOWNHOME SITE PLAN\Attachments\Attachment 2 - Backup for Hydromodification Control Measures\Att 2a - Hydromod Exhibits

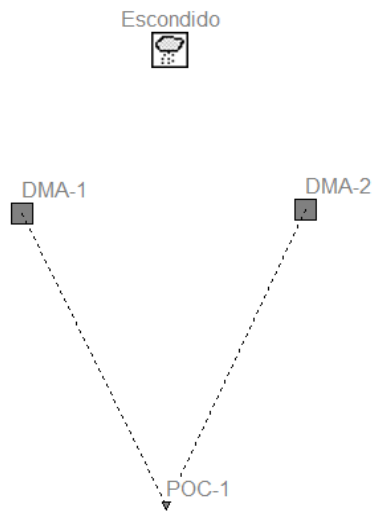
ATTACHMENT 2b

Potential Critical Coarse Sediment Yield Areas, Regional San Diego County Watersheds
Source:Project Clean Water
File Name: WMAA Mapping Data from Attachment C 2018_0906.zip
Date: 10/19/18 (Last Updated)
Legend
Creek
Yes
PROJECT SITE
N33°09'34.56"
W117°12'31.68"
W117°12'5.76"
W117°11'39.84"
N33°09'8.64"
Google Earth
Image Landsat / Copernicus
1000 ft
N

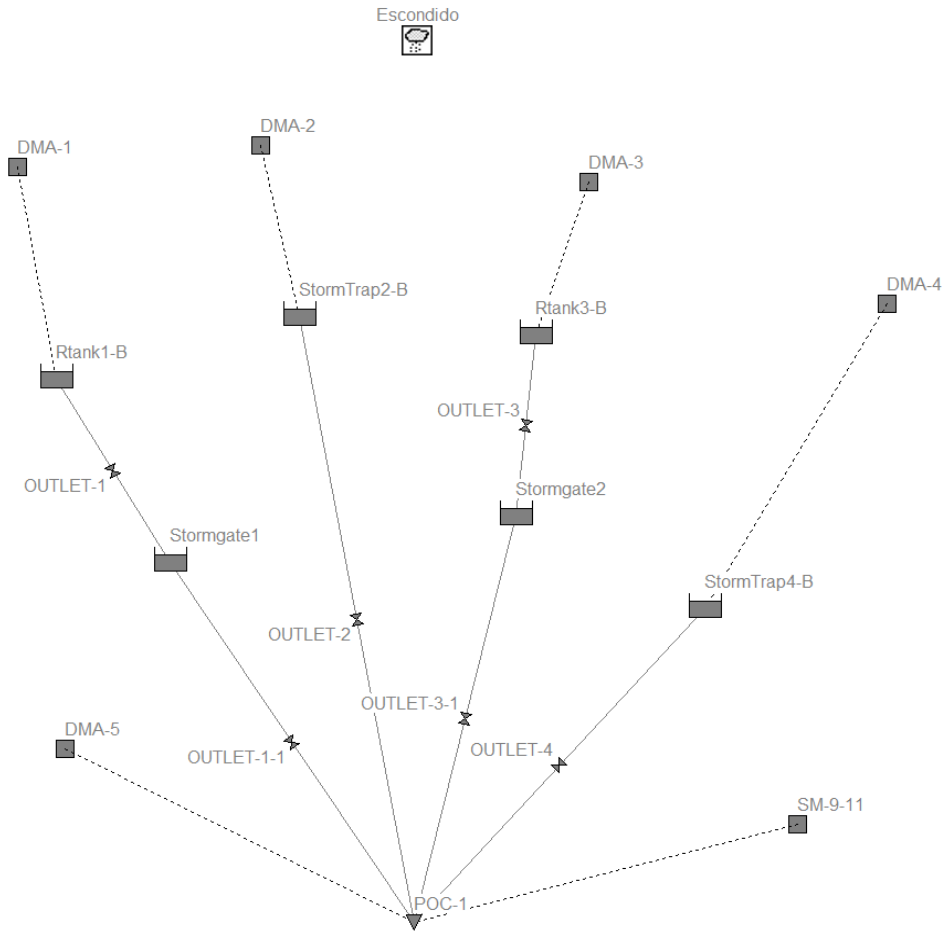
ATTACHMENT 2d

SWMM MODEL SCHEMATICS

PRE-DEVELOPMENT MODEL



POST-PROJECT MODEL



3527 South Santa Fe
12/4/2024

POC-1
SWMM INPUT

PRE-DEVELOPMENT

DMA	BMP	Area (ac)	Width (Area/Flow Length) (ft)	% Slope	% Impervious	% "B" Soils	% "C" Soils	% "D" Soils	Weighted Infiltration (in/hr):	Weighted Suction Head (in):	Weighted Initial Deficit:	N-perv
1	NA	1.09	288	8.0%	0%	0%	100%	0%	0.100	6.000	0.310	0.080
2	NA	1.51	193	13.0%	0%	0%	53%	47%	0.065	7.410	0.305	0.080
	Total:	**2.60**										

POST-PROJECT

DMA	BMP	Area (ac)	Width (Area/Flow Length) (ft)	% Impervious	% Slope	% "B" Soils	% "C" Soils	% "D" Soils	Weighted Infiltration (in/hr):	Weighted Suction Head (in):	Weighted Initial Deficit:	N-perv
1	RTank-1B	0.56	554	68%	1.0%	0%	100%	0%	0.075	6.000	0.310	0.06
2	StormTrap-2B	0.95	1061	66%	9.0%	0%	50%	50%	0.047	7.500	0.305	0.06
3	RTank-3B	0.40	281	74%	1.0%	0%	100%	0%	0.075	6.000	0.310	0.06
4	StormTrap-4B	0.50	382	54%	14.0%	0%	91%	9%	0.070	6.270	0.309	0.06
5	MWS	0.17	285	80%	3.0%	0%	0%	100%	0.019	9.000	0.300	0.06
SM-9-11	NA	0.016	116	14%	50.0%	0%	0%	100%	0.019	9.000	0.300	0.06
	Total:	**2.60**										

Infiltration:		
C:	0.1	in/hr
D:	0.025	in/hr

Suction Head:		
C:	6	in
D:	9	in

Initial Deficit	
C:	0.31
D:	0.30

POC-1

```
[TITLE]
;;Project Title/Notes
3527 South Santa Fe
Pre-Development Condition

[OPTIONS]
;;Option             Value
FLOW_UNITS           CFS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         KINWAVE
LINK_OFFSETS         DEPTH
MIN_SLOPE            0
ALLOW_PONDING        NO
SKIP_STEADY_STATE    NO

START_DATE           09/24/1964
START_TIME           13:00:00
REPORT_START_DATE    09/24/1964
REPORT_START_TIME    13:00:00
END_DATE             05/23/2008
END_TIME             22:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          01:00:00
WET_STEP             00:15:00
DRY_STEP             04:00:00
ROUTING_STEP         0:01:00
RULE_STEP            00:00:00

INERTIAL_DAMPING     PARTIAL
NORMAL_FLOW_LIMITED  BOTH
FORCE_MAIN_EQUATION  H-W
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         12.557
MAX_TRIALS           8
HEAD_TOLERANCE       0.005
SYS_FLOW_TOL         5
LAT_FLOW_TOL         5
MINIMUM_STEP         0.5
THREADS              1

[EVAPORATION]
;;Data Source    Parameters
;;-------------- ----------------
MONTHLY          .06    .08    .11    .15    .17    .19    .19    .18    .15    .11    .08    .06
DRY_ONLY         NO

[RAINGAGES]
;;Name           Format    Interval SCF      Source
```

POC-1

```
;;-------------- --------- ------ ------ ----------
Escondido        INTENSITY 1:00     1.0      TIMESERIES Escondido

[SUBCATCHMENTS]
;;Name           Rain Gage        Outlet           Area     %Imperv  Width    %Slope   CurbLen  SnowPack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- ----------------
DMA-1            Escondido        POC-1            1.09     0        288      8        0
DMA-2            Escondido        POC-1            1.51     0        193      13       0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
DMA-1            0.012      0.08       0.05       0.1        25         OUTLET
DMA-2            0.012      0.08       0.05       0.1        25         OUTLET

[INFILTRATION]
;;Subcatchment   Param1     Param2     Param3     Param4     Param5
;;-------------- ---------- ---------- ---------- ---------- ----------
DMA-1            6          0.1        0.31
DMA-2            7.41       0.065      0.305

[OUTFALLS]
;;Name           Elevation  Type       Stage Data       Gated    Route To
;;-------------- ---------- ---------- ---------------- -------- ----------------
POC-1            0          FREE                        NO

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
Escondido        FILE "Rain Data\escondido\escondido1.dat"

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS -829.402 0.000 10000.000 10000.000
Units      None

[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
POC-1            -33.882            5151.408

[VERTICES]
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
```

POC-1

```
[Polygons]
;;Subcatchment   X-Coord            Y-Coord
;;-------------- ------------------ ------------------
DMA-1            -758.346           6657.435
DMA-2            662.783            6679.992

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
Escondido        -9.075             7491.454
```

POC-1

```
[TITLE]
;;Project Title/Notes
3527 South Santa Fe
Post-Project Condition

[OPTIONS]
;;Option             Value
FLOW_UNITS           CFS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         KINWAVE
LINK_OFFSETS         DEPTH
MIN_SLOPE            0
ALLOW_PONDING        NO
SKIP_STEADY_STATE    NO

START_DATE           09/24/1964
START_TIME           13:00:00
REPORT_START_DATE    09/24/1964
REPORT_START_TIME    13:00:00
END_DATE             05/23/2008
END_TIME             22:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          01:00:00
WET_STEP             00:15:00
DRY_STEP             04:00:00
ROUTING_STEP         0:01:00
RULE_STEP            00:00:00

INERTIAL_DAMPING     PARTIAL
NORMAL_FLOW_LIMITED  BOTH
FORCE_MAIN_EQUATION  H-W
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         12.557
MAX_TRIALS           8
HEAD_TOLERANCE       0.005
SYS_FLOW_TOL         5
LAT_FLOW_TOL         5
MINIMUM_STEP         0.5
THREADS              1

[EVAPORATION]
;;Data Source    Parameters
;;-------------- ----------------
MONTHLY          .06    .08    .11    .15    .17    .19    .19    .18    .15    .11    .08    .06
DRY_ONLY         NO

[RAINGAGES]
;;Name           Format    Interval SCF      Source
```

POC-1

```
;;-------------- --------- ------ ------ ----------
Escondido        INTENSITY 1:00     1.0      TIMESERIES Escondido

[SUBCATCHMENTS]
;;Name           Rain Gage        Outlet           Area     %Imperv  Width    %Slope   CurbLen  SnowPack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- ----------------
DMA-1            Escondido        Rtank1-B         0.56     68       554      1        0
DMA-2            Escondido        StormTrap2-B     0.95     66       1061     9        0
DMA-3            Escondido        Rtank3-B         0.40     74       281      1        0
DMA-4            Escondido        StormTrap4-B     0.5      54       382      14       0
DMA-5            Escondido        POC-1            0.17     80       285      3        0
SM-9-11          Escondido        POC-1            0.016    14       116      50       0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
DMA-1            0.012      0.06       0.05       0.1        25         OUTLET
DMA-2            0.012      0.06       0.05       0.1        25         OUTLET
DMA-3            0.012      0.06       0.05       0.1        25         OUTLET
DMA-4            0.012      0.06       0.05       0.1        25         OUTLET
DMA-5            0.012      0.06       0.05       0.1        25         OUTLET
SM-9-11          0.012      0.06       0.05       0.1        25         OUTLET

[INFILTRATION]
;;Subcatchment   Param1     Param2     Param3     Param4     Param5
;;-------------- ---------- ---------- ---------- ---------- ----------
DMA-1            6          0.075      0.31       7          0
DMA-2            7.5        0.047      0.305      7          0
DMA-3            6          0.075      0.31       7          0
DMA-4            6.27       0.07       0.309      7          0
DMA-5            9          0.019      0.3        7          0
SM-9-11          9          0.019      0.3        7          0

[OUTFALLS]
;;Name           Elevation  Type       Stage Data       Gated    Route To
;;-------------- ---------- ---------- ---------------- -------- ----------------
POC-1            0          FREE                        NO

[STORAGE]
;;Name           Elev.    MaxDepth   InitDepth  Shape      Curve Type/Params            SurDepth  Fevap    Psi      Ksat     IMD
;;-------------- -------- ---------- ---------- ---------- ---------------------------- --------- --------          -------- --------
Rtank1-B         0        5.12       0          TABULAR    Rtank1-B                     0         0
StormTrap2-B     0        5.67       0          TABULAR    StormTrap2-B                 0         0
Rtank3-B         0        7          0          TABULAR    Rtank3-B                     0         0
StormTrap4-B     0        5.67       0          TABULAR    StormTrap4-B                 0         0
Stormgate1       0        5.69       0          TABULAR    Stormgate1                   0         0
Stormgate2       0        7.52       0          TABULAR    Stormgate2                   0         0

[OUTLETS]
;;Name           From Node        To Node          Offset     Type            QTable/Qcoeff    Qexpon     Gated
;;-------------- ---------------- ---------------- ---------- --------------- ---------------- ---------- --------
```

POC-1

```
OUTLET-1         Rtank1-B         Stormgate1       0          TABULAR/DEPTH   Outlet-1-Rtank1-B           NO
OUTLET-2         StormTrap2-B     POC-1            0          TABULAR/DEPTH   Outlet-2-StormTrap2-B           NO
OUTLET-3         Rtank3-B         Stormgate2       0          TABULAR/DEPTH   Outlet-3-Rtank3-B           NO
OUTLET-4         StormTrap4-B     POC-1            0          TABULAR/DEPTH   Outlet-4-StormTrap4-B           NO
OUTLET-1-1       Stormgate1       POC-1            0          TABULAR/DEPTH   Outlet-1-1-Stormgate1           NO
OUTLET-3-1       Stormgate2       POC-1            0          TABULAR/DEPTH   Outlet-3-1-Stormgate2           NO

[CURVES]
;;Name           Type       X-Value    Y-Value
;;-------------- ---------- ---------- ----------
Outlet-1-Rtank1-B Rating     0          0
Outlet-1-Rtank1-B            0.2        0.012
Outlet-1-Rtank1-B            0.4        0.019
Outlet-1-Rtank1-B            0.6        0.024
Outlet-1-Rtank1-B            0.8        0.028
Outlet-1-Rtank1-B            1          0.031
Outlet-1-Rtank1-B            1.2        0.034
Outlet-1-Rtank1-B            1.4        0.037
Outlet-1-Rtank1-B            1.6        0.04
Outlet-1-Rtank1-B            1.8        0.042
Outlet-1-Rtank1-B            2          0.044
Outlet-1-Rtank1-B            2.2        0.047
Outlet-1-Rtank1-B            2.4        0.049
Outlet-1-Rtank1-B            2.6        0.051
Outlet-1-Rtank1-B            2.8        0.053
Outlet-1-Rtank1-B            3          0.055
Outlet-1-Rtank1-B            3.2        0.056
Outlet-1-Rtank1-B            3.4        0.058
Outlet-1-Rtank1-B            3.6        0.06
Outlet-1-Rtank1-B            3.8        0.062
Outlet-1-Rtank1-B            4          0.063
Outlet-1-Rtank1-B            4.2        0.065
Outlet-1-Rtank1-B            4.4        0.066
Outlet-1-Rtank1-B            4.6        0.068
Outlet-1-Rtank1-B            4.8        0.069
Outlet-1-Rtank1-B            5          0.071
Outlet-1-Rtank1-B            5.12       0.072
;
Outlet-2-StormTrap2-B Rating     0          0
Outlet-2-StormTrap2-B            0.2        0.003
Outlet-2-StormTrap2-B            0.4        0.004
Outlet-2-StormTrap2-B            0.6        0.005
Outlet-2-StormTrap2-B            0.8        0.006
Outlet-2-StormTrap2-B            1          0.006
Outlet-2-StormTrap2-B            1.2        0.007
Outlet-2-StormTrap2-B            1.4        0.008
Outlet-2-StormTrap2-B            1.6        0.008
Outlet-2-StormTrap2-B            1.8        0.009
Outlet-2-StormTrap2-B            2          0.009
Outlet-2-StormTrap2-B            2.2        0.01
Outlet-2-StormTrap2-B            2.4        0.01
```

```
Outlet-2-StormTrap2-B            2.6        0.011
Outlet-2-StormTrap2-B            2.8        0.011
Outlet-2-StormTrap2-B            3          0.011
Outlet-2-StormTrap2-B            3.2        0.012
Outlet-2-StormTrap2-B            3.4        0.012
Outlet-2-StormTrap2-B            3.6        0.012
Outlet-2-StormTrap2-B            3.8        0.013
Outlet-2-StormTrap2-B            4          0.013
Outlet-2-StormTrap2-B            4.2        0.301
Outlet-2-StormTrap2-B            4.4        0.639
Outlet-2-StormTrap2-B            4.6        0.841
Outlet-2-StormTrap2-B            4.8        1.002
Outlet-2-StormTrap2-B            5          1.14
Outlet-2-StormTrap2-B            5.2        1.347
Outlet-2-StormTrap2-B            5.4        3.18
Outlet-2-StormTrap2-B            5.6        6.094
Outlet-2-StormTrap2-B            5.67       7.301
;
Outlet-3-Rtank3-B Rating     0          0
Outlet-3-Rtank3-B            0.2        0.008
Outlet-3-Rtank3-B            0.4        0.011
Outlet-3-Rtank3-B            0.6        0.014
Outlet-3-Rtank3-B            0.8        0.017
Outlet-3-Rtank3-B            1          0.019
Outlet-3-Rtank3-B            1.2        0.02
Outlet-3-Rtank3-B            1.4        0.022
Outlet-3-Rtank3-B            1.6        0.024
Outlet-3-Rtank3-B            1.8        0.025
Outlet-3-Rtank3-B            2          0.027
Outlet-3-Rtank3-B            2.2        0.028
Outlet-3-Rtank3-B            2.4        0.029
Outlet-3-Rtank3-B            2.6        0.03
Outlet-3-Rtank3-B            2.8        0.032
Outlet-3-Rtank3-B            3          0.033
Outlet-3-Rtank3-B            3.2        0.034
Outlet-3-Rtank3-B            3.4        0.035
Outlet-3-Rtank3-B            3.6        0.036
Outlet-3-Rtank3-B            3.8        0.037
Outlet-3-Rtank3-B            4          0.038
Outlet-3-Rtank3-B            4.2        0.039
Outlet-3-Rtank3-B            4.4        0.04
Outlet-3-Rtank3-B            4.6        0.041
Outlet-3-Rtank3-B            4.8        0.041
Outlet-3-Rtank3-B            5          0.042
Outlet-3-Rtank3-B            5.2        0.043
Outlet-3-Rtank3-B            5.4        0.044
Outlet-3-Rtank3-B            5.6        0.045
Outlet-3-Rtank3-B            5.8        0.046
Outlet-3-Rtank3-B            6          0.046
Outlet-3-Rtank3-B            6.2        0.047
Outlet-3-Rtank3-B            6.4        0.048
```

```
Outlet-3-Rtank3-B            6.6         0.049
Outlet-3-Rtank3-B            6.8         0.049
Outlet-3-Rtank3-B            7           0.05
;
Outlet-4-StormTrap4-B Rating     0           0
Outlet-4-StormTrap4-B            0.2         0.002
Outlet-4-StormTrap4-B            0.4         0.003
Outlet-4-StormTrap4-B            0.6         0.003
Outlet-4-StormTrap4-B            0.8         0.004
Outlet-4-StormTrap4-B            1           0.004
Outlet-4-StormTrap4-B            1.2         0.005
Outlet-4-StormTrap4-B            1.4         0.005
Outlet-4-StormTrap4-B            1.6         0.005
Outlet-4-StormTrap4-B            1.8         0.006
Outlet-4-StormTrap4-B            2           0.006
Outlet-4-StormTrap4-B            2.2         0.006
Outlet-4-StormTrap4-B            2.4         0.006
Outlet-4-StormTrap4-B            2.6         0.007
Outlet-4-StormTrap4-B            2.8         0.007
Outlet-4-StormTrap4-B            3           0.007
Outlet-4-StormTrap4-B            3.2         0.007
Outlet-4-StormTrap4-B            3.4         0.008
Outlet-4-StormTrap4-B            3.6         0.008
Outlet-4-StormTrap4-B            3.8         0.159
Outlet-4-StormTrap4-B            4           0.544
Outlet-4-StormTrap4-B            4.2         0.772
Outlet-4-StormTrap4-B            4.4         0.943
Outlet-4-StormTrap4-B            4.6         1.088
Outlet-4-StormTrap4-B            4.8         1.215
Outlet-4-StormTrap4-B            5           1.33
Outlet-4-StormTrap4-B            5.2         1.478
Outlet-4-StormTrap4-B            5.4         2.437
Outlet-4-StormTrap4-B            5.6         3.935
Outlet-4-StormTrap4-B            5.67        4.553
;
Outlet-1-1-Stormgate1 Rating     0           0
Outlet-1-1-Stormgate1            0.2         0.17
Outlet-1-1-Stormgate1            0.4         0.632
Outlet-1-1-Stormgate1            0.6         1.298
Outlet-1-1-Stormgate1            0.8         2.051
Outlet-1-1-Stormgate1            1           2.674
Outlet-1-1-Stormgate1            1.2         3.164
Outlet-1-1-Stormgate1            1.4         3.588
Outlet-1-1-Stormgate1            1.6         3.966
Outlet-1-1-Stormgate1            1.8         4.312
Outlet-1-1-Stormgate1            2           4.632
Outlet-1-1-Stormgate1            2.2         4.931
Outlet-1-1-Stormgate1            2.4         5.213
Outlet-1-1-Stormgate1            2.6         5.48
Outlet-1-1-Stormgate1            2.8         5.735
Outlet-1-1-Stormgate1            3           5.979
```

```
Outlet-1-1-Stormgate1            3.2        6.214
Outlet-1-1-Stormgate1            3.4        6.44
Outlet-1-1-Stormgate1            3.6        6.658
Outlet-1-1-Stormgate1            3.8        6.87
Outlet-1-1-Stormgate1            4          7.075
Outlet-1-1-Stormgate1            4.2        7.274
Outlet-1-1-Stormgate1            4.4        7.468
Outlet-1-1-Stormgate1            4.6        7.657
Outlet-1-1-Stormgate1            4.8        7.842
Outlet-1-1-Stormgate1            5          8.022
Outlet-1-1-Stormgate1            5.2        8.212
Outlet-1-1-Stormgate1            5.4        9.632
Outlet-1-1-Stormgate1            5.6        11.979
Outlet-1-1-Stormgate1            5.69       13.247
;
Outlet-3-1-Stormgate2 Rating     0          0
Outlet-3-1-Stormgate2            0.2        0.17
Outlet-3-1-Stormgate2            0.4        0.632
Outlet-3-1-Stormgate2            0.6        1.298
Outlet-3-1-Stormgate2            0.8        2.051
Outlet-3-1-Stormgate2            1          2.674
Outlet-3-1-Stormgate2            1.2        3.164
Outlet-3-1-Stormgate2            1.4        3.588
Outlet-3-1-Stormgate2            1.6        3.966
Outlet-3-1-Stormgate2            1.8        4.312
Outlet-3-1-Stormgate2            2          4.632
Outlet-3-1-Stormgate2            2.2        4.931
Outlet-3-1-Stormgate2            2.4        5.213
Outlet-3-1-Stormgate2            2.6        5.48
Outlet-3-1-Stormgate2            2.8        5.735
Outlet-3-1-Stormgate2            3          5.979
Outlet-3-1-Stormgate2            3.2        6.214
Outlet-3-1-Stormgate2            3.4        6.44
Outlet-3-1-Stormgate2            3.6        6.658
Outlet-3-1-Stormgate2            3.8        6.87
Outlet-3-1-Stormgate2            4          7.075
Outlet-3-1-Stormgate2            4.2        7.274
Outlet-3-1-Stormgate2            4.4        7.468
Outlet-3-1-Stormgate2            4.6        7.657
Outlet-3-1-Stormgate2            4.8        7.842
Outlet-3-1-Stormgate2            5          8.022
Outlet-3-1-Stormgate2            5.2        8.198
Outlet-3-1-Stormgate2            5.4        8.371
Outlet-3-1-Stormgate2            5.6        8.54
Outlet-3-1-Stormgate2            5.8        8.706
Outlet-3-1-Stormgate2            6          8.869
Outlet-3-1-Stormgate2            6.2        9.029
Outlet-3-1-Stormgate2            6.4        9.186
Outlet-3-1-Stormgate2            6.6        9.34
Outlet-3-1-Stormgate2            6.8        9.492
Outlet-3-1-Stormgate2            7          9.641
```

```
Outlet-3-1-Stormgate2            7.2        10.085
Outlet-3-1-Stormgate2            7.4        11.875
Outlet-3-1-Stormgate2            7.52       13.334
;
Rtank1-B         Storage    0          2090
Rtank1-B                    5.12       2090
;
StormTrap2-B     Storage    0          1190
StormTrap2-B                5.67       1190
;
Rtank3-B         Storage    0          1200.8
Rtank3-B                    7          1200.8
;
StormTrap4-B     Storage    0          510
StormTrap4-B                5.67       510
;
Stormgate1       Storage    0          16
Stormgate1                  5.69       16
;
Stormgate2       Storage    0          16
Stormgate2                  7.52       16

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
Escondido        FILE "Rain Data\escondido\escondido1.dat"

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS -2361.375 0.000 10000.000 10000.000
Units      None

[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
POC-1            367.387            1986.771
Rtank1-B         -1852.918          5433.483
StormTrap2-B     -346.741           5826.202
Rtank3-B         1114.197           5710.015
StormTrap4-B     2166.127           3972.116
Stormgate1       -1142.903          4267.564
Stormgate2       991.562            4562.225

[VERTICES]
```

POC-1

```
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------

[Polygons]
;;Subcatchment   X-Coord            Y-Coord
;;-------------- ------------------ ------------------
DMA-1            -2092.081          6778.774
DMA-2            -586.916           6911.793
DMA-3            1443.046           6681.614
DMA-4            3293.806           5908.130
DMA-5            -1797.398          3088.207
SM-9-11          2739.090           2608.857

;;Storage Node   X-Coord            Y-Coord
;;-------------- ------------------ ------------------
Rtank1-B         -1852.918          5433.483
StormTrap2-B     -346.741           5826.202
Rtank3-B         1114.197           5710.015
StormTrap4-B     2166.127           3972.116
Stormgate1       -1142.903          4267.564
Stormgate2       991.562            4562.225

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
Escondido        392.092            7571.018
```

```
  EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)
  ------------------------------------------------------------

  3527 South Santa Fe
  Pre-Development Condition

  ****************
  Analysis Options
  ****************
  Flow Units ............... CFS
  Process Models:
    Rainfall/Runoff ........ YES
    RDII ................... NO
    Snowmelt ............... NO
    Groundwater ............ NO
    Flow Routing ........... NO
    Water Quality .......... NO
  Infiltration Method ...... GREEN_AMPT
  Starting Date ............ 09/24/1964 13:00:00
  Ending Date .............. 05/23/2008 22:00:00
  Antecedent Dry Days ...... 0.0
  Report Time Step ......... 01:00:00
  Wet Time Step ............ 00:15:00
  Dry Time Step ............ 04:00:00


  *************************        Volume         Depth
  Runoff Quantity Continuity     acre-feet        inches
  *************************     ---------       -------
  Total Precipitation ......       132.409       611.120
  Evaporation Loss .........         1.894         8.743
  Infiltration Loss ........       118.708       547.885
  Surface Runoff ...........        12.932        59.686
  Final Storage ............         0.000         0.000
  Continuity Error (%) .....        -0.850


  *************************        Volume        Volume
  Flow Routing Continuity        acre-feet      10^6 gal
  *************************     ---------     ----------
  Dry Weather Inflow .......         0.000         0.000
  Wet Weather Inflow .......        12.932         4.214
  Groundwater Inflow .......         0.000         0.000
  RDII Inflow ..............         0.000         0.000
  External Inflow ..........         0.000         0.000
  External Outflow .........        12.932         4.214
  Flooding Loss ............         0.000         0.000
  Evaporation Loss .........         0.000         0.000
  Exfiltration Loss ........         0.000         0.000
  Initial Stored Volume ....         0.000         0.000
  Final Stored Volume ......         0.000         0.000
  Continuity Error (%) .....         0.000
```

```
**************************
Subcatchment Runoff Summary
**************************
```

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Imperv Runoff in	Perv Runoff in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DMA-1	611.12	0.00	6.59	555.76	0.00	52.92	52.92	1.57	0.81	0.087
DMA-2	611.12	0.00	10.30	542.20	0.00	64.57	64.57	2.65	1.18	0.106

```
Analysis begun on:  Wed Dec  4 09:37:48 2024
Analysis ended on:  Wed Dec  4 09:37:59 2024
Total elapsed time: 00:00:11
```

```
  EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)
  ------------------------------------------------------------

  3527 South Santa Fe
  Post-Project Condition

  ****************
  Analysis Options
  ****************
  Flow Units ............... CFS
  Process Models:
    Rainfall/Runoff ........ YES
    RDII ................... NO
    Snowmelt ............... NO
    Groundwater ............ NO
    Flow Routing ........... YES
    Ponding Allowed ........ NO
    Water Quality .......... NO
  Infiltration Method ...... GREEN_AMPT
  Flow Routing Method ...... KINWAVE
  Starting Date ............ 09/24/1964 13:00:00
  Ending Date .............. 05/23/2008 22:00:00
  Antecedent Dry Days ...... 0.0
  Report Time Step ......... 01:00:00
  Wet Time Step ............ 00:15:00
  Dry Time Step ............ 04:00:00
  Routing Time Step ........ 60.00 sec


  *************************        Volume         Depth
  Runoff Quantity Continuity     acre-feet        inches
  *************************     ---------       -------
  Total Precipitation ......       132.206       611.120
  Evaporation Loss .........        12.305        56.880
  Infiltration Loss ........        38.479       177.870
  Surface Runoff ...........        83.709       386.945
  Final Storage ............         0.005         0.022
  Continuity Error (%) .....        -1.734


  *************************        Volume        Volume
  Flow Routing Continuity        acre-feet      10^6 gal
  *************************     ---------     ---------
  Dry Weather Inflow .......         0.000         0.000
  Wet Weather Inflow .......        83.709        27.278
  Groundwater Inflow .......         0.000         0.000
  RDII Inflow ..............         0.000         0.000
  External Inflow ..........         0.000         0.000
  External Outflow .........        78.386        25.543
  Flooding Loss ............         0.000         0.000
  Evaporation Loss .........         0.000         0.000
  Exfiltration Loss ........         0.000         0.000
  Initial Stored Volume ....         0.000         0.000
```

```
Final Stored Volume ......         0.009         0.003
Continuity Error (%) .....         6.348


*******************************
Highest Flow Instability Indexes
*******************************
Link OUTLET-1-1 (7)
Link OUTLET-3-1 (7)


*************************
Routing Time Step Summary
*************************
Minimum Time Step           :    59.00 sec
Average Time Step           :    60.00 sec
Maximum Time Step           :    60.00 sec
% of Time in Steady State   :     0.00
Average Iterations per Step :     1.00
% of Steps Not Converging   :     0.00


***************************
Subcatchment Runoff Summary
***************************

---------------------------------------------------------------------------------------------------------------------------
                          Total      Total      Total      Total     Imperv       Perv      Total       Total      Peak  Runoff
                         Precip      Runon       Evap      Infil    Runoff     Runoff     Runoff      Runoff    Runoff   Coeff
Subcatchment                 in         in         in         in        in         in         in    10^6 gal       CFS
---------------------------------------------------------------------------------------------------------------------------
DMA-1                    611.12       0.00      57.76     174.49    367.89      20.56     388.46        5.91      0.46   0.636
DMA-2                    611.12       0.00      57.31     171.45    358.35      35.45     393.79       10.16      0.79   0.644
DMA-3                    611.12       0.00      62.81     141.82    399.49      16.63     416.12        4.52      0.33   0.681
DMA-4                    611.12       0.00      46.66     248.81    293.23      31.91     325.14        4.41      0.41   0.532
DMA-5                    611.12       0.00      69.89      83.89    433.96      36.97     470.93        2.17      0.14   0.771
SM-9-11                  611.12       0.00      33.71     359.99     76.84     160.18     237.02        0.10      0.01   0.388


******************
Node Depth Summary
******************

-------------------------------------------------------------------------------
                            Average  Maximum  Maximum  Time of Max    Reported
                              Depth    Depth      HGL   Occurrence   Max Depth
Node                 Type      Feet     Feet     Feet  days hr:min        Feet
-------------------------------------------------------------------------------
POC-1                OUTFALL   0.00     0.00     0.00     0  00:00        0.00
Rtank1-B             STORAGE   0.01     4.80     4.80   803  10:05        4.80
StormTrap2-B         STORAGE   0.15     4.52     4.52  10332  04:02        4.52
Rtank3-B             STORAGE   0.02     6.58     6.58   803  10:06        6.58
StormTrap4-B         STORAGE   0.09     3.93     3.93  10332  03:51        3.93
Stormgate1           STORAGE   0.00     0.10     0.10   803  10:07        0.06
```

Stormgate2	STORAGE	0.00	0.07	0.07	803	10:08	0.07

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
POC-1	OUTFALL	0.16	1.40	10332 04:01	2.28	25.5	0.000
Rtank1-B	STORAGE	0.46	0.46	10332 03:31	5.91	5.91	0.000
StormTrap2-B	STORAGE	0.79	0.79	10332 04:01	10.2	10.2	0.009
Rtank3-B	STORAGE	0.33	0.33	10332 03:31	4.52	4.52	0.001
StormTrap4-B	STORAGE	0.41	0.41	10332 03:46	4.41	4.41	0.015
Stormgate1	STORAGE	0.00	0.07	803 10:05	0	5.91	20.903
Stormgate2	STORAGE	0.00	0.05	803 10:06	0	4.52	18.597

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 ft³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft³	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
Rtank1-B	0.026	0.2	0.0	0.0	10.027	93.7	803 10:05	0.07
StormTrap2-B	0.175	2.6	0.0	0.0	5.383	79.8	10332 04:02	0.76
Rtank3-B	0.020	0.2	0.0	0.0	7.900	94.0	803 10:06	0.05
StormTrap4-B	0.047	1.6	0.0	0.0	2.003	69.3	10332 03:51	0.41
Stormgate1	0.000	0.0	0.0	0.0	0.002	1.7	803 10:07	0.08
Stormgate2	0.000	0.0	0.0	0.0	0.001	0.9	803 10:08	0.06

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal

POC-1	16.54	0.01	1.40	25.541
System	16.54	0.01	1.40	25.541

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days	hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
OUTLET-1	DUMMY	0.07	803	10:05			
OUTLET-2	DUMMY	0.76	10332	04:02			
OUTLET-3	DUMMY	0.05	803	10:06			
OUTLET-4	DUMMY	0.41	10332	03:51			
OUTLET-1-1	DUMMY	0.08	803	10:05			
OUTLET-3-1	DUMMY	0.06	803	10:06			

****
Conduit Surcharge Summary
****

No conduits were surcharged.

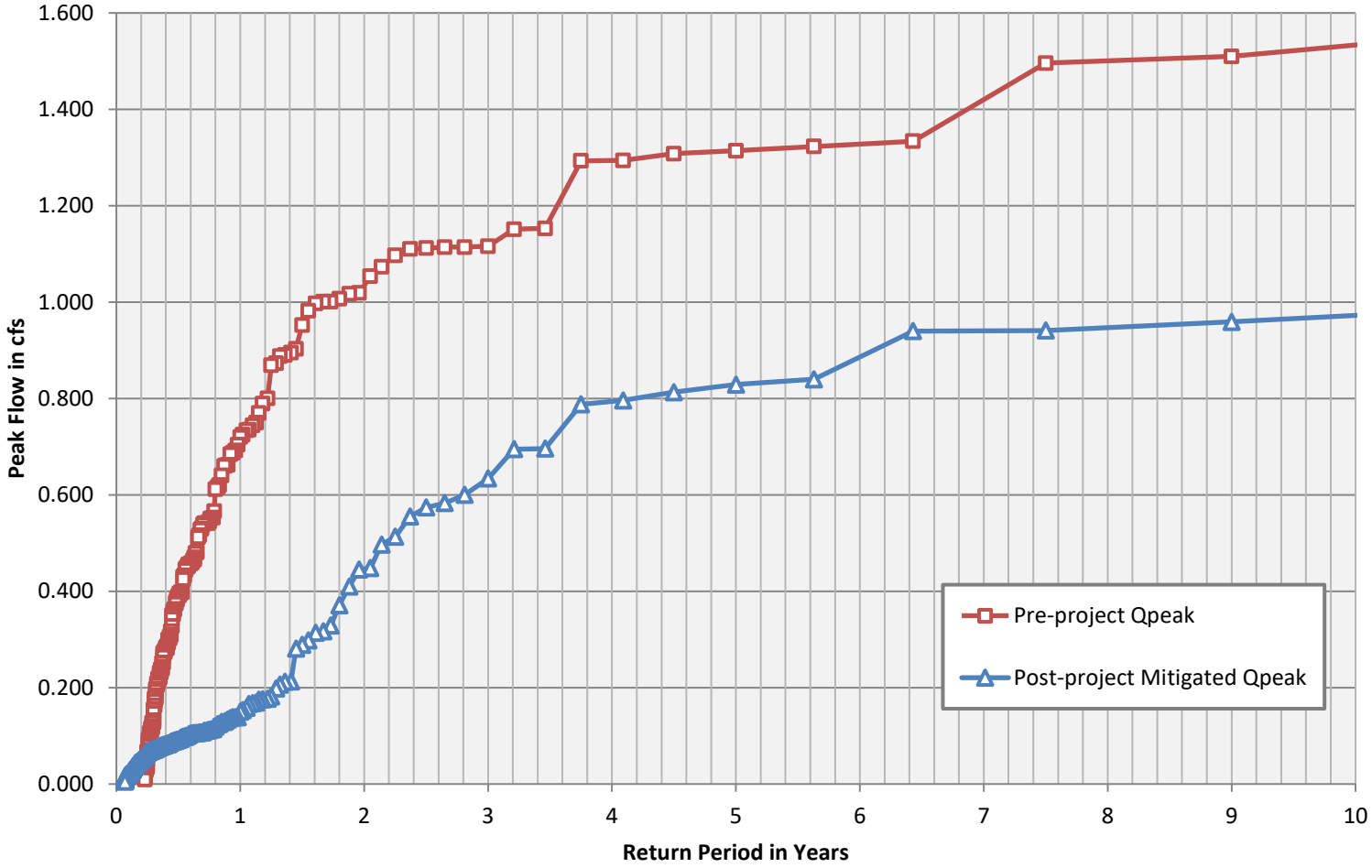
Analysis begun on: Wed Dec 4 09:42:20 2024
Analysis ended on: Wed Dec 4 09:43:01 2024
Total elapsed time: 00:00:41

POC-1

Peak Flow Frequency Summary

Return Period	Pre-project Qpeak (cfs)	Post-project - Mitigated Q (cfs)
LF = 0.1xQ2	0.103	0.045
2-year	1.035	0.446
Permavoid Layer	1.314	0.829
10-year	1.534	0.972

POC-1
Peak Flow Frequency Curves



Low-flow Threshold:	10%	
0.1xQ2 (Pre):	0.103	cfs
Q10 (Pre):	1.534	cfs
Ordinate #:	100	
Incremental Q (Pre):	0.01430	cfs
Total Hourly Data:	382736	hours

POC-1

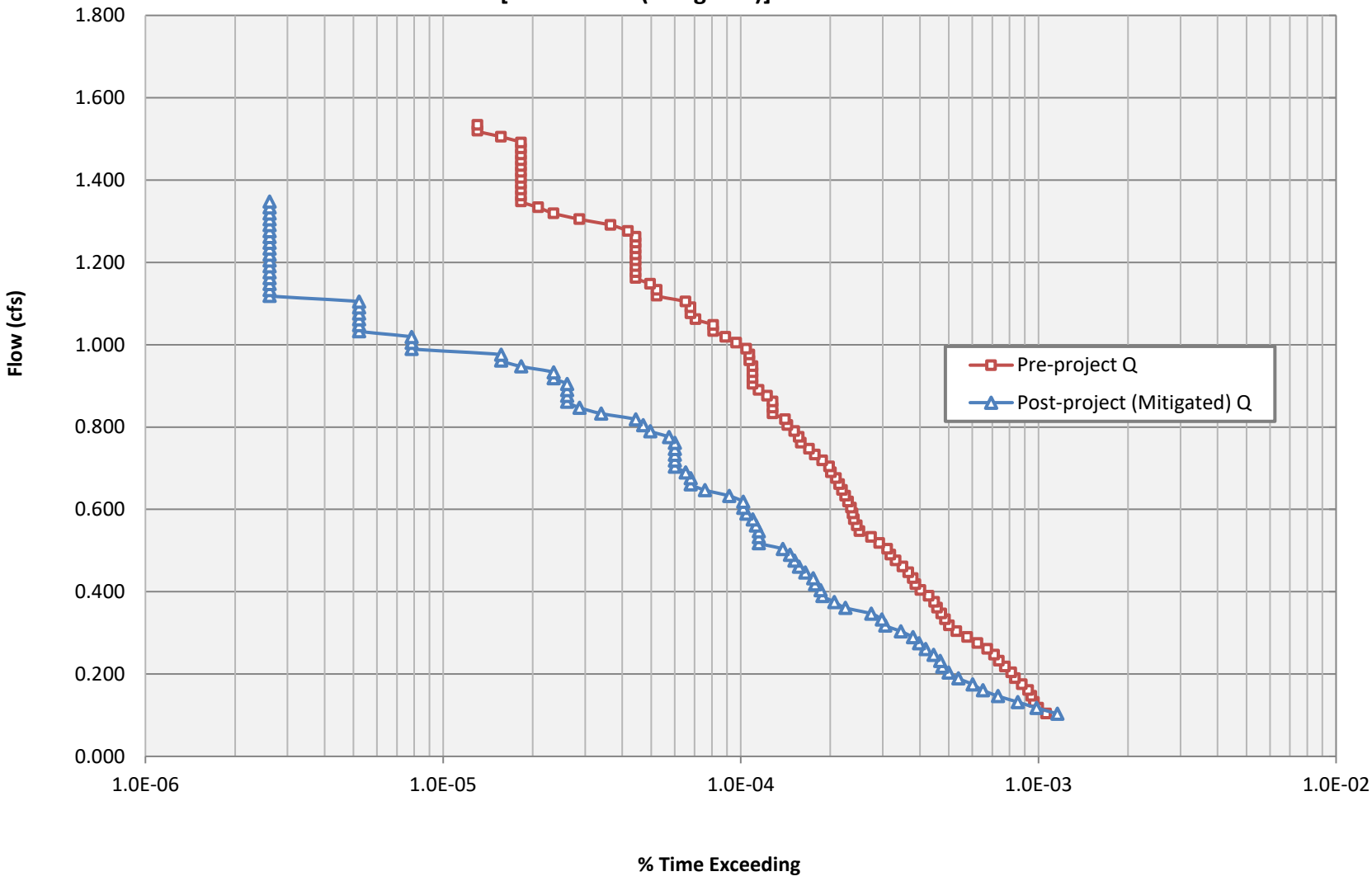
The proposed BMP: PASSED

Permavoid Layer	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding		Post-project % Time Exceeding	Percentage	Pass/Fail
0	0.103	407	1.06E-03	443	1.16E-03	109%	Pass
1	0.118	383	1.00E-03	377	9.85E-04	98%	Pass
2	0.132	370	9.67E-04	326	8.52E-04	88%	Pass
3	0.146	363	9.48E-04	280	7.32E-04	77%	Pass
4	0.161	354	9.25E-04	249	6.51E-04	70%	Pass
5	0.175	337	8.81E-04	230	6.01E-04	68%	Pass
6	0.189	320	8.36E-04	206	5.38E-04	64%	Pass
7	0.204	311	8.13E-04	191	4.99E-04	61%	Pass
8	0.218	296	7.73E-04	182	4.76E-04	61%	Pass
9	0.232	282	7.37E-04	179	4.68E-04	63%	Pass
10	0.246	272	7.11E-04	170	4.44E-04	63%	Pass
11	0.261	258	6.74E-04	160	4.18E-04	62%	Pass
12	0.275	239	6.24E-04	152	3.97E-04	64%	Pass
13	0.289	221	5.77E-04	145	3.79E-04	66%	Pass
14	0.304	203	5.30E-04	132	3.45E-04	65%	Pass
15	0.318	192	5.02E-04	117	3.06E-04	61%	Pass
16	0.332	186	4.86E-04	114	2.98E-04	61%	Pass
17	0.347	181	4.73E-04	105	2.74E-04	58%	Pass
18	0.361	175	4.57E-04	86	2.25E-04	49%	Pass
19	0.375	171	4.47E-04	79	2.06E-04	46%	Pass
20	0.389	164	4.28E-04	72	1.88E-04	44%	Pass
21	0.404	154	4.02E-04	71	1.86E-04	46%	Pass
22	0.418	148	3.87E-04	68	1.78E-04	46%	Pass
23	0.432	145	3.79E-04	67	1.75E-04	46%	Pass
24	0.447	140	3.66E-04	63	1.65E-04	45%	Pass
25	0.461	134	3.50E-04	60	1.57E-04	45%	Pass
26	0.475	127	3.32E-04	58	1.52E-04	46%	Pass
27	0.490	122	3.19E-04	56	1.46E-04	46%	Pass
28	0.504	119	3.11E-04	53	1.38E-04	45%	Pass
29	0.518	112	2.93E-04	44	1.15E-04	39%	Pass
30	0.532	105	2.74E-04	44	1.15E-04	42%	Pass
31	0.547	96	2.51E-04	44	1.15E-04	46%	Pass
32	0.561	94	2.46E-04	43	1.12E-04	46%	Pass
33	0.575	92	2.40E-04	42	1.10E-04	46%	Pass
34	0.590	91	2.38E-04	40	1.05E-04	44%	Pass
35	0.604	90	2.35E-04	39	1.02E-04	43%	Pass
36	0.618	88	2.30E-04	39	1.02E-04	44%	Pass
37	0.633	86	2.25E-04	35	9.14E-05	41%	Pass
38	0.647	84	2.19E-04	29	7.58E-05	35%	Pass
39	0.661	82	2.14E-04	26	6.79E-05	32%	Pass
40	0.675	80	2.09E-04	26	6.79E-05	33%	Pass
41	0.690	77	2.01E-04	25	6.53E-05	32%	Pass
42	0.704	76	1.99E-04	23	6.01E-05	30%	Pass
43	0.718	72	1.88E-04	23	6.01E-05	32%	Pass
44	0.733	68	1.78E-04	23	6.01E-05	34%	Pass
45	0.747	65	1.70E-04	23	6.01E-05	35%	Pass
46	0.761	61	1.59E-04	23	6.01E-05	38%	Pass
47	0.776	60	1.57E-04	22	5.75E-05	37%	Pass
48	0.790	58	1.52E-04	19	4.96E-05	33%	Pass
49	0.804	55	1.44E-04	18	4.70E-05	33%	Pass
50	0.819	54	1.41E-04	17	4.44E-05	31%	Pass
51	0.833	49	1.28E-04	13	3.40E-05	27%	Pass
52	0.847	49	1.28E-04	11	2.87E-05	22%	Pass
53	0.861	49	1.28E-04	10	2.61E-05	20%	Pass
54	0.876	47	1.23E-04	10	2.61E-05	21%	Pass

Permavoid Layer	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding		Post-project % Time Exceeding	Percentage	Pass/Fail
55	0.890	44	1.15E-04	10	2.61E-05	23%	Pass
56	0.904	42	1.10E-04	10	2.61E-05	24%	Pass
57	0.919	42	1.10E-04	9	2.35E-05	21%	Pass
58	0.933	42	1.10E-04	9	2.35E-05	21%	Pass
59	0.947	42	1.10E-04	7	1.83E-05	17%	Pass
60	0.962	41	1.07E-04	6	1.57E-05	15%	Pass
61	0.976	41	1.07E-04	6	1.57E-05	15%	Pass
62	0.990	40	1.05E-04	3	7.84E-06	8%	Pass
63	1.004	37	9.67E-05	3	7.84E-06	8%	Pass
64	1.019	34	8.88E-05	3	7.84E-06	9%	Pass
65	1.033	31	8.10E-05	2	5.23E-06	6%	Pass
66	1.047	31	8.10E-05	2	5.23E-06	6%	Pass
67	1.062	27	7.05E-05	2	5.23E-06	7%	Pass
68	1.076	26	6.79E-05	2	5.23E-06	8%	Pass
69	1.090	26	6.79E-05	2	5.23E-06	8%	Pass
70	1.105	25	6.53E-05	2	5.23E-06	8%	Pass
71	1.119	20	5.23E-05	1	2.61E-06	5%	Pass
72	1.133	20	5.23E-05	1	2.61E-06	5%	Pass
73	1.147	19	4.96E-05	1	2.61E-06	5%	Pass
74	1.162	17	4.44E-05	1	2.61E-06	6%	Pass
75	1.176	17	4.44E-05	1	2.61E-06	6%	Pass
76	1.190	17	4.44E-05	1	2.61E-06	6%	Pass
77	1.205	17	4.44E-05	1	2.61E-06	6%	Pass
78	1.219	17	4.44E-05	1	2.61E-06	6%	Pass
79	1.233	17	4.44E-05	1	2.61E-06	6%	Pass
80	1.248	17	4.44E-05	1	2.61E-06	6%	Pass
81	1.262	17	4.44E-05	1	2.61E-06	6%	Pass
82	1.276	16	4.18E-05	1	2.61E-06	6%	Pass
83	1.290	14	3.66E-05	1	2.61E-06	7%	Pass
84	1.305	11	2.87E-05	1	2.61E-06	9%	Pass
85	1.319	9	2.35E-05	1	2.61E-06	11%	Pass
86	1.333	8	2.09E-05	1	2.61E-06	13%	Pass
87	1.348	7	1.83E-05	1	2.61E-06	14%	Pass
88	1.362	7	1.83E-05	0	0.00E+00	0%	Pass
89	1.376	7	1.83E-05	0	0.00E+00	0%	Pass
90	1.391	7	1.83E-05	0	0.00E+00	0%	Pass
91	1.405	7	1.83E-05	0	0.00E+00	0%	Pass
92	1.419	7	1.83E-05	0	0.00E+00	0%	Pass
93	1.433	7	1.83E-05	0	0.00E+00	0%	Pass
94	1.448	7	1.83E-05	0	0.00E+00	0%	Pass
95	1.462	7	1.83E-05	0	0.00E+00	0%	Pass
96	1.476	7	1.83E-05	0	0.00E+00	0%	Pass
97	1.491	7	1.83E-05	0	0.00E+00	0%	Pass
98	1.505	6	1.57E-05	0	0.00E+00	0%	Pass
99	1.519	5	1.31E-05	0	0.00E+00	0%	Pass
100	1.534	5	1.31E-05	0	0.00E+00	0%	Pass

POC-1

Flow Duration Curve
[Pre vs. Post (Mitigated)]



Summary for Pond 2P: Rtank 1-B Alt1

Volume	Invert	Avail.Storage	Storage Description
#1	526.60'	10,701 cf	**Tank 1-B (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.60	2,200	0.0	0	0	2,200
527.00	2,200	95.0	836	836	2,267
528.00	2,200	95.0	2,090	2,926	2,433
529.00	2,200	95.0	2,090	5,016	2,599
530.00	2,200	95.0	2,090	7,106	2,765
531.72	2,200	95.0	3,595	10,701	3,051

Device	Routing	Invert	Outlet Devices
#1	Primary	526.60'	**12.00" Round Culvert** L= 6.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 526.60' / 526.53' S= 0.0117 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	526.60'	**1.10" Vert. Orifice** C= 0.600 Limited to weir flow at low heads

Stage-Discharge for Pond 2P: Rtank 1-B Alt1

Elevation (feet)	Primary (cfs)
526.60	0.000
526.80	0.012
527.00	0.019
527.20	0.024
527.40	0.028
527.60	0.031
527.80	0.034
528.00	0.037
528.20	0.040
528.40	0.042
528.60	0.044
528.80	0.047
529.00	0.049
529.20	0.051
529.40	0.053
529.60	0.055
529.80	0.056
530.00	0.058
530.20	0.060
530.40	0.062
530.60	0.063
530.80	0.065
531.00	0.066
531.20	0.068
531.40	0.069
531.60	**0.071**
531.72	**0.072**

Summary for Pond 3P: Stormgate 1

Volume	Invert	Avail.Storage	Storage Description
#1	526.53'	91 cf	**Stormgate (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.53	16	0.0	0	0	16
527.00	16	100.0	8	8	23
528.00	16	100.0	16	24	37
529.00	16	100.0	16	40	51
530.00	16	100.0	16	56	65
531.72	16	100.0	28	83	90
532.22	16	100.0	8	91	97

Device	Routing	Invert	Outlet Devices
#1	Primary	526.53'	**12.00" Round Culvert** L= 13.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 526.53' / 526.08' S= 0.0346 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Primary	531.72'	**Custom Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.50 0.50 Width (feet) 4.00 4.00 0.00

Stage-Discharge for Pond 3P: Stormgate 1

Elevation (feet)	Primary (cfs)
526.53	0.000
526.73	0.170
526.93	0.632
527.13	1.298
527.33	2.051
527.53	2.674
527.73	3.164
527.93	3.588
528.13	3.966
528.33	4.312
528.53	4.632
528.73	4.931
528.93	5.213
529.13	5.480
529.33	5.735
529.53	5.979
529.73	6.214
529.93	6.440
530.13	6.658
530.33	6.870
530.53	7.075
530.73	7.274
530.93	7.468
531.13	7.657
531.33	7.842
531.53	8.022
531.73	8.212
531.93	9.632
532.13	**11.979**
532.22	**13.247**

Summary for Pond 4P: StormTrap 2-B Alt 1

Volume	Invert	Avail.Storage	Storage Description
#1	486.93'	6,747 cf	**Tank 2-B (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
486.93	1,400	0.0	0	0	1,400
488.00	1,400	85.0	1,273	1,273	1,542
489.00	1,400	85.0	1,190	2,463	1,675
490.00	1,400	85.0	1,190	3,653	1,807
490.93	1,400	85.0	1,107	4,760	1,931
491.00	1,400	85.0	83	4,843	1,940
492.00	1,400	85.0	1,190	6,033	2,072
492.60	1,400	85.0	714	6,747	2,152

Device	Routing	Invert	Outlet Devices
#1	Primary	486.93'	**12.00" Round Culvert** L= 34.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 486.93' / 486.59' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	486.93'	**0.50" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	490.93'	**12.00" W x 3.00" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	492.10'	**Custom Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.50 0.50 Width (feet) 5.00 5.00 0.00

Stage-Discharge for Pond 4P: StormTrap 2-B Alt 1

Elevation (feet)	Primary (cfs)
486.93	0.000
487.13	0.003
487.33	0.004
487.53	0.005
487.73	0.006
487.93	0.006
488.13	0.007
488.33	0.008
488.53	0.008
488.73	0.009
488.93	0.009
489.13	0.010
489.33	0.010
489.53	0.011
489.73	0.011
489.93	0.011
490.13	0.012
490.33	0.012
490.53	0.012
490.73	0.013
490.93	0.013
491.13	0.301
491.33	0.639
491.53	0.841
491.73	1.002
491.93	1.140
492.13	1.347
492.33	3.180
492.53	**6.094**
492.60	**7.301**

Summary for Pond 5P: Rtank 3-B Alt1

Volume	Invert	Avail.Storage	Storage Description
#1	520.06'	8,406 cf	**Tank 3-B (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.06	1,264	0.0	0	0	1,264
521.00	1,264	95.0	1,129	1,129	1,382
522.00	1,264	95.0	1,201	2,330	1,509
523.00	1,264	95.0	1,201	3,530	1,635
524.00	1,264	95.0	1,201	4,731	1,761
525.00	1,264	95.0	1,201	5,932	1,887
526.00	1,264	95.0	1,201	7,133	2,013
527.06	1,264	95.0	1,273	8,406	2,146

Device	Routing	Invert	Outlet Devices
#1	Primary	520.06'	**12.00" Round Culvert** L= 14.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 520.06' / 519.94' S= 0.0086 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	520.06'	**0.85" Vert. Orifice** C= 0.600 Limited to weir flow at low heads

Stage-Discharge for Pond 5P: Rtank 3-B Alt1

Elevation (feet)	Primary (cfs)
520.06	0.000
520.26	0.008
520.46	0.011
520.66	0.014
520.86	0.017
521.06	0.019
521.26	0.020
521.46	0.022
521.66	0.024
521.86	0.025
522.06	0.027
522.26	0.028
522.46	0.029
522.66	0.030
522.86	0.032
523.06	0.033
523.26	0.034
523.46	0.035
523.66	0.036
523.86	0.037
524.06	0.038
524.26	0.039
524.46	0.040
524.66	0.041
524.86	0.041
525.06	0.042
525.26	0.043
525.46	0.044
525.66	0.045
525.86	0.046
526.06	0.046
526.26	0.047
526.46	0.048
526.66	0.049
526.86	0.049
527.06	**0.050**

Summary for Pond 6P: Stormgate 2

Volume	Invert	Avail.Storage	Storage Description
#1	519.94'	120 cf	**Stormgate 2 (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
519.94	16	0.0	0	0	16
521.00	16	100.0	17	17	31
522.00	16	100.0	16	33	45
523.00	16	100.0	16	49	59
524.00	16	100.0	16	65	74
525.00	16	100.0	16	81	88
526.00	16	100.0	16	97	102
527.06	16	100.0	17	114	117
527.46	16	100.0	6	120	123

Device	Routing	Invert	Outlet Devices
#1	Primary	519.94'	**12.00" Round Culvert** L= 290.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 519.94' / 490.01' S= 0.1032 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Primary	527.06'	**Custom Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.40 0.40 Width (feet) 4.00 4.00 0.00

Stage-Discharge for Pond 6P: Stormgate 2

Elevation (feet)	Primary (cfs)
519.94	0.000
520.14	0.170
520.34	0.632
520.54	1.298
520.74	2.051
520.94	2.674
521.14	3.164
521.34	3.588
521.54	3.966
521.74	4.312
521.94	4.632
522.14	4.931
522.34	5.213
522.54	5.480
522.74	5.735
522.94	5.979
523.14	6.214
523.34	6.440
523.54	6.658
523.74	6.870
523.94	7.075
524.14	7.274
524.34	7.468
524.54	7.657
524.74	7.842
524.94	8.022
525.14	8.198
525.34	8.371
525.54	8.540
525.74	8.706
525.94	8.869
526.14	9.029
526.34	9.186
526.54	9.340
526.74	9.492
526.94	9.641
527.14	10.085
527.34	**11.875**
527.46	**13.334**

Summary for Pond 7P: StormTrap 4-B Alt1

Volume	Invert	Avail.Storage	Storage Description
#1	490.33'	2,892 cf	**Tank 4-B (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.33	600	0.0	0	0	600
491.00	600	85.0	342	342	658
492.00	600	85.0	510	852	745
493.00	600	85.0	510	1,362	832
494.00	600	85.0	510	1,872	919
495.00	600	85.0	510	2,382	1,006
496.00	600	85.0	510	2,892	1,092

Device	Routing	Invert	Outlet Devices
#1	Primary	490.33'	**12.00" Round Culvert** L= 32.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 490.33' / 490.01' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	490.33'	**0.40" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	494.00'	**12.00" W x 3.00" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Primary	495.50'	**Custom Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.50 0.50 Width (feet) 2.50 2.50 0.00

Stage-Discharge for Pond 7P: StormTrap 4-B Alt1

Elevation (feet)	Primary (cfs)
490.33	0.000
490.53	0.002
490.73	0.003
490.93	0.003
491.13	0.004
491.33	0.004
491.53	0.005
491.73	0.005
491.93	0.005
492.13	0.006
492.33	0.006
492.53	0.006
492.73	0.006
492.93	0.007
493.13	0.007
493.33	0.007
493.53	0.007
493.73	0.008
493.93	0.008
494.13	0.159
494.33	0.544
494.53	0.772
494.73	0.943
494.93	1.088
495.13	1.215
495.33	1.330
495.53	1.478
495.73	2.437
495.93	**3.935**
496.00	**4.553**

Vault Drawdown Calculation

Project Name	South Santa Fe	RTank-1B
Project No	3527	12/4/2024
Vault Drawdown Time:	**76.9**	**hrs**

Note: Drawdown time is calculated assuming an initial water surface depth equal to the invert of the lowest surface discharge opening in the vault outlet structure.

Underdrain Orifice Diameter(in):	**1.1**
C:	**0.6**

Surface Depth (ft)	**Volume (cf)**	**$Q_{orifice}$ (cfs)**
5.12	10701	0.071
3.4	7106	0.058
2.4	5016	0.048
1.4	2926	0.036
0.4	836	0.018
0	0	0.000

Ave Q:	**0.03863**
Drawdown (hrs) (Vol/Ave Q):	**76.9**

Vault Drawdown Calculation

Project Name	South Santa Fe	StormTrap-2B
Project No	3527	12/4/2024
Vault Drawdown Time:	**164.9**	**hrs**

Note: Drawdown time is calculated assuming an initial water surface depth equal to the invert of the lowest surface discharge opening in the vault outlet structure.

Underdrain Orifice Diameter(in):	**0.5**
C:	**0.6**

Surface Depth (ft)	**Volume (cf)**	**$Q_{orifice}$ (cfs)**
4	4760	0.013
3.07	3653	0.011
2.07	2463	0.009
1.07	1273	0.007
0.00	0	0.00

Ave Q:	**0.00802**
Drawdown (hrs) (Vol/Ave Q):	**164.9**

Vault Drawdown Calculation

Project Name	South Santa Fe	RTank-3B
Project No	3527	12/4/2024

Vault Drawdown Time:	**74.0**	**hrs**

Note: Drawdown time is calculated assuming an initial water surface depth equal to the invert of the lowest surface discharge opening in the vault outlet structure.

Underdrain Orifice Diameter(in):	**0.85**
C:	**0.6**

Surface Depth (ft)	**Volume (cf)**	**$Q_{orifice}$ (cfs)**
7	8406	0.050
6	7133	0.046
5	5932	0.042
4	4731	0.038
3	3530	0.032
2	2330	0.026
1	1129	0.018
0	0	0.000

Ave Q:	**0.03155**
Drawdown (hrs) (Vol/Ave Q):	**74.0**

Vault Drawdown Calculation

Project Name	South Santa Fe	StormTrap-4B
Project No	3527	12/4/2024
Vault Drawdown Time:	**112.0**	**hrs**

Note: Drawdown time is calculated assuming an initial water surface depth equal to the invert of the lowest surface discharge opening in the vault outlet structure.

Underdrain Orifice Diameter(in):	**0.4**
C:	**0.6**

Surface Depth (ft)	**Volume (cf)**	**$Q_{orifice}$ (cfs)**
3.67	1872	0.008
2.67	1362	0.007
1.67	852	0.005
0.67	342	0.003
0	0	0.000

Ave Q:	**0.00464**
Drawdown (hrs) (Vol/Ave Q):	**112.0**

Manning's *n* Values for Overland Flow[1]

The BMP Design Manuals within the County of San Diego allow for a land surface description other than short prairie grass to be used for hydromodification BMP design only if documentation provided is consistent with Table A.6 of the SWMM 5 User's Manual.

In January 2016, the EPA released the SWMM Reference Manual Volume I – Hydrology (SWMM Hydrology Reference Manual). The SWMM Hydrology Reference Manual complements the SWMM 5 User's Manual by providing an in-depth description of the program's hydrologic components. Table 3-5 of the SWMM Hydrology Reference Manual expounds upon Table A.6 of the SWMM 5 User's Manual by providing Manning's *n* values for additional overland flow surfaces. Therefore, in order to provide SWMM users with a wider range of land surfaces suitable for local application and to provide Copermittees with confidence in the design parameters, we recommend using the values published by Yen and Chow in Table 3-5 of the EPA SWMM Reference Manual Volume I – Hydrology. The values are provided in the table below:

Overland Surface	**Manning value (*n*)**
Smooth asphalt pavement	0.010
Smooth impervious surface	0.011
Tar and sand pavement	0.012
Concrete pavement	0.014
Rough impervious surface	0.015
Smooth bare packed soil	0.017
Moderate bare packed soil	0.025
Rough bare packed soil	0.032
Gravel soil	0.025
Mowed poor grass	0.030
Average grass, closely clipped sod	0.040
Pasture	0.040
Timberland	0.060
Dense grass	0.060
Shrubs and bushes	0.080
Land Use	
Business	0.014
Semibusiness	0.022
Industrial	0.020
Dense residential	0.025
Suburban residential	0.030
Parks and lawns	0.040

[1]Content summarized from *Improving Accuracy in Continuous Simulation Modeling: Guidance for Selecting Pervious Overland Flow Manning's n Values in the San Diego Region* (TRWE, 2016).

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Diego County Area, California

July 27, 20

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Information for All Uses.....8
Soil Properties and Qualities.....8
Soil Qualities and Features.....8
Hydrologic Soil Group (2972/2982 South Santa Fe Avenue).....8
References.....13

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

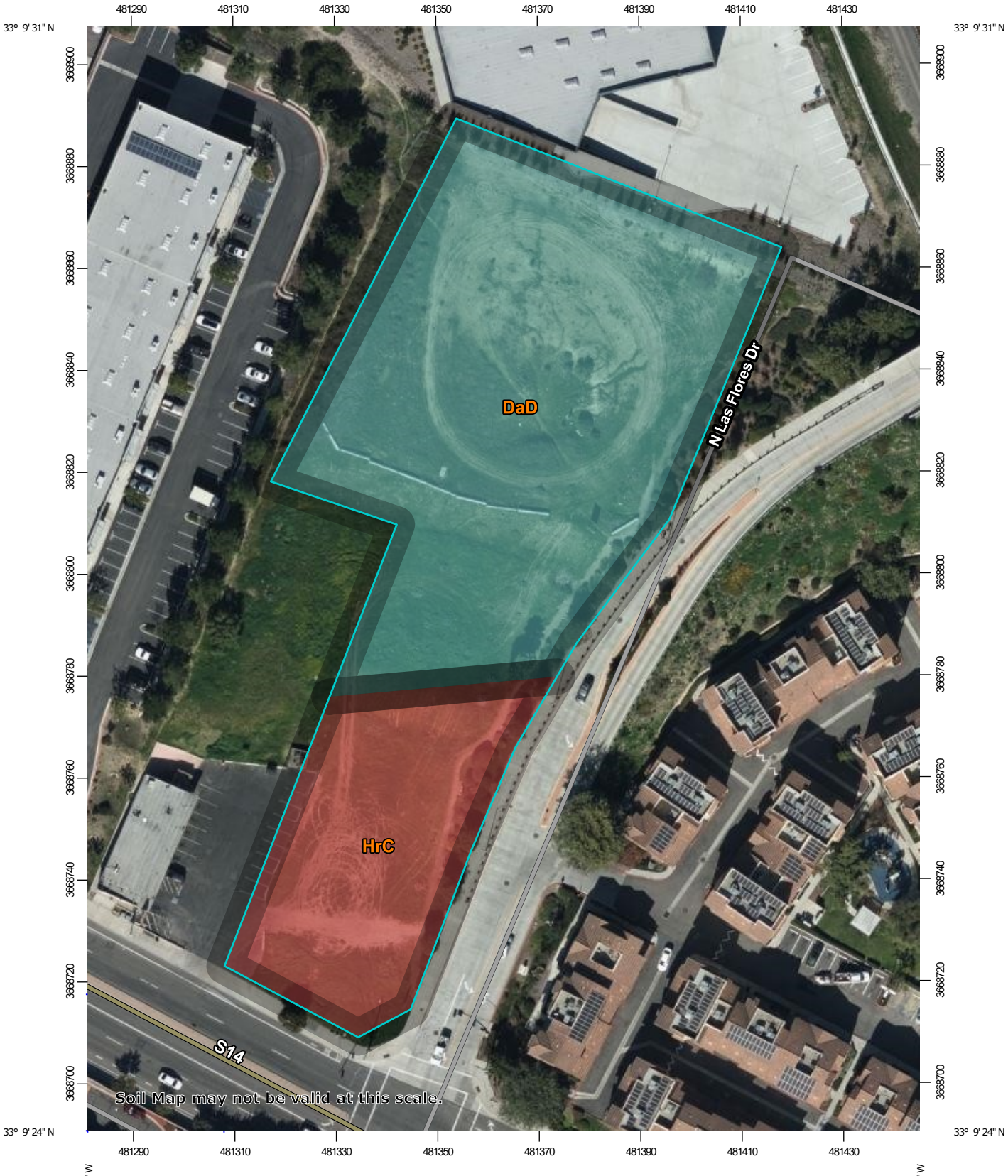
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Map—Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)



Map Scale: 1:1,060 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 15, May 27, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 24, 2020—Feb 12, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DaD	Diablo clay, 9 to 15 percent slopes, warm MAAT	C	1.7	72.6%
HrC	Huerhuero loam, 2 to 9 percent slopes	D	0.6	27.4%
Totals for Area of Interest			**2.3**	**100.0%**

Rating Options—Hydrologic Soil Group (2972/2982 South Santa Fe Avenue)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

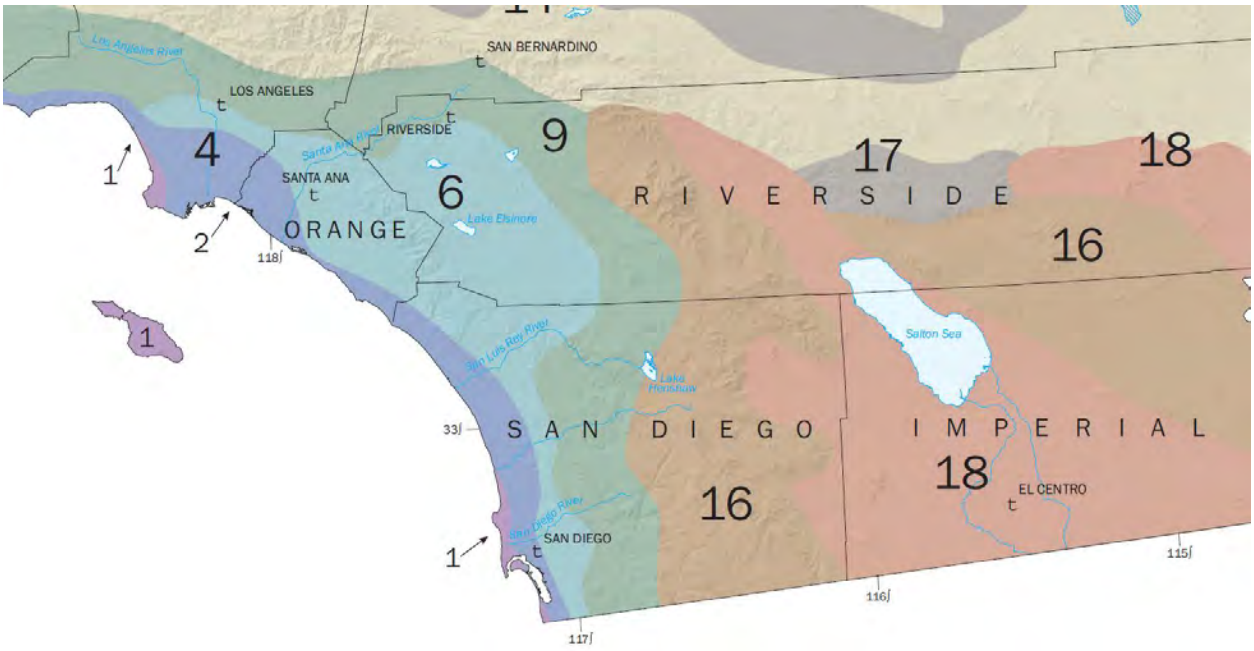


Figure G.1-2: California Irrigation Management Information System "Reference Evapotranspiration Zones"

Table G.1-1: Monthly Average Reference Evapotranspiration by ETo Zone (inches/month and inches/day) for use in SWMM Models for Hydromodification Management Studies in San Diego County CIMIS Zones 1, 4, 6, 9, and 16 (See CIMIS ETo Zone Map)

	January	February	March	April	May	June	July	August	September	October	November	December
Zone	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month
1	0.93	1.4	2.48	3.3	4.03	4.5	4.65	4.03	3.3	2.48	1.2	0.62
4	1.86	2.24	3.41	4.5	5.27	5.7	5.89	5.58	4.5	3.41	2.4	1.86
6	1.86	2.24	3.41	4.8	5.58	6.3	6.51	6.2	4.8	3.72	2.4	1.86
9	2.17	2.8	4.03	5.1	5.89	6.6	7.44	6.82	5.7	4.03	2.7	1.86
16	1.55	2.52	4.03	5.7	7.75	8.7	9.3	8.37	6.3	4.34	2.4	1.55
	January	February	March	April	May	June	July	August	September	October	November	December
Days	31	28	31	30	31	30	31	31	30	31	30	31
Zone	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day
1	0.030	0.050	0.080	0.110	0.130	0.150	0.150	0.130	0.110	0.080	0.040	0.020
4	0.060	0.080	0.110	0.150	0.170	0.190	0.190	0.180	0.150	0.110	0.080	0.060
6	0.060	0.080	0.110	0.160	0.180	0.210	0.210	0.200	0.160	0.120	0.080	0.060
9	0.070	0.100	0.130	0.170	0.190	0.220	0.240	0.220	0.190	0.130	0.090	0.060
16	0.050	0.090	0.130	0.190	0.250	0.290	0.300	0.270	0.210	0.140	0.080	0.050

ATTACHMENT 3 STRUCTURAL BMP MAINTENANCE INFORMATION

This is the cover sheet for Attachment 3.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 3a	Structural BMP Maintenance Thresholds and Actions (Required)	☑ Included See Structural BMP Maintenance Information Checklist on the back of this Attachment cover sheet.
Attachment 3b	Draft Maintenance Agreement (when applicable)	☐ Included ☐ Not Applicable

Use this checklist to ensure the required information has been included in the Structural BMP Maintenance Information Attachment:

☑ **Preliminary Design / Planning / CEQA level submittal:**

Attachment 3a must identify:

- ☐ Typical maintenance indicators and actions for proposed structural BMP(s) based on Section 7.7 of the BMP Design Manual

Attachment 3b is not required for preliminary design / planning / CEQA level submittal.

☐ **Final Design level submittal:**

Attachment 3a must identify:

- ☐ Specific maintenance indicators and actions for proposed structural BMP(s). This shall be based on Section 7.7 of the BMP Design Manual and enhanced to reflect actual proposed components of the structural BMP(s)
- ☐ How to access the structural BMP(s) to inspect and perform maintenance
- ☐ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
- ☐ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
- ☐ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
- ☐ Recommended equipment to perform maintenance
- ☐ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management

Attachment 3b: For private entity operation and maintenance, Attachment 3b shall include a draft maintenance agreement in the local jurisdiction's standard format (PDP applicant to contact the [City Engineer] to obtain the current maintenance agreement forms).

R-TANK MAINTENANCE

Designing an underground stormwater detention system with future maintenance in mind is a simple process that includes three primary objectives: **PREVENT** debris from entering the system by using good pre-treatment systems, **ISOLATE** debris and sediments that manage to enter the system, and **PROTECT** the body of the system by providing backflush mechanisms to ensure longevity.

1. PREVENT

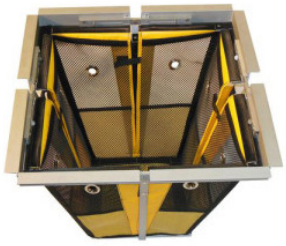
Keeping debris and sediment out of the system by pre-treating runoff is one of the smartest things an engineer can do when designing underground detention systems. It makes no sense to allow trash and sediments to flow unrestricted into an underground system where removal will be expensive. Instead, capture pollutants simply and inexpensively in the inlets, where removal is easy. There are several ways this can be accomplished with minimal cost impacts to your project.

Trash Guard Plus®

Trash Guard Plus®

Trash Guard Plus is a patented stormwater pretreatment device that traps debris, sediment and floatables in the inlet. It helps extend maintenance cycles by using the full volume of the inlet structure for sediment capacity. And it is easy to maintain by accessing pollutants through the manhole lid.

Trash Guard Plus works by both screening debris out of the runoff and by slowing the flow of runoff, causing sediments to fall to the bottom of the inlet. Testing at NC State has shown the Trash Guard to be effective at removing trash, sediment, nutrients, and metals.



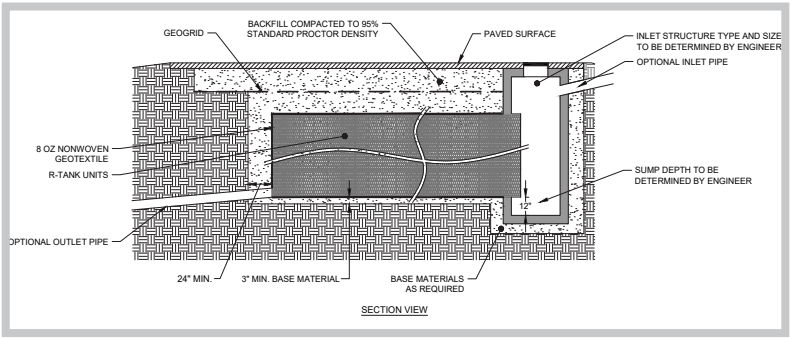
Gratemaster

Gratemaster

To treat a single inlet that serves as a junction for a larger drainage area, consider an insert like the Gratemaster. Ideal for capturing sediment and trash, it makes clean-up a snap by holding all the pollutants right near the surface for easy extraction.

R-Tank Screening

For a more centralized approach, some engineers prefer to create an opening in the inlet structures to allow the R-Tank modules to penetrate the structure to act as a trash screen. This works best with a structure that includes a sump (see drawing below).



R-TANK MAINTENANCE

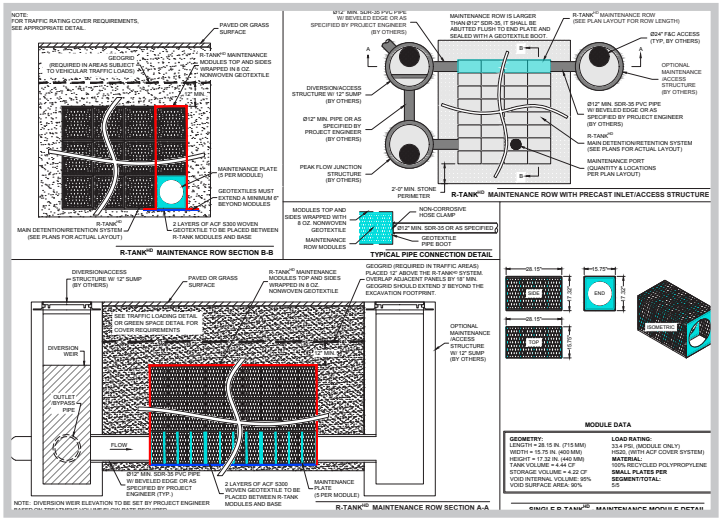
2. ISOLATE

Some pollutants may elude the pre-treatment systems. Trap these materials inside the maintenance row (see drawing to right). Consolidating sediments in a single location makes them easy to remove. Maintenance rows are formed by using maintenance modules, which have open internal components that are fully accessible by conventional jet-vac systems. These modules are set in a row (or multiple rows) to your desired length. Longer maintenance rows should include an access structure on both ends. Extremely long rows may require access from the middle of the row, as well.

The maintenance row is always wrapped in geotextile independently from the rest of the system. The geotextile retains trash, sediments, and other solids, preventing contamination of the rest of the system.

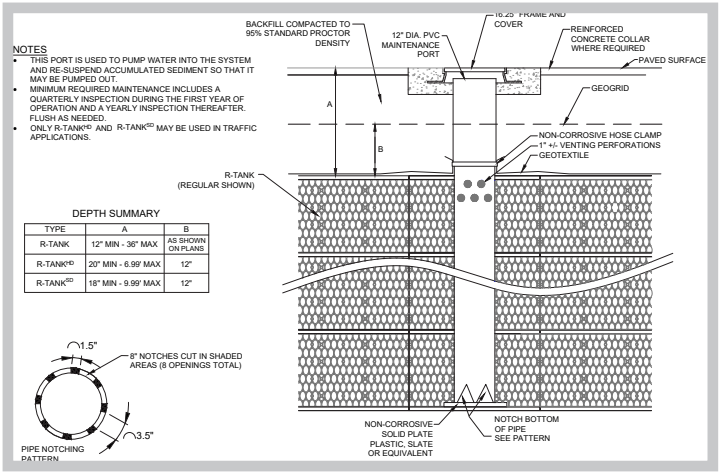
The maintenance row should be sized to treat the first flush (usually 1") of runoff. Use a bypass structure to divert that flow into the maintenance row, and allow larger flows to continue to a downstream inlet where they can enter the R-Tank outside of the maintenance row.

The maintenance row is only available in LD, HD, and UD modules. For SD and XD modules, consider creating a forebay around the inlet locations to collect sediment. This is done by using a taller module installed at a lower invert. Geotextile baffles between the forebay and the rest of the system can help retain sediments. Concentrate Maintenance Ports (see PROTECT below) in the forebay to ensure access to sediment for removal.



3. PROTECT

Every good system has a fall-back plan. You can ensure a long system life by including maintenance ports throughout the system footprint to remove any pollutants that evade the pretreatment system and maintenance row. Maintenance ports should be specified within 10' of inlet and outlet connections, and roughly 50' on center (see maintenance port detail to right).



STORMTRAP MAINTENANCE MANUAL

1. Introduction

Regular inspections are recommended to ensure that the system is functioning as designed. Please call your Authorized StormTrap Representative if you have questions in regards to the inspection and maintenance of the StormTrap system. Prior to entry into any underground storm sewer or underground detention systems, appropriate OSHA and local safety regulations and guidelines should be followed.

2. Inspection Schedules for Municipalities

StormTrap Stormwater Management Systems are recommended for inspection whenever the upstream and downstream catch basins and stormwater pipes of the stormwater collection system are inspected or maintained. This will economize the cost of the inspection if it is done at the same time the Municipal crews are visiting the area.

3. Inspection Schedules for Private Development

StormTrap Stormwater Mangement Systems, for a private development, are recommended for inspection after each major storm water event. At a minimum, until a cleaning schedule can be established, an annual inspection is recommended. If inspected on an annual basis, the inspection should be conducted before the stormwater season begins to be sure that everything is functioning properly for the upcoming storm season.

4. Inspection Process

Inspections should be done such that at least 2-3 days has lapsed since the most recent rain event to allow for draining. Visually inspect the system at all manhole locations. Utilizing a sediment pole, measure and document the amount of silt at each manhole location (Figure 1). Inspect each pipe opening to ensure that the silt level or any foreign objects are not blocking the pipes. Be sure to inspect the outlet pipe(s) because this is typically the smallest

PHONE 815 941 4549
FAX 331 318 5347
WEB www.stormtrap.com
EMAIL info@stormtrap.com
1287 Windham Parkway
Romeoville, Illinois 60446

pipe in the system. It is common that most of the larger materials will be collected upstream of the system in catch basins, and it is therefore important at time of inspections to check these structures for large trash or blockages.

Remove any blockages if you can during the inspection process only if you can do so safely from the top of the system without entering into the system**. Do not go into the system under any circumstances** without proper ventilation equipment and training. Pass any information requiring action onto the appropriate maintenance personnel if you cannot remove the blockages from above during the inspection process. Be sure to describe the location of each manhole and the type of material that needs to be removed.

The sediment level of the system should also be measured and recorded during the inspection process. Recording the sediment level at each manhole is very important in order get a history of sediment that can be graphed over time (i.e. years) in order to estimate when the system will need to be maintained next. It is also important to keep these records to verify that the inspection process was actually performed if anyone asks for your records in the future.

The sediment level in the underground detention system can be determined from the outside of the system by opening up all the manholes and using a sediment pole to measure the amount of sediment at each location. Force the stick to the bottom of the system and then remove it and measure the amount of sediment at that location. Again, do not go into the system under any circumstances without proper ventilation equipment and training.

5. When to Clean the System

Any blockages should be safely removed as soon as practical so that the Stormwater detention system will fill and drain properly before the next stormwater event.

The Dry Detention System should be completely cleaned whenever the sediment occupies more than 10% to 15% of the originally designed system's volume. The Wet Detention System should be cleaned when the sediment occupies more than 30% or 1/3rd of the originally designed system's volume. NOTE: Check with your municipality in regards to

cleaning criteria, as the allowable sediment before cleaning may be more or less then described above.

6. How to Clean the StormTrap

The system should be completely cleaned back to 100% of the originally designed storage volume whenever the above sediment levels have been reached. Be sure to wait at least 3 days after a stormwater event to be sure that the system is completely drained (if it is a Dry Detention System), and all of the sediments have settled to the bottom of the system (if it is a Wet Detention System).

Do not enter the System unless you are properly trained, equipped, and qualified to enter a confined space as identified by local occupational safety and health regulations.

There are many maintenance companies that are in business to help you clean your underground stormwater detention systems and water quality units. Please call your StormTrap representative for referrals in your area.

A. Dry Detention System Cleaning

Maintenance is typically performed using a vacuum truck. Sediment should be flushed towards a vacuum hose for thorough removal. For a Dry Detention System, remove the manhole cover at the top of the system and lower a vacuum hose into one of the rows of the StormTrap system. Open up the manhole at the opposite end of the StormTrap and use sewer jetting equipment to force water in the same row from one end of the StormTrap row to the opposite side. The rows of the StormTrap are completely open in one contiguous channel from one end to the other for easy cleaning.

Place the vacuum hose and the sewer jetting equipment in the next row and repeat the process until all of the rows have been cleaned.

When finished, replace all covers that were removed and dispose of the collected material properly.

B. Wet Detention System Cleaning

If the system was designed to maintain a permanent pool of water, floatables and any oil should be removed in a separate procedure prior to the removal of all sediment.

The floatable trash is removed first by using a bucket strainer to capture and remove any floating debris.

The floatable oils are then removed off the top of the water by using the vacuum truck to suck off any floatable fluids and liquids.

The next step is to use the vacuum truck to gently remove the clarified water above the sediment layer.

The final step is to clean the sediment for each row as described above in the paragraph "A. Dry Detention System Cleaning". For smaller systems, the vacuum truck can remove all of the sediment in the basin without using the sewer jetting equipment because of the smaller space.

7. Inspection Reports

Proof of these inspections is the responsibility of the property owner. All inspection reports and data should be kept on site or at a location where they will be accessible for years in the future. Some municipalities require these inspection and cleaning reports to be forwarded to the proper governmental permitting agency on an annual basis.

Refer to your local and national regulations for any additional maintenance requirements and schedules not contained herein. Inspections should be a part of your standard operating procedure.

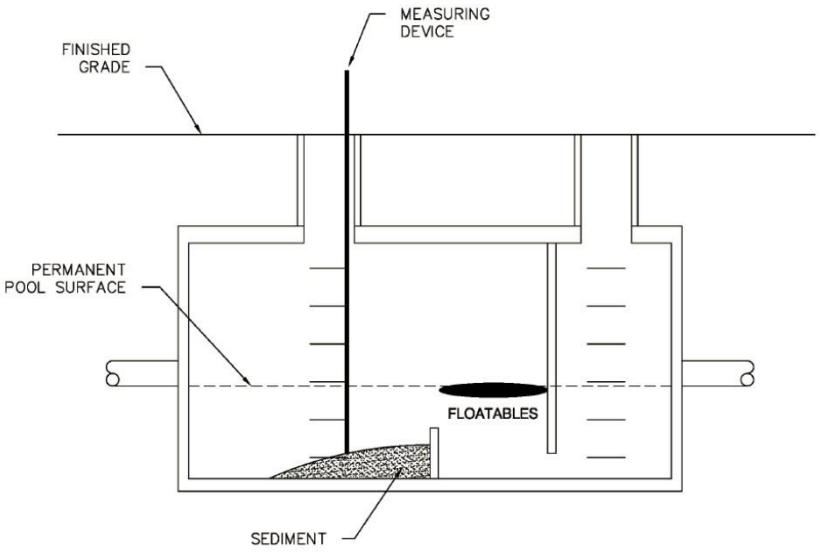


Figure 1. During inspection, measure the distance from finished grade to the top of the sediment inside the system.

Sample inspection and maintenance log

Date	Depth of Sediment	Accumulated Trash	Maintenance Performed	Maintenance Personnel	Comments
2/5/2012	3”	None	Sediment Removal/Vac	B. Johnson	

PHONE 815 941 4549
FAX 331 318 5347
WEB www.stormtrap.com
EMAIL info@stormtrap.com
1287 Windham Parkway
Romeoville, Illinois 60446

CONTECH®
ENGINEERED SOLUTIONS

Modular Wetlands® Linear
Operation & Maintenance Manual

MODULAR WETLANDS®

1952

MODULAR WETLANDS® LINEAR OPERATION & MAINTENANCE MANUAL

TABLE OF CONTENTS

Overview 3

Inspection Summary 4

Inspection Process 5

Maintenance Indicators 6

Inspection Process 7

Maintenance Summary 8

- Pretreatment Chamber 9
- Prefilter Cartridge 10
- Biofiltration Chamber 11
- Discharge Chamber 12

Inspection Report 13

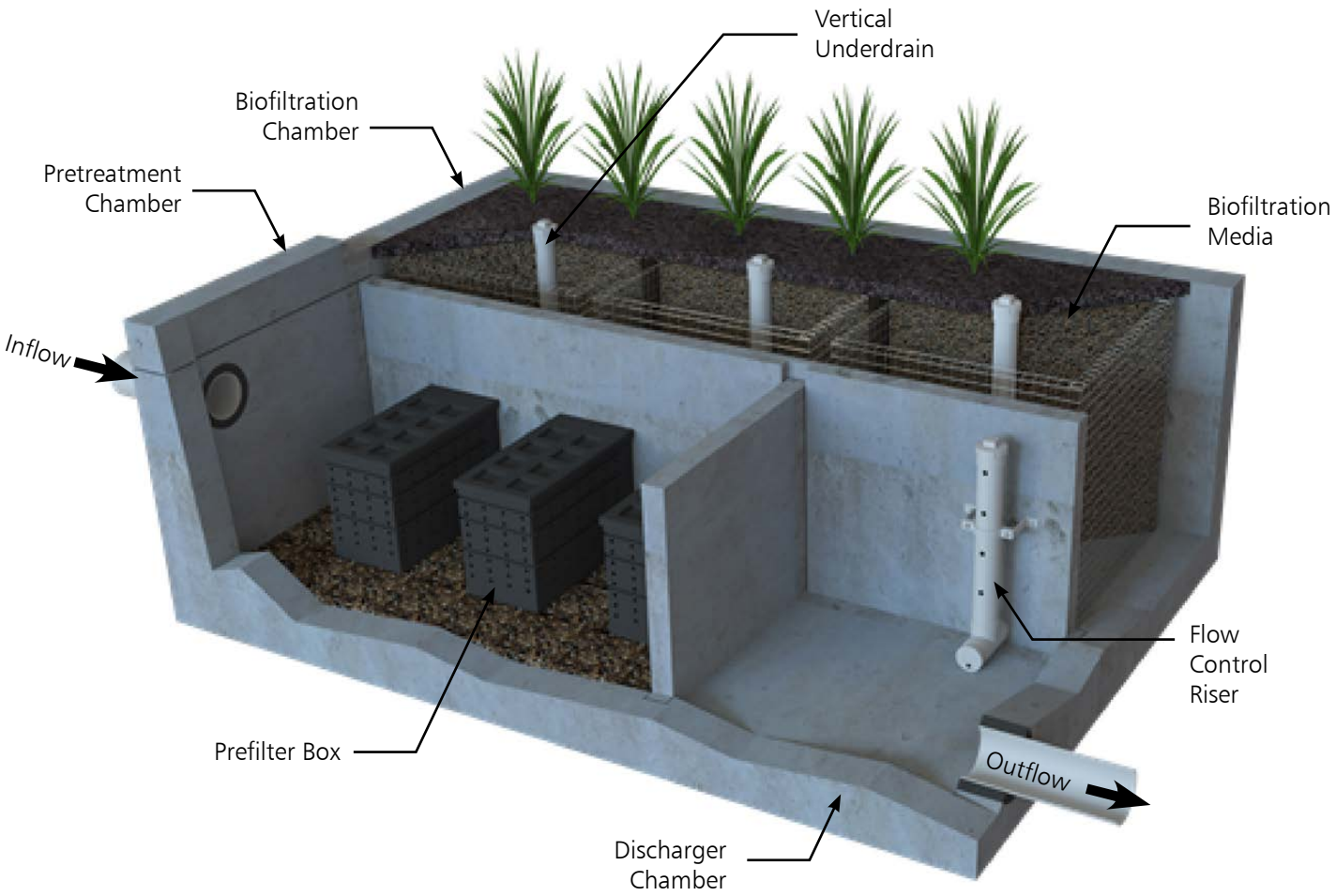
Cleaning and Maintenance Report 14

OVERVIEW

The Modular Wetlands® Linear Biofilter is designed to remove high levels of trash, debris, sediments, nutrients, metals, and hydrocarbons. Its simple design allows for quick and easy installation. The system is housed in a standard precast structure and can be installed at various depths to meet site-specific conditions.

INTRODUCTION

This is the Modular Wetlands Linear Biofilter operation and maintenance manual. Before starting, read the instructions and equipment lists closely. It is important to follow all necessary safety procedures associated with state and local regulations. Some steps required confined space entry. Please contact Contech for more information on pre-authorized third party contractors who can provide installation services in your area. For a list of service providers in your area please visit: www.conteches.com/maintenance.



INSTRUCTIONS

INSPECTION SUMMARY

Stormwater regulations require BMPs be inspected and maintained to ensure they are operating as designed to allow for effective pollutant removal and provide protection to receiving water bodies. It is recommended that inspections be performed multiple times during the first year to assess the site specific loading conditions. The first year of inspections can be used to set inspection and maintenance intervals for subsequent years to ensure appropriate maintenance is provided.

- Inspect pre-treatment, biofiltration, and discharge chambers an average of once every six to twelve months. Varies based on site specific and local conditions.
- Average inspection time is approximately 15 minutes. Always ensure appropriate safety protocol and procedures are followed.

The following is a list of equipment required to allow for simple and effective inspection of the Modular Wetlands Linear:

- Modular Wetlands Linear Inspection Form
- Flashlight
- Manhole hook or appropriate tools to remove access hatches and covers
- Appropriate traffic control signage and procedures
- Measuring pole and/or tape measure
- Protective clothing and eye protection
- 7/16" open or closed ended wrench
- Large permanent black marker (initial inspections only - first year)

Note: entering a confined space requires appropriate safety and certification. It is generally not required for routine inspections of the system

INSPECTION AND MAINTENANCE NOTES

1. Following maintenance and/or inspection, it is recommended that the maintenance operator prepare a maintenance/inspection record. The record should include any maintenance activities performed, amount and description of debris collected, and condition of the system and its various filter mechanisms.
2. The owner should keep maintenance/inspection record(s) for a minimum of five years from the date of maintenance. These records should be made available to the governing municipality for inspection upon request at any time.
3. Transport all debris, trash, organics, and sediments to approved facility for disposal in accordance with local and state requirements.
4. Entry into chambers may require confined space training based on state and local regulations.
5. No fertilizer shall be used in the biofiltration chamber.
6. Irrigation should be provided as recommended by manufacturer and/or landscape architect. Amount of irrigation required is dependent on plant species. Some plants may not require irrigation after initial establishment.

INSPECTION PROCESS

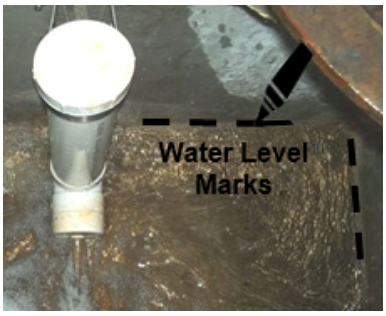
1. Prepare the inspection form by writing in the necessary information including project name, location, date & time, unit number and other information (see inspection form).
2. Observe the inside of the system through the access covers. If minimal light is available and vision into the unit is impaired, utilize a flashlight to see inside the system and all of its chambers.
3. Look for any out of the ordinary obstructions in the inflow pipe, pre-treatment chamber, biofiltration chamber, discharge chamber or outflow pipe. Write down any observations on the inspection form.
4. Through observation and/or digital photographs, estimate the amount of trash, debris accumulated in the pre-treatment chamber. Utilizing a tape measure or measuring stick, estimate the amount of sediment in this chamber. Record this depth on the inspection form.
5. Through visual observation, inspect the condition of the pre-filter cartridges. Look for excessive build-up of sediment on the cartridges, any build-up on the tops of the cartridges, or clogging of the holes. Record this information on the inspection form. The prefilter cartridges can be further inspected by removing the cartridge tops and assessing the color of the BioMediaGREEN filter cubes (requires entry into pre-treatment chamber - see notes previous notes regarding confined space entry). Record the color of the material. New material is a light green color. As the media becomes clogged, it will turn darker in color, eventually becoming dark brown or black. The closer to black the media is the higher percentage that the media is exhausted and is in need of replacement.

6. The biofiltration chamber is generally maintenance-free due to the system's advanced pre-treatment chamber. For units which have open planters with vegetation, it is recommended that the vegetation be inspected. Look for any plants that are dead or showing signs of disease or other negative stressors. Record the general health of the plants on the inspection form and indicate through visual observation or digital photographs if trimming of the vegetation is required.
7. The discharge chamber houses the orifice control structure, drain down filter (only in California - older models), and is connected to the outflow pipe. It is important to check to ensure the orifice is in proper operating conditions and free of any obstructions. It is also important to assess the condition of the drain down filter media which utilizes a block form of the BioMediaGREEN. Assess in the same manner as the cubes in the pre-filter cartridge as mentioned above. Generally, the discharge chamber will be clean and free of debris. Inspect the water marks on the side walls. If possible, inspect the discharge chamber during a rain event to assess the amount of flow leaving the system while it is at 100% capacity (pre-treatment chamber water level at peak HGL - top of bypass weir). The water level of the flowing water should be compared to the watermark level on the side walls, which is an indicator of the highest discharge rate the system achieved when initially installed. Record on the form if there is any difference in level from the watermark in inches.

NOTE: During the first few storms, the water level in the outflow chamber should be observed and a 6" long horizontal watermark line drawn (using a large permanent marker) at the water level in the discharge chamber while the system is operating at 100% capacity. The diagram below illustrates where the line should be drawn. This line is a reference point for future inspections of the system.

Water level in the discharge chamber is a function of flow rate and pipe size. Observation of the water level during the first few months of operation can be used as a benchmark level for future inspections. The initial mark and all future observations shall be made when the system is at 100% capacity (water level at maximum level in the pre-treatment chamber). If future water levels are below this mark when the system is at 100% capacity, this is an indicator that maintenance to the pre-filter cartridges may be needed.

8. Finalize the inspection report for analysis by the maintenance manager to determine if maintenance is required.



MAINTENANCE INDICATORS

Based upon the observations made during inspection, maintenance of the system may be required based on the following indicators:

- Missing or damaged internal components or cartridges
- Obstructions in the system or its inlet and/or outlet pipes
- Excessive accumulation of floatables in the pretreatment chamber in which the length and width of the chamber is fully impacted more than 18". See photo below.
- Excessive accumulation of sediment in the pretreatment chamber of more than 6" in depth.
- Excessive accumulation of sediment on the BioMediaGREEN media housed within the pretreatment cartridges. The following chart shows photos of the condition of the BioMediaGREEN contained within the pre-filter cartridges. When media is more than 85% clogged, replacement is required.
- Excessive accumulation of sediment on the BioMediaGREEN media housed within the pretreatment cartridges. When media is more than 85% clogged, replacement is required. The darker the BioMediaGREEN, the more clogged it is and in need of replacement.

INSPECTION PROCESS

- Excessive accumulation of sediment on the BioMediaGREEN media housed within the drain down filter (California only - older models). The following photos show the condition of the BioMediaGREEN contained within the drain down filter. When media is more than 85% clogged, replacement is required.

- Overgrown vegetation.

- Water level in the discharge chamber during 100% operating capacity (pretreatment chamber water level at max height) is lower than the water mark by 20%.

MAINTENANCE SUMMARY

The time has come to maintain your Modular Wetlands® Linear. All necessary pre-maintenance steps must be carried out before maintenance occurs. Once traffic control has been set up per local and state regulations and access covers have been safely opened, the maintenance process can begin. It should be noted that some maintenance activities require confined space entry. All confined space requirements must be strictly followed before entry into the system. In addition, the following is recommended:

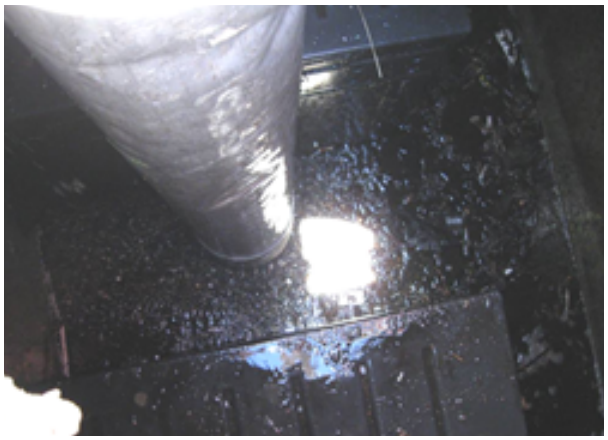
- Prepare the maintenance form by writing in the necessary information including project name, location, date & time, unit number and other info (see maintenance form).
- Set up all appropriate safety and cleaning equipment.
- Ensure traffic control is set up and properly positioned.
- Prepared pre-checks (OSHA, safety, confined space entry) are performed.

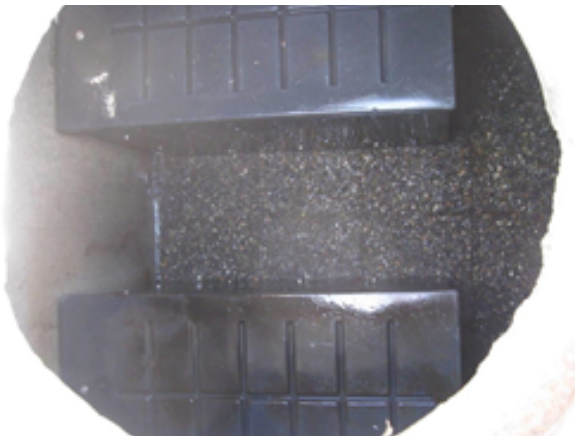
The following is a list of equipment to required for maintenance of the Modular Wetlands® Linear:

- Modular Wetlands Linear Maintenance Form
- Manhole hook or appropriate tools to access hatches and covers
- Protective clothing, flashlight, and eye protection
- 7/16" open or closed ended wrench
- Vacuum assisted truck with pressure washer
- Replacement BioMediaGREEN for pre-filter cartridges if required (order from one of Contech's Maintenance Team members at https://www.conteches.com/maintenance).

MAINTENANCE | PRETREATMENT CHAMBER

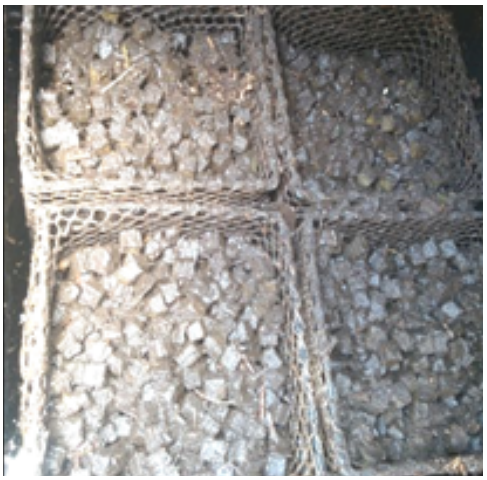
1. Remove access cover over pre-treatment chamber and position vacuum truck accordingly.
2. With a pressure washer, spray down pollutants accumulated on walls and pre-filter cartridges.
3. Vacuum out pre-treatment chamber and remove all accumulated pollutants including trash, debris, and sediments. Be sure to vacuum the floor until the pervious pavers are visible and clean.
4. If pre-filter cartridges require media replacement, continue to step 5. If not, replace access cover and move to step 11.





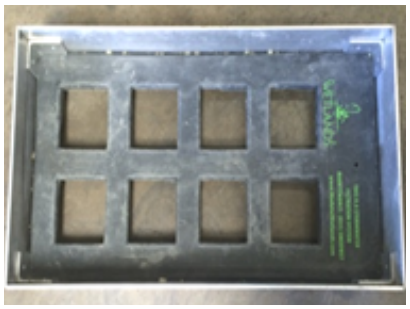
MAINTENANCE | PREFILTER CARTRIDGES

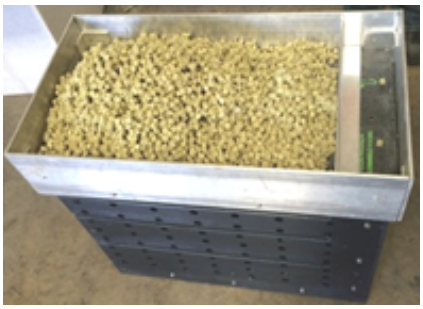
5. After successfully cleaning out the pre-treatment chamber (previous page) enter the pre-treatment chamber.
6. Unscrew the two bolts (circles shown below) holding the lid on each cartridge filter and remove lid.



7. Place the vacuum hose over each individual media filter to suck out filter media.

8. Once filter media has been sucked out, use a pressure washer to spray down the inside of the cartridge and it's media cages. Remove cleaned media cages and place to the side. Once removed, the vacuum hose can be inserted into the cartridge to vacuum out any remaining material near the bottom of the cartridge.
9. Reinstall media cages and fill with new media from the manufacturer or outside supplier. Manufacturer will provide specification of media and sources to purchase. Utilize the manufacture-provided refilling tray and place on top of the cartridge. Fill the tray with new bulk media and shake down into place. Using your hands, lightly compact the media into each filter cage. Once the cages are full, remove the refilling tray and replace the cartridge top, ensuring bolts are properly tightened.





10. Exit the pre-treatment chamber. Replace access hatch or manhole cover.

MAINTENANCE | BIOFILTRATION CHAMBER

11. In general, the biofiltration chamber is maintenance-free with the exception of maintaining the vegetation. The Modular Wetlands Linear utilizes vegetation similar to surrounding landscape areas, therefore trim vegetation to match surrounding vegetation. If any plants have died, replace them with new ones.

12. Each vertical under drain on the biofiltration chamber has a removable (threaded cap) that can be taken off to check any blockages or root growth. Once removed, a jetting attachment can be used to clean out the under drain and orifice riser.
13. As with all biofilter systems, at some point the biofiltration media (WetlandMedia) will need to be replaced. Either because of physical clogging of sorptive exhaustion of the media ion exchange capacity (to remove dissolved metals and phosphorous). The general life of this media is 10 to 20 years based on site specific conditions and pollutant loading. Utilize the vacuum truck to vacuum out the media by placing the hose into the chamber. Once all the media is removed use the power washer to spray down all the netting on the outer metal cage. Inspect the netting for any damage or holes. If the netting is damaged it can be repaired or replaced with guidance by the manufacturer.
14. Contact one of Contech's Maintenance Team members at https://www.conteches.com/maintenance to order new WetlandMedia. The quantity of media needed can be determined by providing the model number and unit depth. Media will be provided in super sacks for easy installation. Each sack will weigh between 1000 and 2000 lbs. A lifting apparatus (backhoe, boom truck, or other) is recommended to position the super sack over the biofiltration chamber. Fill the media cages up to the same level as the old media. Replant with vegetation.

MAINTENANCE | DISCHARGE CHAMBER

15. Remove access hatch or manhole cover over discharge chamber.
16. Enter chamber to gain access to the drain down filter. Unlock the locking mechanism and lift up drain down filter housing to remove used BioMediaGREEN filter block as shown below. *NOTE: Drain down filter is only found on units installed in California prior to 2023. If no drain down filter is present, skip steps 16 and 17.*

17. Insert a new BioMediaGREEN filter block and lock drain down filter housing back in place.
18. Replace access hatch or manhole cover over discharge chamber.

NOTES

CONTECH® ENGINEERED SOLUTIONS

Inspection Report
Modular Wetlands Linear

Project Name _____

Project Address _____
(city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section to the left.

Inspector Name _____ Date ____/____/____ Time _____ AM / PM

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

Inspection Checklist

Modular Wetland System Type (Curb, Grate or UG Vault): _____ Size (22', 14' or etc.): _____

Structural Integrity:	**Yes**	**No**	**Comments**
Damage to pre-treatment access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Damage to discharge chamber access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Does the MWS unit show signs of structural deterioration (cracks in the wall, damage to frame)?			
Is the inlet/outlet pipe or drain down pipe damaged or otherwise not functioning properly?			
Working Condition:			
Is there evidence of illicit discharge or excessive oil, grease, or other automobile fluids entering and clogging the unit?			
Is there standing water in inappropriate areas after a dry period?			
Is the filter insert (if applicable) at capacity and/or is there an accumulation of debris/trash on the shelf system?			
Does the depth of sediment/trash/debris suggest a blockage of the inflow pipe, bypass or cartridge filter? If yes, specify which one in the comments section. Note depth of accumulation in in pre-treatment chamber.			Depth:
Does the cartridge filter media need replacement in pre-treatment chamber and/or discharge chamber?			Chamber:
Any signs of improper functioning in the discharge chamber? Note issues in comments section.			
Other Inspection Items:			
Is there an accumulation of sediment/trash/debris in the wetland media (if applicable)?			
Is it evident that the plants are alive and healthy (if applicable)? Please note Plant Information below.			
Is there a septic or foul odor coming from inside the system?			

Waste:	**Yes**	**No**
Sediment / Silt / Clay		
Trash / Bags / Bottles		
Green Waste / Leaves / Foliage		

Recommended Maintenance	
No Cleaning Needed	
Schedule Maintenance as Planned	
Needs Immediate Maintenance	

Plant Information	
Damage to Plants	
Plant Replacement	
Plant Trimming	

Additional Notes: _____

CONTECH®
ENGINEERED SOLUTIONS

Cleaning and Maintenance Report
Modular Wetlands Linear

Project Name _____

Project Address _____
(city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

Inspector Name _____ Date ____/____/____ Time _____ AM / PM

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section to the left.

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

Site Map #	GPS Coordinates of Insert	Manufacturer / Description / Sizing	Trash Accumulation	Foliage Accumulation	Sediment Accumulation	Total Debris Accumulation	Condition of Media 25/50/75/100 (will be changed @ 75%)	Operational Per Manufactures' Specifications (If not, why?)
	Lat: Long:	MWS Catch Basins						
		MWS Sedimentation Basin						
		Media Filter Condition						
		Plant Condition						
		Drain Down Media Condition						
		Discharge Chamber Condition						
		Drain Down Pipe Condition						
		Inlet and Outlet Pipe Condition						

Comments:

CONTECH®
ENGINEERED SOLUTIONS

© 2023 CONTECH ENGINEERED SOLUTIONS LLC, A QUIKRETE COMPANY

800-338-1122

WWW.CONTECHES.COM

ALL RIGHTS RESERVED. PRINTED IN THE USA.

CONTECH ENGINEERED SOLUTIONS LLC PROVIDES SITE SOLUTIONS FOR THE CIVIL ENGINEERING INDUSTRY. CONTECH'S PORTFOLIO INCLUDES BRIDGES, DRAINAGE, SANITARY SEWER, STORMWATER AND EARTH STABILIZATION PRODUCTS. FOR INFORMATION ON OTHER CONTECH DIVISION OFFERINGS, VISIT CONTECHES.COM OR CALL 800-338-1122.

NOTHING IN THIS CATALOG SHOULD BE CONSTRUED AS A WARRANTY. APPLICATIONS SUGGESTED HEREIN ARE DESCRIBED ONLY TO HELP READERS MAKE THEIR OWN EVALUATIONS AND DECISIONS, AND ARE NEITHER GUARANTEES NOR WARRANTIES OF SUITABILITY FOR ANY APPLICATION. CONTECH MAKES NO WARRANTY WHATSOEVER, EXPRESS OR IMPLIED, RELATED TO THE APPLICATIONS, MATERIALS, COATINGS, OR PRODUCTS DISCUSSED HEREIN. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND ALL IMPLIED WARRANTIES OF FITNESS FOR ANY PARTICULAR PURPOSE ARE DISCLAIMED BY CONTECH. SEE CONTECH'S CONDITIONS OF SALE (AVAILABLE AT WWW.CONTECHES.COM/COS) FOR MORE INFORMATION.

SUPPORT

DRAWINGS AND SPECIFICATIONS ARE AVAILABLE AT WWW.CONTECHES.COM

ATTACHMENT 4 COPY OF PLAN SHEETS WITH PERMANENT STORM WATER BMPS

This is the cover sheet for Attachment 4.

Use this checklist to ensure the required information has been included on the plans:

The plans must identify:

- ☐ Structural BMP(s) with ID numbers matching Form I-6 Summary of PDP Structural BMPs
- ☐ The grading and drainage design shown on the plans must be consistent with the delineation of DMAs shown on the DMA exhibit
- ☐ Details and specifications for construction of structural BMP(s)
- ☐ Signage indicating the location and boundary of structural BMP(s) as required by the [City Engineer]
- ☐ How to access the structural BMP(s) to inspect and perform maintenance
- ☐ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
- ☐ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
- ☐ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
- ☐ Recommended equipment to perform maintenance
- ☐ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management
- ☐ Include landscaping plan sheets showing vegetation requirements for vegetated structural BMP(s)
- ☐ All BMPs must be fully dimensioned on the plans
- ☐ When proprietary BMPs are used, site-specific cross section with outflow, inflow, and model number shall be provided. Photocopies of general brochures are not acceptable.

TENTATIVE SUBDIVISION MAP FOR CONDOMINIUM PURPOSES FOR:

2972 & 2982 S. SANTA FE AVENUE

LEGEND

- PROPERTY BOUNDARY
- CENTERLINE OF ROAD
- ADJACENT PROPERTY LINE / RIGHT-OF-WAY
- EXISTING CONTOUR LINE — 64 —
- EXISTING SPOT ELEVATION (XXX.XX) FG
- PROPOSED SPOT ELEVATION XXX.XX FS
- PROPOSED CURB & GUTTER
- PROPOSED RIBBON GUTTER
- PROPOSED RETAINING WALL
- PROPOSED GRADING DAYLIGHT
- PROPOSED STORM DRAIN — SD — SD —
- PROPOSED DOMESTIC WATER — W — W —
- PROPOSED FIRE WATER — F — F —
- PROPOSED SEWER — S — S —
- PROPOSED BUILDING
- PROPOSED AC PAVEMENT
- PROPOSED CONCRETE PAVEMENT
- PROPOSED ARTIFICIAL TURF
- PROPOSED UNDERGROUND STORM DRAIN DETENTION SYSTEM
- PROPOSED PROPRIETARY BIOFILTRATION SYSTEM
- PROPOSED FIRE HYDRANT
- PROPOSED AREA DRAIN
- EXISTING WATER MAIN — W — W —
- EXISTING SEWER MAIN — S — S —
- EXISTING STORM DRAIN — SD — SD —
- EXISTING GAS MAIN — G — G —
- EXISTING TELECOM CONDUIT — T — T —

RAW EARTHWORK QUANTITIES

CUT:	23,300 CY
FILL:	3,200 CY
NET (EXPORT):	20,100 CY

THE ABOVE RAW EARTHWORK QUANTITIES ARE ESTIMATES ONLY. CONTRACTOR SHALL NOT RELY UPON QUANTITIES FOR BID PURPOSES. CONTRACTOR TO VERIFY EARTHWORK QUANTITIES TO THEIR SATISFACTION PRIOR TO START OF WORK.

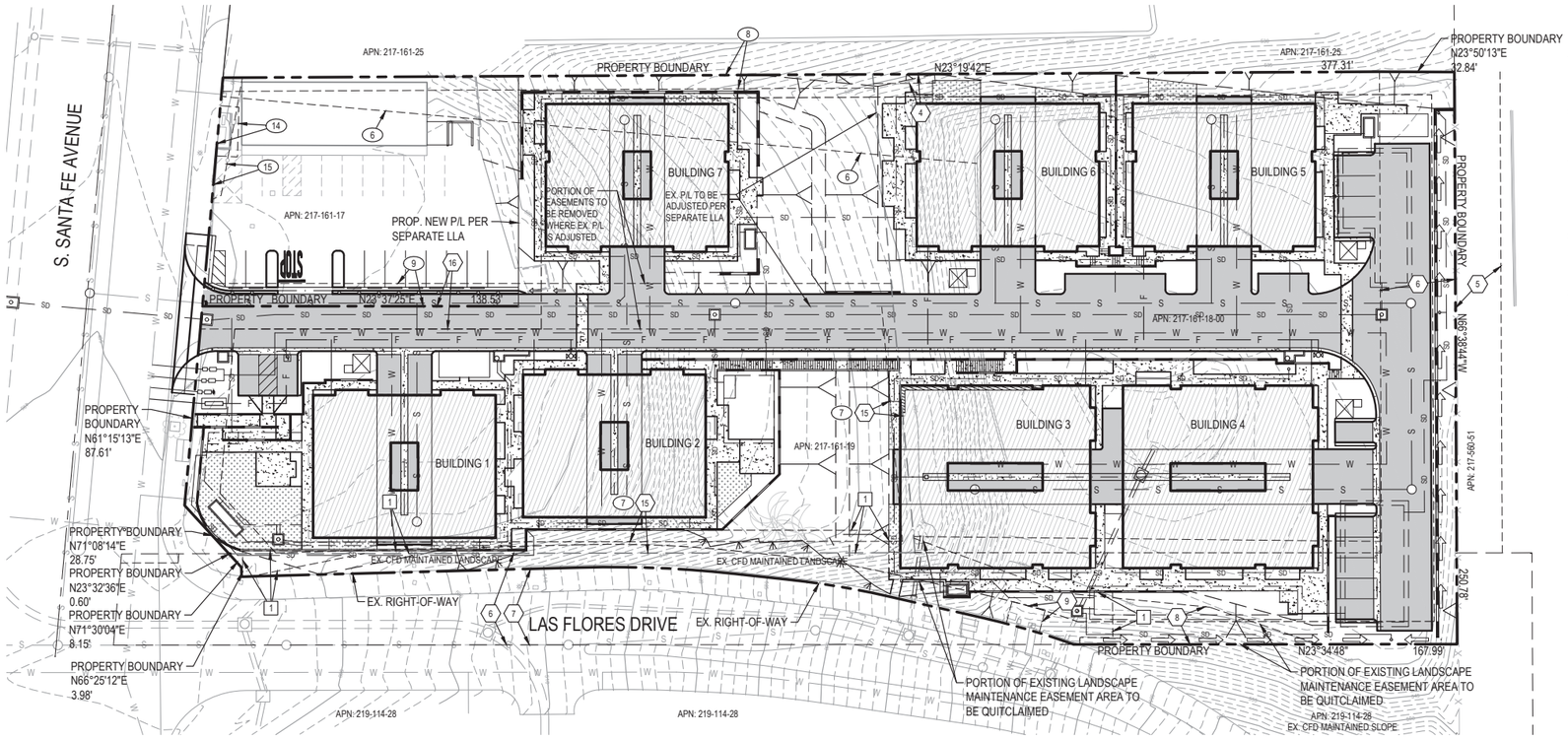
NOTE: QUANTITIES DO NOT INCLUDE ANY EARTHWORK FOR REMEDIAL PURPOSES. EARTHWORK ESTIMATES ARE BASED ON IN PLACE VOLUMES AN DO NOT ACCOUNT FOR ANY SHRINKAGE OR SWELL OF THE SOIL THAT MAY OCCUR DURING GRADING.

LANDSCAPE EASEMENT NOTES

ALL PROPOSED PRIVATE IMPROVEMENTS WITHIN EXISTING CITY LANDSCAPE MAINTENANCE EASEMENT WILL REQUIRE AN ENCROACHMENT AGREEMENT AND ALL PRIVATE IMPROVEMENTS AND APPURTENANCES WITHIN LANDSCAPE MAINTENANCE EASEMENT TO BE PRIVATELY OWNED AND MAINTAINED.

CONDOMINIUM NOTE

THIS SUBDIVISION IS A RESIDENTIAL CONDOMINIUM PROJECT AS DEFINED IN SECTION 4125 OF THE CIVIL CODE OF THE STATE OF CALIFORNIA AND IS FILED PURSUANT TO THE SUBDIVISION MAP ACT, THE TOTAL NUMBER OF RESIDENTIAL CONDOMINIUM UNITS IS 46.



ABBREVIATIONS

AC	ASPHALT CONCRETE	EX	EXISTING	MIN	MINIMUM	SMH	SEWER MANHOLE
ADA	AMERICAN WITH DISABILITIES ACT	FF	FINISH FLOOR	PA	PLANTER AREA	TC	TOP OF CURB
BFD	BACKFLOW DEVICE	FG	FINISHED GRADE	PBOX	PULL BOX	TD	TOP OF DECK
BLDG	BUILDING	FL	FLOW LINE	P/L	PROPERTY LINE	TE	TRASH ENCLOSURE
BS	BOTTOM OF STAIRS	FM	FORCE MAIN	POC	POINT OF CONNECTION	TG	TOP OF GRATE
BW	BOTTOM OF WALL	FS	FINISHED SURFACE	POT	PATH OF TRAVEL	TS	TOP OF STAIRS
CB	CATCH BASIN	GA	GUY ANCHOR	PP	POWER POLE	TW	TOP OF WALL
CF	CURB FACE	GB	GRADE BREAK	PROP	PROPOSED	TYP	TYPICAL
CMU	CONCRETE MASONRY UNIT	GFF	GARAGE FINISH FLOOR	PVC	POLYVINYL CHLORIDE	WAR	WATER AIR RELEASE
CO	CLEANOUT	GP	GUY POLE	R/W	RIGHT-OF-WAY	WM	WATER METER
COMM	COMMUNICATIONS	GV	GAS VALVE	SCO	SEWER CLEANOUT	WV	WATER VALVE
CONC	CONCRETE	HP	HIGH POINT	SD	STORM DRAIN		
DS	DOWNSPOUT	HT	HEIGHT	SDCO	STORM DRAIN CLEANOUT		
EG	EDGE OF GUTTER	INV	INVERT	SDMH	STORM DRAIN MANHOLE		
ELEC	ELECTRICAL	MH	MANHOLE	SL	STREET LIGHT		

PROPOSED EASEMENT INFORMATION

[1] PROPOSED LANDSCAPE MAINTENANCE EASEMENT FOR OPEN SPACE SLOPE TO THE CITY OF SAN MARCOS.

EXISTING EASEMENT INFORMATION (217-161-18, -19)

[2] EASEMENT GRANTED TO THE COUNTY OF SAN DIEGO FOR PUBLIC HIGHWAY PURPOSES, RECORDED JUNE 11, 1913 IN BOOK 500, PAGE 135, OFFICIAL RECORDS TO BE VACATED. NOT PLOTTABLE.

[3] EASEMENT GRANTED TO VISTA IRRIGATION DISTRICT FOR PIPELINE AND OTHER DISTRICT WORKS, RECORDED OCTOBER 24, 1925, IN BOOK 1136, PAGE 238, OFFICIAL RECORDS TO BE QUITCLAIMED. NOT PLOTTABLE.

[4] EASEMENT GRANTED TO SAN DIEGO GAS AND ELECTRIC COMPANY FOR PUBLIC UTILITIES, INGRESS AND EGRESS, RECORDED JUNE 19, 1973 AS DOC. NO. 73-167727, OFFICIAL RECORDS TO BE QUITCLAIMED.

[5] EASEMENT GRANTED TO THE COUNTY OF SAN DIEGO FOR UTILITY PURPOSES, RECORDED OCTOBER 25, 1979 AS DOC. NO. 79-448104, OFFICIAL RECORDS TO BE VACATED.

[6] EASEMENT GRANTED TO THE COUNTY OF SAN DIEGO FOR UTILITY PURPOSES, RECORDED JUNE 24, 1987 AS DOC. NO. 87-353275 TO BE VACATED.

[7] EASEMENT GRANTED TO THE CITY OF SAN MARCOS FOR PUBLIC STREET AND UTILITY PURPOSES, RECORDED OCTOBER 13, 2005 AS DOC. NO. 2005-0887133.

[8] EASEMENT GRANTED TO THE CITY OF SAN MARCOS FOR OPEN SPACE SLOPE LANDSCAPE MAINTENANCE AND ACCESS PURPOSES, RECORDED OCTOBER 13, 2005 AS DOC. NO. 2005-0887134, OFFICIAL RECORDS.

[9] EASEMENT GRANTED TO VISTA IRRIGATION DISTRICT FOR UTILITY PURPOSES, RECORDED NOVEMBER 17, 2005 AS DOC. NO. 2005-0996226, OFFICIAL RECORDS TO BE REVISED.

[13] EASEMENT GRANTED TO COUNTY OF SAN DIEGO FOR PUBLIC STREET PURPOSES, RECORDED JUNE 11, 1913 IN BOOK 500, PAGE 135 OF DEEDS TO BE VACATED. NOT PLOTTABLE.

[14] EASEMENT GRANTED TO VISTA IRRIGATION DISTRICT FOR PIPELINES, INGRESS AND EGRESS, AND ALL NECESSARY APPURTENANCES, RECORDED OCTOBER 24, 1925 IN BOOK 1136, PAGE 238 OF DEEDS TO BE QUITCLAIMED. NOT PLOTTABLE.

[15] EASEMENT GRANTED TO BARENY COLEMAN AND JEAN S. COLEMAN FOR PUBLIC UTILITIES, INGRESS AND EGRESS RECORDED OCTOBER 27, 1959 IN BOOK 7959, PAGE 126, OFFICIAL RECORDS TO BE QUITCLAIMED.

[16] EASEMENT GRANTED TO FAIRMONT FOODS COMPANY FOR ROAD AND UTILITY PURPOSES, RECORDED JULY 5, 1973 AS DOC. NO. 73-184604, OFFICIAL RECORDS TO BE ADJUSTED.

[17] EASEMENT GRANTED TO COUNTY OF SAN DIEGO FOR UTILITIES, INGRESS AND EGRESS, RECORDED JUNE 24, 1987 AS DOC. NO. 87-353275, OFFICIAL RECORDS TO BE VACATED. NOT PLOTTABLE.

NOTE: ALL EXISTING COUNTY HIGHWAY EASEMENTS WITHIN THE PROPERTY BOUNDARIES TO BE VACATED.

EXISTING EASEMENT INFORMATION (217-161-17)

(4) EASEMENT GRANTED TO THE COUNTY OF SAN DIEGO FOR PUBLIC HIGHWAY PURPOSES, RECORDED JUNE 11, 1913, BOOK 500, PAGE 136, OFFICIAL RECORDS. NOT PLOTTABLE.

(5) EASEMENT GRANTED TO VISTA IRRIGATION DISTRICT FOR PIPELINE AND OTHER DISTRICT WORK PURPOSES, RECORDED OCTOBER 24, 1925, IN BOOK 1136, PAGE 238, OFFICIAL RECORDS TO BE QUITCLAIMED. NOT PLOTTABLE.

(6) EASEMENT GRANTED TO SAN DIEGO GAS AND ELECTRIC COMPANY FOR PUBLIC UTILITY PURPOSES, RECORDED APRIL 25, 1951, IN BOOK 4073, PAGE 83, OFFICIAL RECORDS TO BE QUITCLAIMED.

(7) EASEMENT GRANTED TO BARNEY COLEMAN AND JEAN S. COLEMAN FOR INGRESS AND EGRESS FOR PUBLIC UTILITY PURPOSES, RECORDED OCTOBER 27, 1959 IN BOOK 7959, PAGE 126, OFFICIAL RECORDS TO BE QUITCLAIMED.

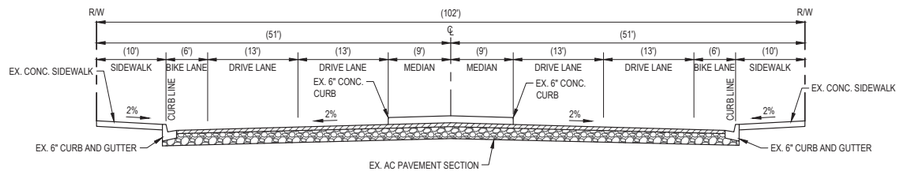
(8) EASEMENT GRANTED TO SAN DIEGO GAS AND ELECTRIC COMPANY FOR PUBLIC UTILITY PURPOSES, RECORDED JUNE 19, 1973, DOCUMENT NO. 73-167728, OFFICIAL RECORDS TO BE QUITCLAIMED.

(9) EASEMENT GRANTED TO MARY ELIZABETH ESHLEMAN FOR ROAD AND UTILITY PURPOSES, RECORDED JULY 5, 1973, DOCUMENT NO. 1973-184604, OFFICIAL RECORDS. A PORTION TO BE QUITCLAIMED.

(14) EASEMENT GRANTED TO SAN DIEGO GAS & ELECTRIC COMPANY FOR PUBLIC UTILITY PURPOSES, RECORDED JULY 3, 2003, DOCUMENT NO. 2003-0793497, OFFICIAL RECORDS.

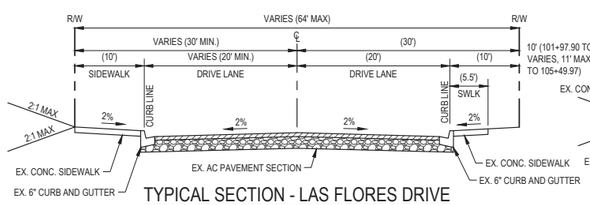
(15) EASEMENT GRANTED TO CITY OF SAN MARCOS FOR SLOPE AND DRAINAGE PURPOSES, RECORDED MARCH 12, 2004, DOCUMENT NO. 2004-0206660, OFFICIAL RECORDS.

NOTE: ALL EXISTING COUNTY HIGHWAY EASEMENTS WITHIN THE PROPERTY BOUNDARIES TO BE VACATED.



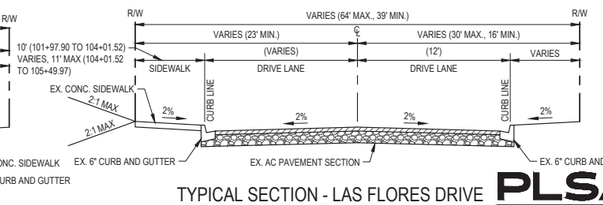
TYPICAL SECTION - S. SANTA FE AVENUE

SCALE: NTS



TYPICAL SECTION - LAS FLORES DRIVE

SCALE: NTS
UP TO STA. 101+97.90 (PER IP-4629)



TYPICAL SECTION - LAS FLORES DRIVE

SCALE: NTS
UP TO STA. 101+97.90 TO STA. 105+49.97 (PER IP-4629)

OWNER'S STATEMENT

WE HEREBY CERTIFY THAT WE ARE THE RECORD OWNERS OF THE PROPERTY SHOWN ON THESE PLANS AND THAT SAID PLANS SHOW OUR ENTIRE CONTIGUOUS OWNERSHIP (EXCLUDING SUBDIVISION LOTS). WE UNDERSTAND THAT PROPERTY IS CONSIDERED CONTIGUOUS EVEN IF IT IS SEPARATED BY ROADS, STREETS, UTILITY EASEMENTS OR RAILROADS RIGHTS-OF-WAY.

OWNER

SANTA FE FLORES LP
CONTACT: PAUL MAYER
P.O. BOX 903
RANCHO SANTA FE, CA 92067

PAUL MAYER

ENGINEER OF WORK

REGISTERED PROFESSIONAL ENGINEER — WILLIAM J. SUITER — No. RCE 68964 — EXP. 12-31-25 — Civil — STATE OF CALIFORNIA

WILLIAM J. SUITER RCE 68964

LEGAL DESCRIPTION

PORTION OF LOT 4 IN BLOCK 95 OF RANCHO LOS VALLECITOS DE SAN MARCOS, IN THE CITY OF SAN MARCOS, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP NO. 806, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, DECEMBER 21, 1895.

ASSESSOR'S PARCEL NUMBER

217-161-18-00, 217-161-19-00, PORTION OF 217-161-17-00

AERIAL TOPOGRAPHY

AERIAL TOPOGRAPHY SUPPLIED BY: HOOPER LAND COMPANY
1642 MOON ROCK ROAD
FALLBROOK, CA 92028
(760) 723-2891
SURVEY COMPLETED: JUNE 2020

GENERAL NOTES:

1. APN: 217-161-18-00, 217-161-19-00 , PORTION OF 217-161-17-00
2. GROSS ACREAGE: 2.87 AC
3. GROSS ACREAGE WITHOUT LAS FLORES ROW: 2.60 AC
4. NET ACREAGE : 2.60 AC
5. NUMBER OF DWELLING UNITS: 46
6. EXISTING ZONING: MULTIFAMILY RESIDENTIAL 3-10 (R-3-10) & COMMERCIAL (C)
7. PROPOSED ZONING: MULTIFAMILY RESIDENTIAL 3-6 (R-3-6)
8. EXISTING GENERAL PLAN: MEDIUM DENSITY RESIDENTIAL 2 (MDR2) & COMMERCIAL (C)
9. PROPOSED GENERAL PLAN: MEDIUM HIGH DENSITY RESIDENTIAL (MHDR)
10. FINISH GRADES SHOWN HEREON ARE APPROXIMATE AND ARE SUBJECT TO CHANGE IN FINAL DESIGN.
11. PROPOSED DENSITY: 17.69 DU/AC
12. CUT AND FILL SLOPES NO STEEPER THAN 2:1
13. PUBLIC SERVICES AND DISTRICTS:
    - GAS & ELECTRIC: SAN DIEGO GAS AND ELECTRIC
    - TELEPHONE: AT&T
    - WATER: VISTA IRRIGATION DISTRICT
    - SEWER: BUENA SANITATION DISTRICT/ CITY OF VISTA
    - FIRE DISTRICT: CITY OF SAN MARCOS
    - SCHOOL DISTRICT: SAN MARCOS UNIFIED SCHOOL DISTRICT
14. PROPOSED SETBACKS: FRONT YARD = MINIMUM 15' / SIDE YARD = MINIMUM 10' / REAR YARD= MINIMUM 10'
13. SEE STORM WATER QUALITY MANAGMENT PLAN PREPARED BY: PLSA (DATED: JUNE 2025)
14. SEE PRELIMINARY DRAINAGE STUDY PREPARED BY: PLSA (DATED: JUNE 2025)
15. SEE GEOTECHNICAL EVALUATION PREPARED BY: GEOCON , INC. DATED: AUGUST 12, 2024 (PROJECT NO. G3355-42-01)

PROJECT DESCRIPTION

GENERAL PLAN AMENDMENT, ZONE CHANGE, MULTI-FAMILY SITE DEVELOPMENT PLAN AND TENTATIVE SUBDIVISION MAP (TSP) FOR CONDOMINIUM PURPOSES PROPOSING A 46-UNIT MULTIFAMILY DEVELOPMENT WITH PARKING LOTS, ACCESS DRIVE, AMENITY AREAS, MISCELLANEOUS HARDSCAPE AND LANDSCAPING.

SHEET INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	PRELIMINARY GRADING PLAN
3	SITE SECTIONS
4-6	DETAILS

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA COORDINATE SYSTEM, NAD 83 (CCS83), ZONE 6, AS DETERMINED LOCALLY BY A LINE BETWEEN FIRST ORDER CONTROL STATIONS SM127 AND VC 009 BEING A GRID BEARING OF S 0°54'41" E AS DERIVED FROM GEODETIC VALUES SHOWN ON RECORD OF SURVEY 13928, CITY OF SAN MARCOS SURVEY CONTROL, FILED ON 10/01/1992 AS FILE NUMBER 92-625379 IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY.

BENCHMARK

ELEVATIONS SHOWN HEREON ARE BASED ON 2" IRON PIPE & DISK AS SHOWN ON ROS 13928 AS SM 127. ELEVATION: 450.50 FEET. NGVD 29

SHEET: 1 OF 6 — CITY OF SAN MARCOS

GENERAL PLAN AMENDMENT NUMBER: GPA25-0001

OWNER: SANTA FE FLORES LP	CONTACT: PAUL MAYER		PHONE: 858-888-2488
ADDRESS: PO BOX 903, RANCHO SANTA FE, CA 92067			
ARCHITECT, ENGINEER, DESIGNER: PLSA			PHONE: 949-661-6695
ADDRESS: 34270 PACIFIC COAST HIGHWAY SUITE B, DANA POINT, CA 92629			
TYPE OF DEVELOPMENT: RESIDENTIAL, TOWNHOMES			
ZONE: MULTIFAMILY RESIDENTIAL (R-3-6)		APN(S): 217-161-17, -18, -19	

SITE DATA				DWELLING UNITS		OPEN SPACE DATA	
AREA (SQ. FT.)			COVERAGE %	STUDIO	-	COMMON (SF)	PRIVATE (SF)
LOT:	113,209		100%	1 BDRM	-	14,795	21,610
BUILDING:	38,672		34%	2 BDRM	18		
PARKING/PVMT:	35,778		32%	3 BDRM	28		
LOADING:	0		0%	4 BDRM	-		
LANDSCAPING:	38,759		34%	TOTAL UNITS	46		

PARKING		ORD. REQ.		DRIVEWAY (SIZE & SLOPE)	SETBACKS	
GARAGE	92	LOADING	0	ONE WAY: N/A	FRONT: 15'	REAR: 10'
GUEST	14	HANDICAP	1	TWO WAY: 24' MIN	L. SIDE: 10'	
OPEN	0	TOTAL	107	SLOPE: VARIES	R. SIDE: 10'	

PLSA
PLSAENGINEERING.COM

1969

EXISTING COMMERCIAL BUILDING
APN: 217-161-17

APN: 217-161-25

PROPERTY BOUNDARY
N23°50'13"E
32.84'

377.31'

PROPERTY BOUNDARY
N23°19'42"E

PROPERTY BOUNDARY
N23°41'25"E
138.53'

PROPERTY BOUNDARY
N61°15'13"E, 87.61'

PROPERTY BOUNDARY
N71°08'14"E
28.75'

PROPERTY BOUNDARY
N23°32'36"E
0.60'

PROPERTY BOUNDARY
N71°30'04"E
8.15'

PROPERTY BOUNDARY
N66°25'12"E
3.98'

PROPERTY BOUNDARY
N23°34'48"
167.99'

PROPERTY BOUNDARY
N66°38'44"W

S. SANTA FE AVENUE

LAS FLORES DRIVE

BUILDING 7
FF=502.50

BUILDING 6
FF=526.00

BUILDING 5
FF=531.00

BUILDING 3
FF=535.00

BUILDING 4
FF=536.00

BUILDING 2
FF=499.00

BUILDING 1
FF=499.00

PROP. NEW P/L PER SEPARATE LLA

PROP. PERMANENT SHORING WALL

PROP. MSE "GEOGRID" RETAINING WALL

PROPRIETARY BIOFILTRATION SYSTEM

UNDERGROUND DETENTION SYSTEM

PROP. MASONRY RETAINING WALL (5' MAX EXPOSED HT.)

APPROX. LIMITS OF GEOGRID FABRIC

APPROX. LIMITS OF "ANCHORPLEX" CONCRETE BACKFILL

PROP. "GEOGRID ANCHORPLEX" RETAINING WALL

PROP. BROW DITCH (TYPE A) PER SDRSD D-75

PROP. WEIR BYPASS STRUCTURE

PROP. FENCING

EX. FENCING

REMOVE AND DISPOSE OF EX. ON-SITE INLET, MANHOLE & 18" RCP SD

REMOVE AND DISPOSE OF EX. ON-SITE 18" RCP SD AND CAP AT PROPERTY LINE.

ABANDON EX. WM & LATERAL

PROTECT IN PLACE EX. BACKFLOW,WM & LATERAL

PROTECT IN PLACE ELEC. METER

EX. RIGHT-OF-WAY

EX. RAISED MEDIAN

EX. VEHICULAR GUARDRAIL

APN: 219-114-28

APN: 217-560-51

NOTES

1. BOTTOM OF WALL (BW) ELEVATIONS ON THIS PLAN IDENTIFIES THE LOWER SURFACE GRADE ADJACENT TO THE RETAINING WALL.
2. RETAINING WALL HEIGHTS (HT) ON THIS PLAN IDENTIFY THE EXPOSED HEIGHT (ABOVE GRADE) OF THE PROPOSED RETAINING WALLS.

SECTION D-D

SCALE: NTS

EX. R/W
PROP. BNDY
APN: 219-114-28
±(552.96) FG
EX. SIDEWALK
EX. CURB & GUTTER
LAS FLORES DRIVE
EX. GRADE
PROP. BROW DITCH (TYPE A) PER SDRSD D-75
2:1 MAX
538.00 TW
536.00 BW
BUILDING 4 FF=536.00
PROP. GRADE
PROP. SD
TOP=531.72
PROP. UNDERGROUND DETENTION SYSTEM
BOT=526.60
PROP. GRADE
PROP. SD
PROP. SIDEWALK
PROP. MASONRY RETAINING WALL

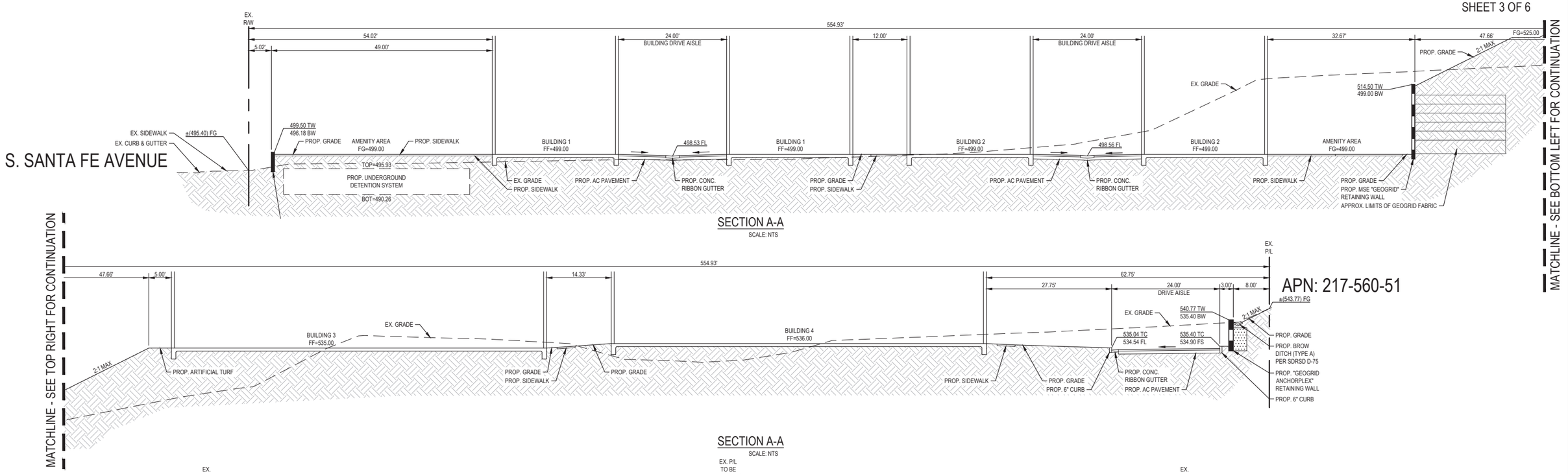
GRAPHIC SCALE: 1" = 20'

PLSA
PLSAENGINEERING.COM

CITY OF SAN MARCOS

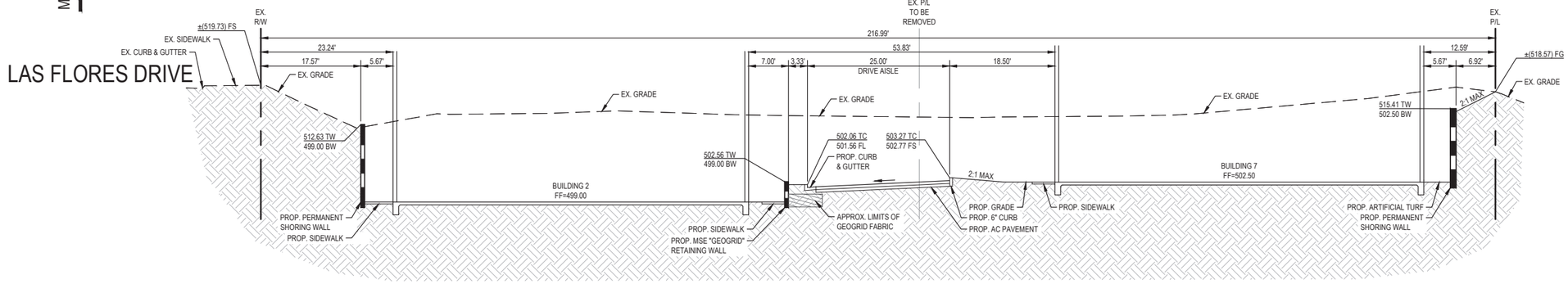
SHEET: 2 OF 6							
GENERAL PLAN AMENDMENT NUMBER: GPA25-0001							
OWNER: SANTA FE FLORES LP			CONTACT: PAUL MAYER			PHONE: 858-888-2488	
ADDRESS: PO BOX 903, RANCHO SANTA FE, CA 92067							
ARCHITECT, ENGINEER, DESIGNER: PLSA						PHONE: 949-661-6695	
ADDRESS: 34270 PACIFIC COAST HIGHWAY SUITE B, DANA POINT, CA 92629							
TYPE OF DEVELOPMENT: RESIDENTIAL, TOWNHOMES							
ZONE: MULTIFAMILY RESIDENTIAL (R-3-6)					APN(S): 217-161-17, -18, -19		
SITE DATA				DWELLING	UNITS	OPEN SPACE DATA	
AREA (SQ. FT.)		COVERAGE %		STUDIO	-	COMMON (SF)	PRIVATE (SF)
LOT:	113,209	100%		1 BDRM	-	14,795	21,610
BUILDING:	38,672	34%		2 BDRM	18		
PARKING/PVMT:	35,778	32%		3 BDRM	28		
LOADING:	0	0%		4 BDRM	-		
LANDSCAPING:	38,759	34%		TOTAL UNITS	46		
PARKING		ORD. REQ.		DRIVEWAY (SIZE & SLOPE)		SETBACKS	
GARAGE	92	LOADING	0	ONE WAY: N/A		FRONT: 15'	REAR: 10'
GUEST	14	HANDICAP	1	TWO WAY: 24' MIN		L. SIDE: 10'	
OPEN	0	TOTAL	107	SLOPE: VARIES		R. SIDE: 10'	

1970

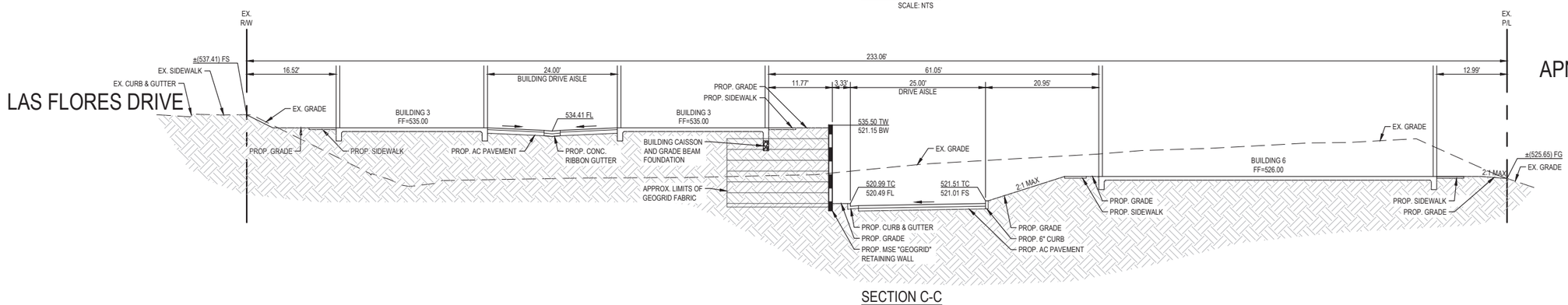


SECTION A-A
SCALE: NTS

SECTION A-A
SCALE: NTS



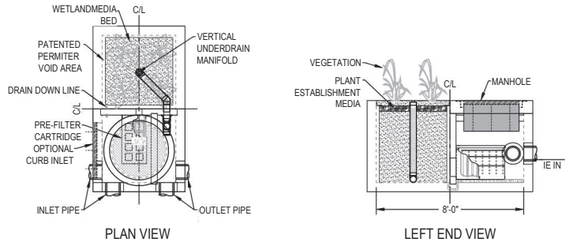
SECTION B-B
SCALE: NTS



SECTION C-C
SCALE: NTS

PLSA
PLSAENGINEERING.COM

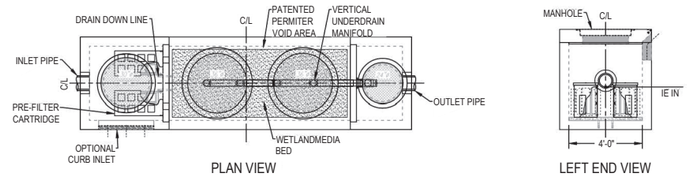
SHEET: 3 OF 6			CITY OF SAN MARCOS				
GENERAL PLAN AMENDMENT NUMBER: GPA25-0001							
OWNER: SANTA FE FLORES LP			CONTACT: PAUL MAYER		PHONE: 858-888-2488		
ADDRESS: PO BOX 903, RANCHO SANTA FE, CA 92067							
ARCHITECT, ENGINEER, DESIGNER: PLSA					PHONE: 949-661-6695		
ADDRESS: 34270 PACIFIC COAST HIGHWAY SUITE B, DANA POINT, CA 92629							
TYPE OF DEVELOPMENT: RESIDENTIAL, TOWNHOMES							
ZONE: MULTIFAMILY RESIDENTIAL (R-3-6)				APN(S): 217-161-17, -18, -19			
SITE DATA				DWELLING UNITS		OPEN SPACE DATA	
AREA (SQ. FT.)		COVERAGE %		STUDIO	-	COMMON (SF)	PRIVATE (SF)
LOT:	113,209	100%		1 BDRM	-	14,795	21,610
BUILDING:	38,672	34%		2 BDRM	18		
PARKING/PVMT:	35,778	32%		3 BDRM	28		
LOADING:	0	0%		4 BDRM	-		
LANDSCAPING:	38,759	34%		TOTAL UNITS	46		
PARKING		ORD. REQ.		DRIVEWAY (SIZE & SLOPE)	SETBACKS		
GARAGE	92	LOADING	0	ONE WAY: N/A	FRONT: 15'	REAR: 10'	
GUEST	14	HANDICAP	1	TWO WAY: 24' MIN	L. SIDE: 10'		
OPEN	0	TOTAL	107	SLOPE: VARIES	R. SIDE: 10'		



PLAN VIEW | LEFT END VIEW | ELEVATION VIEW | RIGHT END VIEW

TYPICAL BIOFILTRATION SYSTEM (WITH INTERNAL BYPASS)

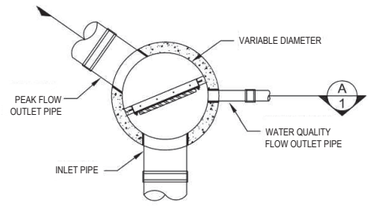
NOT TO SCALE



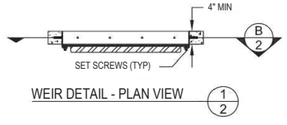
PLAN VIEW | LEFT END VIEW | ELEVATION VIEW | RIGHT END VIEW

TYPICAL BIOFILTRATION SYSTEM (WITHOUT INTERNAL BYPASS)

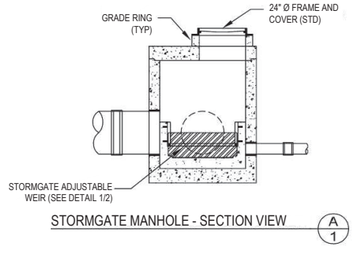
NOT TO SCALE



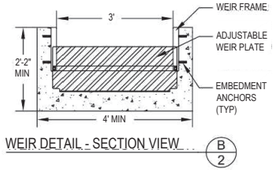
STORMGATE MANHOLE - PLAN VIEW 1/1



WEIR DETAIL - PLAN VIEW 1/2



STORMGATE MANHOLE - SECTION VIEW A/1



WEIR DETAIL - SECTION VIEW B/2

TYPICAL "STORMGATE" WEIR BYPASS DETAIL

NOT TO SCALE

SHEET: 4 OF 6			CITY OF SAN MARCOS				
GENERAL PLAN AMENDMENT NUMBER: GPA25-0001							
OWNER: SANTA FE FLORES LP			CONTACT: PAUL MAYER			PHONE: 858-888-2488	
ADDRESS: PO BOX 903, RANCHO SANTA FE, CA 92067							
ARCHITECT, ENGINEER, DESIGNER: PLSA						PHONE: 949-661-6695	
ADDRESS: 34270 PACIFIC COAST HIGHWAY SUITE B, DANA POINT, CA 92629							
TYPE OF DEVELOPMENT: RESIDENTIAL, TOWNHOMES							
ZONE: MULTIFAMILY RESIDENTIAL (R-3-6)				APN(S): 217-161-17, -18, -19			
SITE DATA				DWELLING UNITS		OPEN SPACE DATA	
AREA (SQ. FT.)			COVERAGE %	STUDIO	-	COMMON (SF)	PRIVATE (SF)
LOT:	113,209		100%	1 BDRM	-	14,795	21,610
BUILDING:	38,672		34%	2 BDRM	18		
PARKING/PVMT:	35,778		32%	3 BDRM	28		
LOADING:	0		0%	4 BDRM	-		
LANDSCAPING:	38,759		34%	TOTAL UNITS	46		
PARKING		ORD. REQ.		DRIVEWAY (SIZE & SLOPE)	SETBACKS		
GARAGE	92	LOADING	0	ONE WAY: N/A	FRONT: 15'	REAR: 10'	
GUEST	14	HANDICAP	1	TWO WAY: 24' MIN	L. SIDE: 10'		
OPEN	0	TOTAL	107	SLOPE: VARIES	R. SIDE: 10'		

PLSA
PLSAENGINEERING.COM

1972

STRUCTURAL DESIGN LOADING CRITERIA

LIVE LOADING: AASHTO HS-20 HIGHWAY LOADING
GROUND WATER TABLE: BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE: 3000PSF
SOIL DENSITY: 120 PCF
EQUIVALENT UNSATURATED
LATERAL ACTIVE EARTH PRESSURE: 35 PSF / FT.
EQUIVALENT SATURATED
LATERAL ACTIVE EARTH PRESSURE: 80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES: ASTM C857
ACI-318
BACKFILL TYPE: SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION

UNIT HEADROOM: 5'-2" SINGLETRAP
TOTAL STORAGE PROV: 10,850.22 CUBIC FEET

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 3.73" MAX. 9.73" CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.
5. SYSTEM DESIGN MAY ALLOW FOR INCIDENTAL LEAKAGE AND WILL NOT BE SUBJECT TO LEAKAGE TESTING.

StormTrap
PATENTS LISTED AT: [HTTPS://STORMTRAP.COM/PATENTS](https://stormtrap.com/patents)
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

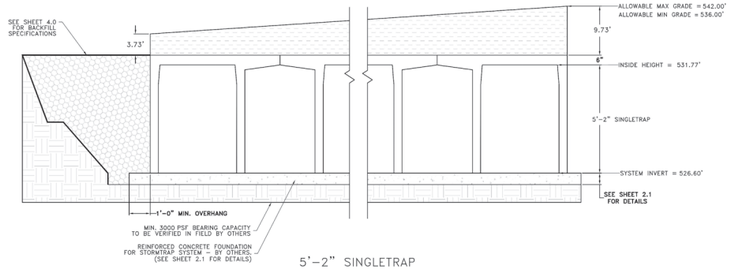
ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes-BMP 1B
San Marcos, CA

CURRENT ISSUE DATE: 01/10/2025
ISSUED FOR: PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	01/10/2025	PRELIMINARY	DG

SCALE: NTS
SHEET TITLE: SINGLETRAP DESIGN CRITERIA
SHEET NUMBER: 1.1



5'-2" SINGLETRAP

STRUCTURAL DESIGN LOADING CRITERIA

LIVE LOADING: AASHTO HS-20 HIGHWAY LOADING
GROUND WATER TABLE: BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE: 3000PSF
SOIL DENSITY: 120 PCF
EQUIVALENT UNSATURATED
LATERAL ACTIVE EARTH PRESSURE: 35 PSF / FT.
EQUIVALENT SATURATED
LATERAL ACTIVE EARTH PRESSURE: 80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES: ASTM C857
ACI-318
BACKFILL TYPE: SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION

UNIT HEADROOM: 5'-8" SINGLETRAP
TOTAL STORAGE PROV: 6,750.74 CUBIC FEET

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 1.57" MAX. 3.57" CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.
5. SYSTEM DESIGN MAY ALLOW FOR INCIDENTAL LEAKAGE AND WILL NOT BE SUBJECT TO LEAKAGE TESTING.

StormTrap
PATENTS LISTED AT: [HTTPS://STORMTRAP.COM/PATENTS](https://stormtrap.com/patents)
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

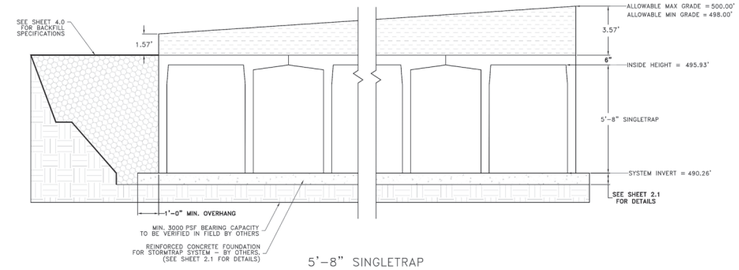
ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes-BMP 2B
San Marcos, CA

CURRENT ISSUE DATE: 01/10/2025
ISSUED FOR: PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	01/10/2025	PRELIMINARY	DG

SCALE: NTS
SHEET TITLE: SINGLETRAP DESIGN CRITERIA
SHEET NUMBER: 1.1



5'-8" SINGLETRAP

BILL OF MATERIALS

QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
2	I	5'-2" SINGLETRAP	15595
1	II	5'-2" SINGLETRAP	18120
6	III	5'-2" SINGLETRAP	15822
4	IV	5'-2" SINGLETRAP	16885
0	VII	5'-2" SINGLETRAP	-
0	VII-1	5'-2" SINGLETRAP	-
0	VII-2	5'-2" SINGLETRAP	-
8	VII-3	5'-2" SINGLETRAP	13289
4	VII-4	5'-2" SINGLETRAP	14552
0	SPIII	5'-2" SINGLETRAP	VARIES
1	SPIV	5'-2" SINGLETRAP	VARIES
1	T2 PANEL	6" THICK PANEL	3577
5	T4 PANEL	6" THICK PANEL	2816
4	T7 PANEL	6" THICK PANEL	2054
6	JOINTWRAP	150' PER ROLL	
52	JOINTTAPE	4.5" PER ROLL	
TOTAL PIECES = 26			
TOTAL PANELS = 10			
HEAVIEST PICK WEIGHT = 18120			

DESIGN CRITERIA
ALLOWABLE MAX GRADE = 542.00'
ALLOWABLE MIN GRADE = 536.00'
INSIDE HEIGHT ELEVATION = 531.77'
SYSTEM INVERT = 526.60'

NOTES:
1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP - INDICATES A MODULE WITH MODIFICATIONS.
5. P - INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
7. IN ORDER FOR STORMTRAP TO GENERATE APPROVAL DRAWINGS, CIVIL ENGINEERING DRAWINGS MUST BE PROVIDED TO STORMTRAP AND SHALL INCLUDE ALL PIPE SIZES, PIPE MATERIAL, PIPE INVERT ELEVATIONS, ACCESS OPENING SIZE AND SHAPE. IN ADDITION, FINAL GRADING PLANS SHALL ALSO INCLUDE MINIMUM AND MAXIMUM GRADES OVER THE TOP OF THE STORMTRAP SYSTEM.

StormTrap
PATENTS LISTED AT: [HTTPS://STORMTRAP.COM/PATENTS](https://stormtrap.com/patents)
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

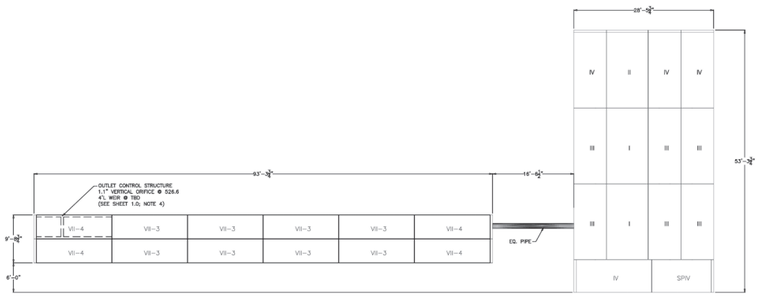
ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes-BMP 1B
San Marcos, CA

CURRENT ISSUE DATE: 01/10/2025
ISSUED FOR: PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	01/10/2025	PRELIMINARY	DG

SCALE: NTS
SHEET TITLE: SINGLETRAP SYSTEM LAYOUT
SHEET NUMBER: 2.0



"STORMTRAP" DETENTION VAULT - BMP 1B

BILL OF MATERIALS

QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
3	I	5'-8" SINGLETRAP	15900
2	II	5'-8" SINGLETRAP	18762
2	III	5'-8" SINGLETRAP	16254
4	IV	5'-8" SINGLETRAP	17885
0	VII	5'-8" SINGLETRAP	-
0	VII-1	5'-8" SINGLETRAP	-
0	VII-2	5'-8" SINGLETRAP	-
0	VII-3	5'-8" SINGLETRAP	-
0	VII-4	5'-8" SINGLETRAP	-
0	SPIII	5'-8" SINGLETRAP	VARIES
1	SPIV	5'-8" SINGLETRAP	VARIES
3	T2 PANEL	6" THICK PANEL	3893
4	T4 PANEL	6" THICK PANEL	5064
0	T7 PANEL	6" THICK PANEL	-
3	JOINTWRAP	150' PER ROLL	
16	JOINTTAPE	4.5" PER ROLL	
TOTAL PIECES = 12			
TOTAL PANELS = 7			
HEAVIEST PICK WEIGHT = 18762			

DESIGN CRITERIA
ALLOWABLE MAX GRADE = 500.00'
ALLOWABLE MIN GRADE = 498.00'
INSIDE HEIGHT ELEVATION = 495.93'
SYSTEM INVERT = 490.26'

NOTES:
1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP - INDICATES A MODULE WITH MODIFICATIONS.
5. P - INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
7. IN ORDER FOR STORMTRAP TO GENERATE APPROVAL DRAWINGS, CIVIL ENGINEERING DRAWINGS MUST BE PROVIDED TO STORMTRAP AND SHALL INCLUDE ALL PIPE SIZES, PIPE MATERIAL, PIPE INVERT ELEVATIONS, ACCESS OPENING SIZE AND SHAPE. IN ADDITION, FINAL GRADING PLANS SHALL ALSO INCLUDE MINIMUM AND MAXIMUM GRADES OVER THE TOP OF THE STORMTRAP SYSTEM.

StormTrap
PATENTS LISTED AT: [HTTPS://STORMTRAP.COM/PATENTS](https://stormtrap.com/patents)
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

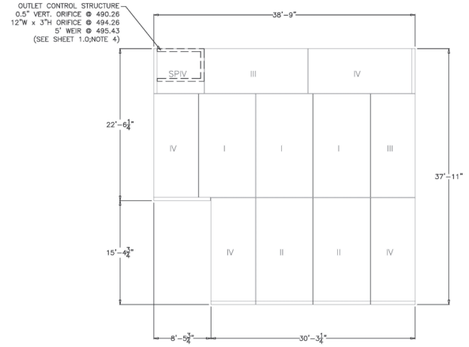
ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes-BMP 2B
San Marcos, CA

CURRENT ISSUE DATE: 01/10/2025
ISSUED FOR: PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	01/10/2025	PRELIMINARY	DG

SCALE: NTS
SHEET TITLE: SINGLETRAP SYSTEM LAYOUT
SHEET NUMBER: 2.0



"STORMTRAP" DETENTION VAULT - BMP 2B

SHEET: 5 OF 6	CITY OF SAN MARCOS					
GENERAL PLAN AMENDMENT NUMBER: GPA25-0001						
OWNER: SANTA FE FLORES LP	CONTACT: PAUL MAYER				PHONE: 858-888-2488	
ADDRESS: PO BOX 903, RANCHO SANTA FE, CA 92067						
ARCHITECT, ENGINEER, DESIGNER: PLSA					PHONE: 949-661-6695	
ADDRESS: 34270 PACIFIC COAST HIGHWAY SUITE B, DANA POINT, CA 92629						
TYPE OF DEVELOPMENT: RESIDENTIAL, TOWNHOMES						
ZONE: MULTIFAMILY RESIDENTIAL (R-3-6)				APN(S): 217-161-17, -18, -19		
SITE DATA				DWELLING UNITS		OPEN SPACE DATA
AREA (SQ. FT.)		COVERAGE %		STUDIO	-	COMMON (SF)	PRIVATE (SF)
LOT:	113,209	100%		1 BDRM	-	14,795	21,610
BUILDING:	38,672	34%		2 BDRM	18		
PARKING/PVMT:	35,778	32%		3 BDRM	28		
LOADING:	0	0%		4 BDRM	-		
LANDSCAPING:	38,759	34%		TOTAL UNITS	46		
PARKING		ORD. REQ.		DRIVEWAY (SIZE & SLOPE)	SETBACKS	
GARAGE	92	LOADING	0	ONE WAY: N/A	FRONT: 15'	REAR: 10'
GUEST	14	HANDICAP	1	TWO WAY: 24' MIN	L. SIDE: 10'	
OPEN	0	TOTAL	107	SLOPE: VARIES	R. SIDE: 10'	

PLSA
PLSAENGINEERING.COM

1973

STRUCTURAL DESIGN LOADING CRITERIA

LIVE LOADING: AASHTO HS-20 HIGHWAY LOADING

GROUND WATER TABLE: BELOW INVERT OF SYSTEM

SOIL BEARING PRESSURE: 3000PSF

SOIL DENSITY: 120 PCF

EQUIVALENT UNSATURATED
LATERAL ACTIVE EARTH PRESSURE: 35 PSF / FT.

EQUIVALENT SATURATED
LATERAL ACTIVE EARTH PRESSURE: 80 PSF/FT. (IF WATER TABLE PRESENT)

APPLICABLE CODES: ASTM C857
ACI-318

BACKFILL TYPE: SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION

UNIT HEADROOM: 7'-0" SINGLETRAP
TOTAL STORAGE PROV: 8,728.67 CUBIC FEET

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 2.79' MAX. 4.44' CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.
5. SYSTEM DESIGN MAY ALLOW FOR INCIDENTAL LEAKAGE AND WILL NOT BE SUBJECT TO LEAKAGE TESTING.

StormTrap
PATENTS LISTED AT: [HTTPS://STORMTRAP.COM/PATENTS](https://stormtrap.com/patents)
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes-BMP 3B

San Marcos, CA

CURRENT ISSUE DATE:
01/10/2025

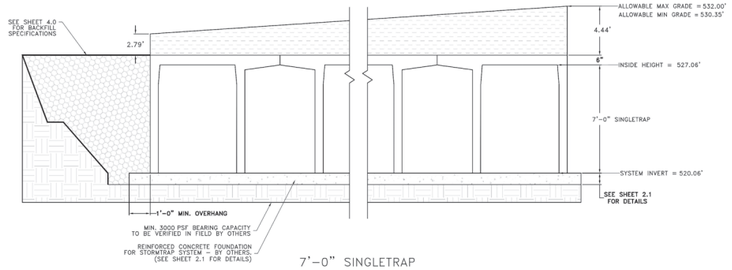
ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	01/10/2025	PRELIMINARY	DG

SCALE:
NTS

SHEET TITLE:
SINGLETRAP DESIGN CRITERIA

SHEET NUMBER:
1.1



7'-0" SINGLETRAP

STRUCTURAL DESIGN LOADING CRITERIA

LIVE LOADING: AASHTO HS-20 HIGHWAY LOADING

GROUND WATER TABLE: BELOW INVERT OF SYSTEM

SOIL BEARING PRESSURE: 3000PSF

SOIL DENSITY: 120 PCF

EQUIVALENT UNSATURATED
LATERAL ACTIVE EARTH PRESSURE: 35 PSF / FT.

EQUIVALENT SATURATED
LATERAL ACTIVE EARTH PRESSURE: 80 PSF/FT. (IF WATER TABLE PRESENT)

APPLICABLE CODES: ASTM C857
ACI-318

BACKFILL TYPE: SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION

UNIT HEADROOM: 5'-8" SINGLETRAP
TOTAL STORAGE PROV: 5,099.43 CUBIC FEET

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 1.17' MAX. 1.17' CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.
5. SYSTEM DESIGN MAY ALLOW FOR INCIDENTAL LEAKAGE AND WILL NOT BE SUBJECT TO LEAKAGE TESTING.

StormTrap
PATENTS LISTED AT: [HTTPS://STORMTRAP.COM/PATENTS](https://stormtrap.com/patents)
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes-BMP 4B

San Marcos, CA

CURRENT ISSUE DATE:
01/10/2025

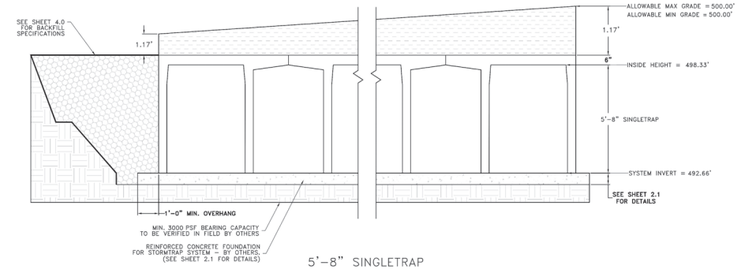
ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	01/10/2025	PRELIMINARY	DG

SCALE:
NTS

SHEET TITLE:
SINGLETRAP DESIGN CRITERIA

SHEET NUMBER:
1.1



5'-8" SINGLETRAP

BILL OF MATERIALS

QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
3	I	7'-0" SINGLETRAP	18690
1	II	7'-0" SINGLETRAP	22754
3	III	7'-0" SINGLETRAP	20234
4	IV	7'-0" SINGLETRAP	22267
0	VII	7'-0" SINGLETRAP	--
0	VII-1	7'-0" SINGLETRAP	--
0	VII-2	7'-0" SINGLETRAP	--
0	VII-3	7'-0" SINGLETRAP	--
0	VII-4	7'-0" SINGLETRAP	--
0	SPIII	7'-0" SINGLETRAP	VARIES
2	SPIV	7'-0" SINGLETRAP	VARIES
2	T2 PANEL	6" THICK PANEL	6419
4	T4 PANEL	6" THICK PANEL	5478
0	T7 PANEL	6" THICK PANEL	--
4	JOINTWRAP	150' PER ROLL	
16	JOINTTAPE	4.5" PER ROLL	
TOTAL PIECES = 13			
TOTAL PANELS = 6			
HEAVIEST PICK WEIGHT = 22754			

DESIGN CRITERIA
ALLOWABLE MAX GRADE = 532.00'
ALLOWABLE MIN GRADE = 530.35'
INSIDE HEIGHT ELEVATION = 527.06'
SYSTEM INVERT = 520.06'

NOTES:
1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP - INDICATES A MODULE WITH MODIFICATIONS.
5. P - INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
7. IN ORDER FOR STORMTRAP TO GENERATE APPROVAL DRAWINGS, CIVIL ENGINEERING DRAWINGS MUST BE PROVIDED TO STORMTRAP AND SHALL INCLUDE ALL PIPE SIZES, PIPE MATERIAL, PIPE INVERT ELEVATIONS, ACCESS OPENING SIZE AND SHAPE. IN ADDITION, FINAL GRADING PLANS SHALL ALSO INCLUDE MINIMUM AND MAXIMUM GRADES OVER THE TOP OF THE STORMTRAP SYSTEM.

StormTrap
PATENTS LISTED AT: [HTTPS://STORMTRAP.COM/PATENTS](https://stormtrap.com/patents)
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes-BMP 3B

San Marcos, CA

CURRENT ISSUE DATE:
01/10/2025

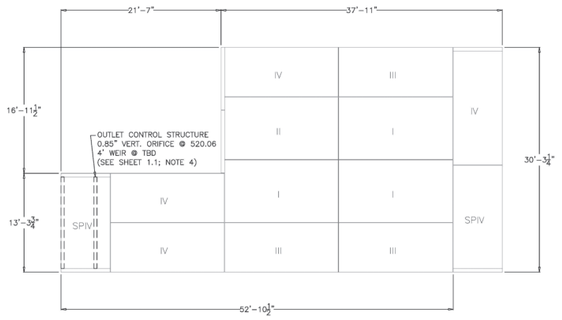
ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	01/10/2025	PRELIMINARY	DG

SCALE:
NTS

SHEET TITLE:
SINGLETRAP SYSTEM LAYOUT

SHEET NUMBER:
2.0



"STORMTRAP" DETENTION VAULT - BMP 3B

BILL OF MATERIALS

QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
1	I	5'-8" SINGLETRAP	15900
0	II	5'-8" SINGLETRAP	--
2	III	5'-8" SINGLETRAP	16254
0	IV	5'-8" SINGLETRAP	--
0	VII	5'-8" SINGLETRAP	--
0	VII-1	5'-8" SINGLETRAP	--
0	VII-2	5'-8" SINGLETRAP	--
0	VII-3	5'-8" SINGLETRAP	--
0	VII-4	5'-8" SINGLETRAP	--
0	SPIII	5'-8" SINGLETRAP	VARIES
4	SPIV	5'-8" SINGLETRAP	VARIES
0	T2 PANEL	6" THICK PANEL	--
4	T4 PANEL	6" THICK PANEL	5064
0	T7 PANEL	6" THICK PANEL	--
2	JOINTWRAP	150' PER ROLL	
8	JOINTTAPE	4.5" PER ROLL	
TOTAL PIECES = 7			
TOTAL PANELS = 4			
HEAVIEST PICK WEIGHT = 16254			

DESIGN CRITERIA
ALLOWABLE MAX GRADE = 500.00'
ALLOWABLE MIN GRADE = 500.00'
INSIDE HEIGHT ELEVATION = 498.33'
SYSTEM INVERT = 492.66'

NOTES:
1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP - INDICATES A MODULE WITH MODIFICATIONS.
5. P - INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
7. IN ORDER FOR STORMTRAP TO GENERATE APPROVAL DRAWINGS, CIVIL ENGINEERING DRAWINGS MUST BE PROVIDED TO STORMTRAP AND SHALL INCLUDE ALL PIPE SIZES, PIPE MATERIAL, PIPE INVERT ELEVATIONS, ACCESS OPENING SIZE AND SHAPE. IN ADDITION, FINAL GRADING PLANS SHALL ALSO INCLUDE MINIMUM AND MAXIMUM GRADES OVER THE TOP OF THE STORMTRAP SYSTEM.

StormTrap
PATENTS LISTED AT: [HTTPS://STORMTRAP.COM/PATENTS](https://stormtrap.com/patents)
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes-BMP 4B

San Marcos, CA

CURRENT ISSUE DATE:
01/10/2025

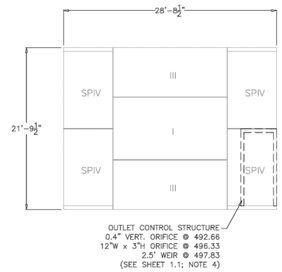
ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	01/10/2025	PRELIMINARY	DG

SCALE:
NTS

SHEET TITLE:
SINGLETRAP SYSTEM LAYOUT

SHEET NUMBER:
2.0



"STORMTRAP" DETENTION VAULT - BMP 4B

SHEET: 6 OF 6	CITY OF SAN MARCOS						
GENERAL PLAN AMENDMENT NUMBER: GPA25-0001							
OWNER: SANTA FE FLORES LP	CONTACT: PAUL MAYER				PHONE: 858-888-2488		
ADDRESS: PO BOX 903, RANCHO SANTA FE, CA 92067							
ARCHITECT, ENGINEER, DESIGNER: PLSA					PHONE: 949-661-6695		
ADDRESS: 34270 PACIFIC COAST HIGHWAY SUITE B, DANA POINT, CA 92629							
TYPE OF DEVELOPMENT: RESIDENTIAL, TOWNHOMES							
ZONE: MULTIFAMILY RESIDENTIAL (R-3-6)				APN(S): 217-161-17, -18, -19			
SITE DATA				DWELLING UNITS		OPEN SPACE DATA	
AREA (SQ. FT.)		COVERAGE %		STUDIO	-	COMMON (SF)	PRIVATE (SF)
LOT:	113,209	100%		1 BDRM	-	14,795	21,610
BUILDING:	38,672	34%		2 BDRM	18		
PARKING/PVMT:	35,778	32%		3 BDRM	28		
LOADING:	0	0%		4 BDRM	-		
LANDSCAPING:	38,759	34%		TOTAL UNITS	46		
PARKING		ORD. REQ.		DRIVEWAY (SIZE & SLOPE)	SETBACKS		
GARAGE	92	LOADING	0	ONE WAY: N/A	FRONT: 15'	REAR: 10'	
GUEST	14	HANDICAP	1	TWO WAY: 24' MIN	L. SIDE: 10'		
OPEN	0	TOTAL	107	SLOPE: VARIES	R. SIDE: 10'		

PLSA
PLSAENGINEERING.COM

ATTACHMENT D.10

NOISE ANALYSIS

RECON

Noise Analysis for the Santa Fe Flores Townhomes Project San Marcos, California

Project Nos. GPA25-0001, R25-0001, MFSDP25-0001, and TSM25-0001

Prepared for
Santa Fe Flores, LP
P.O. Box 903
Rancho Santa Fe, CA 92067
Contact: Paul Mayer

Prepared by
RECON Environmental, Inc.
3111 Camino del Rio North, Suite 600
San Diego, CA 92108
P 619.308.9333

RECON Number 10587
January 28, 2026

Jessica Fleming
Senior Air Quality/Noise/GHG Specialist

TABLE OF CONTENTS

Acronyms and Abbreviations iii
Executive Summary 1
1.0 Introduction 3
1.1 Project Description 3
1.2 Fundamentals of Noise 7
2.0 Applicable Noise Standards 8
2.1 General Plan 8
2.2 Municipal Code 9
2.3 California Green Building Standards Code – Environmental Comfort 10
3.0 Existing Conditions 10
4.0 Analysis Methodology 13
4.1 Construction Noise Analysis 13
4.2 Traffic Noise Analysis 14
4.3 On-site Generated Noise Analysis 16
5.0 Future Acoustical Environment and Impacts 17
5.1 Construction Noise 17
5.2 Traffic Noise 18
5.3 On-site Generated Noise 23
6.0 Conclusions 25
6.1 Construction Noise 25
6.2 Traffic Noise 26
6.3 On-site Generated Noise 26
7.0 References Cited 27

FIGURES

1: Regional Location 4
2: Project Location on Aerial Photograph 5
3: Site Plan 6
4: Noise Measurement Locations 12
5: Construction Noise Contours 19
6: Future Vehicle and Rail Traffic Noise Contours 19
7: HVAC Noise Contours 24

TABLE OF CONTENTS (cont.)

TABLES

1: Interior and Exterior Noise Guidelines 9
2: Municipal Code Property Line Noise Standards 10
3: Noise Measurements 11
4: 15-minute Traffic Counts 11
5: Typical Construction Equipment Noise Levels 13
6: Modeled Vehicle Traffic Parameters 15
7: Modeled Sprinter Trains 15
8: Future Vehicle Traffic Parameters 16
9: Construction Noise Levels 17
10: Future Vehicle and Rail Traffic Noise Levels 21
11: Traffic Noise Level with and without Project and Ambient Noise Increases 23
12: HVAC Noise Levels at Adjacent Properties 25

ATTACHMENTS

1: Noise Measurement Data
2: HVAC Specifications
3: SoundPLAN Data – Construction Noise
4: SoundPLAN Data – On-site Traffic and Rail Noise
5: Fresnel Barrier Reduction Calculations
6: FHWA RD-77-108 – Off-site Traffic Noise
7: SoundPLAN Data – On-site Generated Noise

Acronyms and Abbreviations

APN	assessor parcel number
Caltrans	California Department of Transportation
CCR	California Code of Regulations
City	City of San Marcos
CNEL	community noise equivalent level
dB	decibel
dB(A)	A-weighted decibel
FHWA	Federal Highway Administration
GPA	General Plan Amendment
HVAC	heating, ventilating, and air conditioning
L_{90}	noise level exceeded 90 percent of the time
L_{eq}	one-hour equivalent noise level
LLG	Linscott, Law & Greenspan, Engineers, Inc.
L_{max}	maximum noise level
L_{pw}	sound power level
MND	Mitigated Negative Declaration
project	Santa Fe Flores Townhomes Project
STC	sound transmission class

Executive Summary

The Santa Fe Flores Townhomes Project (project) is located in the city of San Marcos at 2966, 2972, and 2982 South Santa Fe Avenue, adjacent to North Las Flores Drive. The 2.6-acre (net) project site is comprised of assessor parcel numbers (APNs) 217-161-18, 217-161-19, and 0.37 acres of APN 217-161-17. The project would require a General Plan Amendment (GPA) and Rezone to allow the development of 46 multi-family residential townhome units. The project also proposes approximately 0.12 acres of off-site improvements, including the construction of a new shared driveway extending into the southern portion of APN 217-161-17, upgrades to the existing liquor store parking lot, and landscaping within the 8-foot-wide irrevocable offer of dedication area along the project frontage. The liquor store, Gourmet Liquor, located on the southern portion of APN 217-161-17 is not part of the project and would remain.

This report discusses potential noise impacts from the construction and operation of the project. As part of this assessment, noise levels due to vehicle traffic were calculated and evaluated against City of San Marcos (City) noise and land use compatibility guidelines. In addition to compatibility, the potential for noise to impact adjacent uses from future on-site sources and construction activity was assessed. A summary of the findings is provided below.

Construction Noise

Construction activity is regulated by the City Municipal Code, which limits noise by restricting construction activities to hours unlikely to impact the community. Noise associated with the grading, building, and paving for the project would potentially result in short-term impacts to surrounding residential properties. Construction noise levels would range from 56 to 73 A-weighted decibels equivalent noise level (dB(A) L_{eq}) at the adjacent properties. Construction activities would generally occur over the period between 7:00 a.m. and 6:00 p.m. on weekdays. Although the existing adjacent uses would be exposed to construction noise levels that may be heard above ambient conditions, the exposure would be temporary and would not exceed 75 dB(A) L_{eq}. As construction activities associated with the project would comply with Section 10.24.020 (b)(9) of the City Municipal Code, temporary increases in noise levels from construction activities would be less than significant.

Traffic Noise

The additional vehicle trips associated with the project would increase noise levels on nearby roadways. A noise increase of 3 dB or more would be considered significant because 3 dB is the level at which an increase in noise is perceptible to a person. However, the project would not generate enough trips to result in a direct or cumulative noise increase of more than 3 dB. Therefore, the project would result in less than significant direct and cumulative impacts related to traffic noise.

The main source of noise at the project site is vehicle traffic on South Santa Fe Avenue and North Las Flores Drive as well as Sprinters on the adjacent rail line. Exterior noise levels were modeled at the project site to determine compatibility with City standards. The applicable standards for multi-family uses are an exterior noise level of 65 community noise equivalent level (CNEL) and an

interior noise level of 45 CNEL. The project's exterior useable spaces include second- and third-floor balconies, roof decks, and the five amenity areas located on the south side of Building 1, on the north side of Building 2, on the east side of Building 4, on the north side of Building 5, and between Buildings 6 and 7. These amenity areas consist of active play areas and passive gathering space. As calculated in this analysis, without consideration of any noise barriers, exterior noise levels are projected to range from 42 to 70 CNEL at the building façades and amenity areas. Noise levels would be compatible with the City's exterior multi-family noise level standard of 65 CNEL at all locations except the amenity area on the south side of Building 1 (Amenity Area A, Receiver 1) and the south and east sides of Building 1 facing the roadways (Receivers 8 and 9). In order to reduce noise levels at these locations, the project would include a 6-foot barrier adjacent to the amenity area south of Building 1, and a solid 3.5-foot barrier on the balconies located on the south and east sides of Building 1 and on the south and east sides of the Building 1 roof deck. With construction of these barriers, exterior noise levels would be reduced to less than 65 CNEL and exterior noise impacts would be less than significant.

The interior noise level standard is 45 CNEL. Interior noise levels can be reduced through standard construction techniques. When windows are closed, standard construction techniques provide various exterior-to-interior noise level reductions depending on the type of structure and window. Standard light-frame construction would reduce exterior to interior noise levels by at least 20 dB (Federal Highway Administration 2011). With the installation of windows with a sound transmission class (STC) rating of 25 or higher, interior noise levels within the units in Building 1 would be reduced to 45 CNEL and interior noise levels would be less than significant. Interior noise levels at all other buildings would be 45 CNEL with standard light frame construction and without consideration of specific building components.

On-site Generated Noise

The project site is surrounded by single-family residential uses to the northeast and southeast, multi-family residential uses to the east, a mobile home park to the south, a commercial use to the southwest, and industrial uses to the west and north. The applicable daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) Noise Ordinance limits are 60 dB(A) L_{eq} and 50 dB(A) L_{eq} at the single-family residential uses, 65 dB(A) L_{eq} and 55 dB(A) L_{eq} at the multi-family residential and mobile home park uses, 65 dB(A) L_{eq} and 55 dB(A) L_{eq} at the commercial uses, and 65 dB(A) L_{eq} and 60 dB(A) L_{eq} at the industrial uses. The noise sources on the project site after completion of construction are anticipated to be those that would be typical of any residential use, such as vehicles arriving and leaving, children at play, and landscape maintenance machinery. None of these noise sources are anticipated to violate the Municipal Code. Rooftop heating, ventilating, and air conditioning noise levels were modeled at the property line adjacent properties. As calculated in this analysis, HVAC noise levels would range from 33 to 42 dB(A) L_{eq} at the adjacent properties. Noise levels would not exceed the applicable Noise Ordinance limits at the property lines.

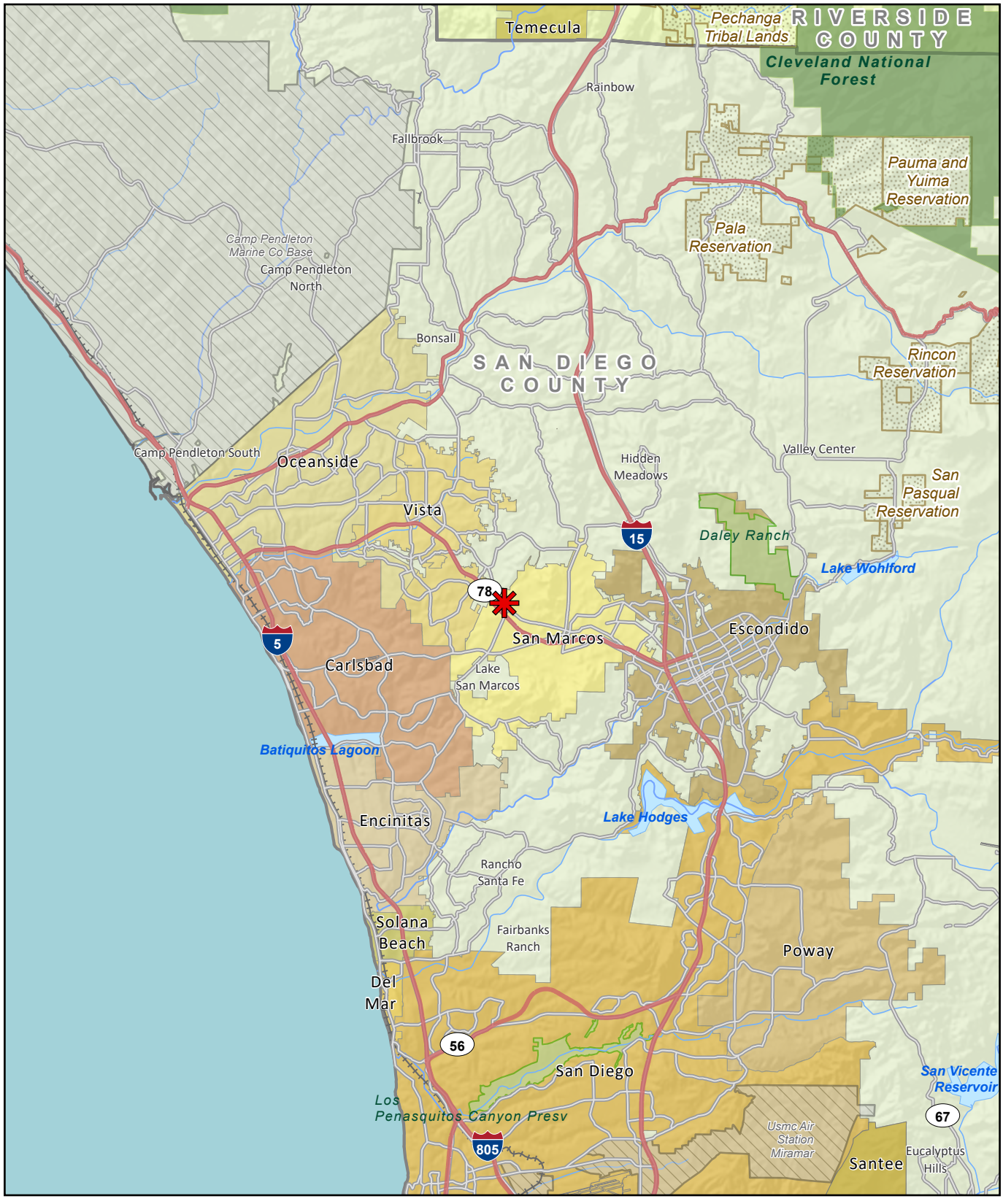
1.0 Introduction

1.1 Project Description

The project is located in the city of San Marcos at 2966, 2972, and 2982 South Santa Fe Avenue adjacent to North Las Flores Drive on assessor parcel numbers (APNs) 217-161-18, 217-161-19, and 0.37 acres of APN 217-161-17. The 2.6-acre (net) project site is comprised of APNs 217-161-18, 217-161-19, and 0.37 acres of APN 217-161-17. The project also proposes approximately 0.12 acres of off-site improvements, including the construction of a new shared driveway extending into the southern portion of APN 217-161-17, upgrades to the existing liquor store parking lot, and landscaping within the 8-foot-wide irrevocable offer of dedication area along the project frontage. Figure 1 shows the regional location. Figure 2 shows an aerial photograph of the project site and vicinity.

On February 28, 2023, the City of San Marcos City Council adopted a Mitigated Negative Declaration (MND; ND22-008; SCH No. 2022090486), approved a GPA (GPA21-0008), approved a Rezone (21-0004), and approved a Multi-Family Site Development Plan (MFSDP21-0002) for the Santa Fe Flores, LP Project (approved project). The requested Rezone (R21-0004) required a second reading prior to approval on March 14, 2023. The approved project evaluated the impacts associated with a GPA to change the land use from Commercial (C) and Light Industrial (L-I) to Medium Density Residential 2 (MDR2) and a zone change from Commercial (C) and Light Industrial (L-I) to Multi-Family Residential (R-3-10) to allow for the construction of 50 multi-family residential townhome units, in conjunction with a Density Bonus, on a 2.23-acre site consisting of two parcels, APNs 217-161-18 and 217-161-19.

Subsequent to MND approval, the applicant modified the site plan and added 0.37 acres of APN 217-161-17 through a lot line adjustment to be processed. The project would require a GPA from Medium Density Residential 2 (MDR2) to Medium High Density Residential (MHDR) for APNs 217-161-18 and 217-161-19, and a GPA from Commercial (C) to Medium High Density Residential (MHDR) for 0.37 acres of the northern portion of APN 217-161-17. Additionally, the project would rezone APNs 217-161-18 and 217-161-19 from Multi-Family Residential 3 (R-3-10) to Multi-Family Residential (R-3-6) and 0.37 acres of the northern portion of APN 217-161-17 from Commercial (C) to Multi-Family Residential (R-3-6). The project would develop 46 multi-family residential townhome units in seven buildings that would be three stories in height. Vehicle parking would include 92 spaces within attached garages and 15 guest spaces. The liquor store would not be part of the project and would remain. Project grading would include 23,300 cubic yards of cut and 3,200 cubic yards of fill resulting in the export of 20,100 cubic yards of soil. Figure 3 shows the proposed site plan.



Project Location

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 10/29/2024 fmm

FIGURE 1
Regional Location

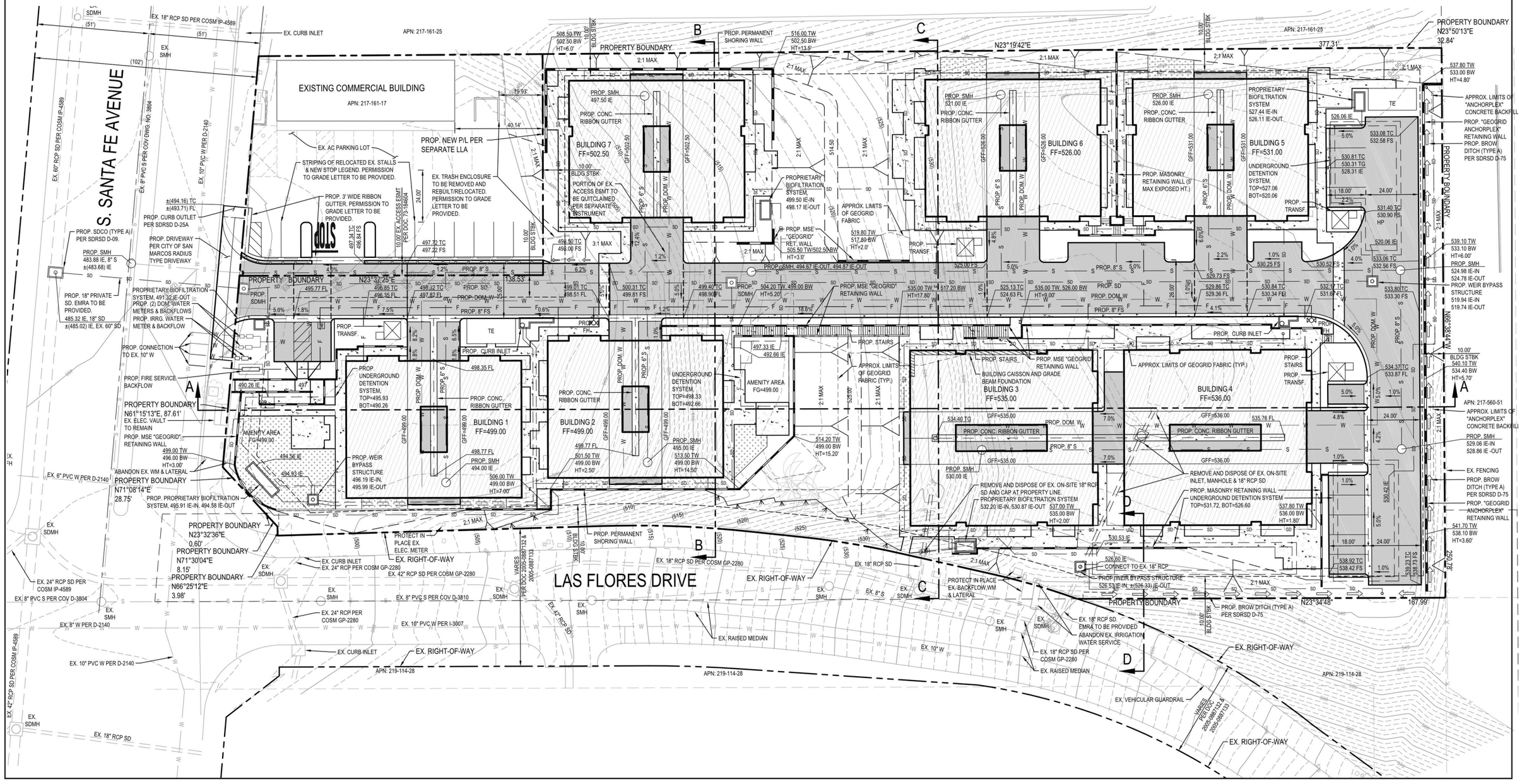
Image Source: Nearmap (flown May 2025)

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 07/21/2025 bma

FIGURE 2
Project Location on Aerial Photograph

Map Source: PLSA Engineering



RECON

M:\JOBS6\10587\nos\graphics\Fig3.afdesign 07/22/25 bma

FIGURE 3
Site Plan

1985

1.2 Fundamentals of Noise

Sound levels are described in units called the decibel (dB). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the energy would result in a 3 dB decrease. However, human perception of noise has no simple correlation with acoustical energy. A change in noise levels is generally perceived as follows: 3 A-weighted dB (dB(A)) barely perceptible, 5 dB(A) readily perceptible, and 10 dB(A) perceived as a doubling or halving of noise (California Department of Transportation [Caltrans] 2013).

In technical terms, sound levels are described as either a "sound power level" or a "sound pressure level," which while commonly confused, are two distinct characteristics of sound. Both share the same unit of measure, the dB. However, sound power, expressed as L_{pw}, is the energy converted into sound by the source. As sound energy travels through the air, it creates a sound wave that exerts pressure on receivers such as an eardrum or microphone, the sound pressure level. Sound measurement instruments only measure sound pressure, and limits used in standards are generally sound pressure levels.

The human ear is not equally sensitive to all frequencies within the sound spectrum. To accommodate this phenomenon, the A-scale, which approximates the frequency response of the average young ear when listening to most ordinary everyday sounds, was devised. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Therefore, the "A-weighted" noise scale is used for measurements and standards involving the human perception of noise. Noise levels using A-weighted measurements are designated with the notation dB(A).

1.2.1 Descriptors

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important. In addition, most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors has been developed. The noise descriptors used for this study are the equivalent noise level (L_{eq}) and the community noise equivalent level (CNEL). The L_{eq} is the equivalent steady-state noise level in a stated period of time that is calculated by averaging the acoustic energy over a time period; when no period is specified, a 1-hour period is assumed.

The CNEL is a 24-hour equivalent sound level. The CNEL calculation applies an additional 5 dB(A) penalty to noise occurring during evening hours, between 7:00 p.m. and 10:00 p.m., and a 10 dB(A) penalty is added to noise occurring during the night, between 10:00 p.m. and 7:00 a.m. These increases for certain times are intended to account for the added sensitivity of humans to noise during the evening and night.

1.2.2 Propagation

Sound from a localized source (approximating a "point" source) radiates uniformly outward as it travels away from the source in a spherical pattern, known as geometric spreading. The sound level decreases or drops off at a rate of 6 dB(A) for each doubling of the distance (e.g., a noise level of 60 dB(A) at 50 feet from a point source would attenuate to 54 dB(A) at 100 feet).

Traffic noise is not a single, stationary point source of sound. The movement of vehicles makes the source of the sound appear to emanate from a line (line source) rather than a point when viewed over some time interval. The drop-off rate for a line source is 3 dB(A) for each doubling of distance (e.g., a noise level of 60 dB(A) at 50 feet from a line source would attenuate to 57 dB(A) at 100 feet).

The propagation of noise is also affected by the intervening ground, known as ground absorption. A hard site (such as parking lots or smooth bodies of water) receives no additional ground attenuation, and the changes in noise levels with distance (drop-off rate) are simply the geometric spreading of the source. A soft site (such as soft dirt, grass, or scattered bushes and trees) provides an additional ground attenuation value of 1.5 dB(A) per doubling of distance. For example, under soft site conditions, a noise level of 60 dB(A) at 50 feet from a point source would attenuate to 52.5 dB(A) at 100 feet, and a noise level of 60 dB(A) at 50 feet from a line source would attenuate to 55.5 dB(A) at 100 feet.

2.0 Applicable Noise Standards

2.1 General Plan

The Noise Element of the City General Plan provides land use compatibility guidelines to ensure that new developments are sited, designed, and constructed in such a manner that ambient noise levels would not create an unacceptable noise environment for the occupants and patrons of the new development. Table 1 provides the interior and exterior noise guidelines for various types of uses and developments.

The project proposes multi-family residential uses. As shown in Table 1, the applicable standards for multi-family uses are an exterior noise level of 65 CNEL and an interior noise level of 45 CNEL. The exterior noise level standard is applicable at the proposed exterior use areas. For the proposed project, this includes second- and third-floor balconies, rooftop decks, and the five proposed amenity areas consisting of active play areas and passive gathering areas.

Table 1 Interior and Exterior Noise Guidelines		
Land Use	Maximum Noise Level (CNEL)	
	Interior[1]	Exterior[2,3]
Residential – single-family, mobile homes, or age-restricted housing	45	60
Residential – multi-family residences or mixed use	45	65
Lodging – hotels, motels	45	65
Schools, churches, hospitals, residential care facility, child-care facilities	50	65
Passive recreational parks, nature preserves, contemplative spaces, cemeteries	--	65
Active parks, golf courses, athletic fields, outdoor spectator sports, water recreation	--	65
Office/professional, government, medical/dental, commercial, retail, laboratories	50	65
Industrial, manufacturing, utilities, agriculture, mining, stables, ranching, warehouse, maintenance/repair	--	65

CNEL = community noise equivalent level
SOURCE: City of San Marcos General Plan Update, Noise Element 2012.
[1]Applies only to interior habitable rooms.
[2]Exterior noise standard does not apply for land uses where no exterior use area is proposed or necessary, such as a library.
[3]For single-family detached dwelling units, "exterior noise level" is defined as the noise level measured at an outdoor living area that adjoins and is on the same lot as the dwelling.

2.2 Municipal Code

2.2.1 Title 10, Chapter 10.24 – Construction

Section 10.24.020 (b)(9) of the City Municipal Code identifies permissible hours for general construction activities. Excluding City holidays, construction may occur weekdays from 7:00 a.m. to 6:00 p.m. or Saturdays from 8:00 a.m. to 5:00 p.m. Grading is often the loudest phase of construction. Section 17.32.180 restricts grading and earthworks activities to between the hours of 7:00 a.m. and 4:30 p.m., Monday through Friday.

2.2.2 Title 20 – Zoning Ordinance

City Municipal Code Title 20 – Zoning Ordinance contains General Development Standards. Performance standards in Section 20.300.070 (f) set restrictions on noise levels by zoning. No person shall create or allow the creation of exterior noise that causes the noise level to exceed the noise standards shown in Table 2.

Table 2 Municipal Code Property Line Noise Standards		
Zone	Time	Allowable Property Line Noise Level [dB(A) L_{eq}]
Single-Family Residential (A, R-1, R-2)	7:00 a.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	60 50
Multi-Family Residential (R-3)	7:00 a.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	65 55
Commercial (C, O-P, SR)	7:00 a.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	65 55
Industrial	7:00 a.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	65 60
dB(A) L_{eq} = A-weighted decibels equivalent noise level SOURCE: Section 20.300.070(f) Table 20.300-4, San Marcos Municipal Code Title 20 – Zoning Code.		

The project site is surrounded by single-family residential uses to the northeast and southeast, multi-family residential uses to the east, a mobile home park to the south, a commercial use to the southwest, and industrial uses to the west and north.

2.3 California Green Building Standards Code – Environmental Comfort

Interior noise levels for habitable rooms are regulated also by Title 24 of the California Code of Regulations (CCR) California Noise Insulation Standards. Title 24, Chapter 12, Section 1206.4, of the 2019 California Building Code requires that interior noise levels attributable to exterior sources not exceed 45 CNEL in any habitable room. A habitable room is a room used for living, sleeping, eating, or cooking. Bathrooms, closets, hallways, utility spaces, and similar areas are not considered habitable rooms for this regulation (24 CCR, Chapter 12, Section 1206.4).

3.0 Existing Conditions

Existing noise levels in the vicinity of the project site were measured on March 22, 2022, using one Larson-Davis Model LxT, Type 1 Integrating Sound Level Meter, serial number 3895. The following parameters were used:

Filter:	A-weighted
Response:	Slow
Interval Period	1 minute
Time History Period:	5 seconds

The meter was calibrated before and after each measurement. The meter was set 5 feet above the ground level for each measurement.

Noise measurements were taken to obtain typical ambient noise levels at the project site and in the vicinity. The weather was sunny and warm. Two 15-minute measurements were taken, as described

below. The measurement locations are shown on Figure 4, and detailed data is contained in Attachment 1.

Measurement 1 was located near the southern project boundary, 50 feet north of South Santa Fe Avenue. Noise levels were measured for 15 minutes. The main noise source at this location was vehicle traffic on South Santa Fe Avenue. Vehicle traffic on South Santa Fe Avenue was counted during the measurement period. The average measured noise level was 63.2 dB(A) L_{eq}.

Measurement 2 was located near the eastern project boundary, approximately 50 feet west of North Las Flores Drive. Noise levels were measured for 15 minutes. The main noise source at this location was vehicle traffic on North Las Flores Drive. Secondary sources of noise included vehicle traffic on South Santa Fe Avenue. Vehicle traffic on North Las Flores Drive was counted during the measurement period. The average measured noise level was 57.5dB(A) L_{eq}.

Noise measurements are summarized in Table 3. Traffic counts conducted during Measurements 1 and 2 are summarized in Table 4.

Table 3
Noise Measurements

Measurement	Location	Time	Main Noise Source	L_{eq}
1	50 Feet North of South Santa Fe Avenue	1:34 p.m. – 1:49 p.m.	Vehicle Traffic on South Santa Fe Avenue	63.2
2	50 feet west of North Las Flores Drive	1:55 p.m. – 2:10 p.m.	Vehicle traffic on North Las Flores Drive	57.5

L_{90} = Noise level exceeded 90 percent of the time.
NOTE: Noise measurement data is contained in Attachment 1.

Table 4
15-minute Traffic Counts

Measurement	Roadway	Direction	Autos	Medium Trucks	Heavy Trucks	Buses	Motorcycles
1	South Santa Fe Avenue	Eastbound	78	8	0	5	0
		Westbound	71	4	1	2	0
2	North Las Flores Drive	Northbound	13	0	0	0	0
		Southbound	11	0	0	0	0

Image Source: Nearmap (flown May 2025)

Project Boundary

Off-site Improvements

Noise Measurement Location

0 Feet 200

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 07/21/2025 bma

FIGURE 4
Noise Measurement Locations

4.0 Analysis Methodology

Noise level predictions and contour mapping were developed using noise modeling software, SoundPlan Essential, version 4.1 (Navcon Engineering 2018). SoundPLAN calculates noise propagation based on the International Organization for Standardization method (ISO 9613-2 – Acoustics, Attenuation of Sound during Propagation Outdoors). The model calculates noise levels at selected receiver locations using input parameter estimates such as total noise generated by each noise source; distances between sources, barriers, and receivers; and shielding provided by intervening terrain, barriers, and structures. The model outputs can be developed as noise level contour maps or noise levels at specific receivers. In all cases, receivers were modeled at 5 feet above ground elevation, which represents the average height of the human ear.

4.1 Construction Noise Analysis

Project construction noise would be generated by diesel engine-driven construction equipment used for site preparation and grading, building construction, loading, unloading, and placing materials and paving. Diesel engine-driven trucks also would bring materials to the site and remove the soils from excavation.

Construction equipment with a diesel engine typically generates maximum noise levels from 70 to 95 dB(A) L_{eq} at a distance of 50 feet (Federal Highway Administration [FHWA] 2006 and 2008, Federal Transit Authority 2018). During construction, equipment moves to different locations and goes through varying load cycles, and there are breaks for the operators and for non-equipment tasks, such as measurement. Table 5 summarizes typical construction equipment noise levels and duty cycles.

Table 5
Typical Construction Equipment Noise Levels

Equipment	Noise Level at 50 Feet (dB(A) L_{eq})	Typical Duty Cycle
Auger Drill Rig	85	20%
Backhoe	80	40%
Blasting	94	1%
Chain Saw	85	20%
Clam Shovel	93	20%
Compactor (ground)	80	20%
Compressor (air)	80	40%
Concrete Mixer Truck	85	40%
Concrete Pump	82	20%
Concrete Saw	90	20%
Crane (mobile or stationary)	85	20%
Dozer	85	40%
Dump Truck	84	40%
Excavator	85	40%
Front End Loader	80	40%
Generator (25 kilovolt amps or less)	70	50%
Generator (more than 25 kilovolt amps)	82	50%

Table 5 Typical Construction Equipment Noise Levels		
Equipment	Noise Level at 50 Feet (dB(A) L_{eq})	Typical Duty Cycle
Grader	85	40%
Hydra Break Ram	90	10%
Impact Pile Driver (diesel or drop)	95	20%
In situ Soil Sampling Rig	84	20%
Jackhammer	85	20%
Mounted Impact Hammer (hoe ram)	90	20%
Paver	85	50%
Pneumatic Tools	85	50%
Pumps	77	50%
Rock Drill	85	20%
Roller	74	40%
Scraper	85	40%
Tractor	84	40%
Vacuum Excavator (vac-truck)	85	40%
Vibratory Concrete Mixer	80	20%
Vibratory Pile Driver	95	20%
dB(A) L_{eq} = A-weighted decibels average noise level SOURCE: Federal Highway Administration 2006 and 2008; Federal Transit Authority 2018.		

Construction equipment would generate maximum noise levels between 70 and 95 dB(A) maximum noise level (L_{max}) at 50 feet from the source when in operation. During excavation, grading, and paving operations, equipment moves to different locations and goes through varying load cycles, and there are breaks for the operators and for non-equipment tasks, such as measurement. Average construction noise levels were calculated for the simultaneous operation of three common pieces of construction equipment: dozer, excavator, and loader. FTA guidance recommends analyzing the two noisiest pieces of construction equipment (FTA 2018), therefore this is a conservative assessment. The usage factors were applied to the maximum noise level at 50 feet for each piece of equipment, and then noise levels were added logarithmically. Hourly average noise levels would be approximately 85 dB(A) L_{eq} at 50 feet from the center of construction activity when assessing three pieces of common construction equipment working simultaneously.

4.2 Traffic Noise Analysis

4.2.1 On-site Traffic and Rail Noise

The SoundPLAN program uses the FHWA Traffic Noise Model algorithms and reference levels to calculate noise levels at selected receiver locations. The model uses various input parameters, such as projected hourly average traffic rates; vehicle mix, distribution, and speed; roadway lengths and gradients; distances between sources, barriers, and receivers; and shielding provided by intervening terrain, barriers, and structures. Receivers, roadways, and barriers were input into the model using three-dimensional coordinates. The locations of future buildings were obtained from project plans and drawings.

The main source of traffic noise at the project site is vehicle traffic on South Santa Fe Avenue and North Las Flores Drive as well as Sprinters on the adjacent rail line. Future year 2050 with project traffic volumes for South Santa Fe Avenue were obtained from the Traffic Impact Analysis prepared for the project (Linscott, Law & Greenspan, Engineers [LLG] 2026). Future year 2050 traffic volumes for North Las Flores Drive were obtained from San Diego Association of Governments (SANDAG) traffic projections (SANDAG 2025). A vehicle classification mix of 93.0 percent automobiles, 3.0 percent medium trucks, 2.0 percent heavy trucks, 1.0 percent buses, and 1.0 percent motorcycles were modeled. Based on the field traffic counts, this classification mix is conservative.

Table 6 summarizes the traffic volumes and vehicle classification mixes for the modeled roadways.

Table 6
Modeled Vehicle Traffic Parameters

Roadway	Segment	Year 2050 Average Daily Traffic	Speed	Vehicle Mix (percent)				
				Autos	Medium Trucks	Heavy Trucks	Buses	Motorcycles
South Santa Fe Avenue	Community Drive to North Las Flores Drive	22,570	45	93	3	2	1	1
	North Las Flores Drive to North Rancho Santa Fe Road	21,480	45	93	3	2	1	1
Las Flores Drive	South of South Santa Fe Avenue	3,400	25	93	3	2	1	1
North Las Flores Drive	North of South Santa Fe Avenue	1,600	25	93	3	2	1	1

The project site is also located approximately 150 feet southwest of the Sprinter rail line. The Sprinter is a light rail commuter train operated by the North County Transit District. The east-west Sprinter rail spans 22 miles from Oceanside to Escondido. The Palomar College Station is the closest Sprinter station to the project site. Fridays experience the largest number of daily Sprinter trains. The number of Friday daytime, evening, and nighttime Sprinter trains was obtained from published schedules and is summarized in Table 7.

Table 7
Modeled Sprinter Trains

Direction	Daytime 7:00 a.m. – 7:00 p.m.	Evening 7:00 p.m. – 10:00 p.m.	Nighttime 10:00 p.m. – 7:00 a.m.
Eastbound	24	6	10
Westbound	24	6	8
TOTAL	**48**	**12**	**18**

4.2.2 Off-site Traffic Noise

Off-site traffic noise was modeled using the FHWA Traffic Noise Prediction Model algorithms and reference levels. Traffic noise levels were calculated at 50 feet from the centerline of the affected roadways to determine the noise level increase associated with the project. The model uses various input parameters, such as traffic volumes, vehicle mix, distribution, and speed.

The roadways included in the traffic impact analysis are South Santa Fe Avenue, Hollencrest Road, and North Rancho Santa Fe Road. Traffic noise levels were calculated based on the total average daily traffic volumes on each roadway segment. For modeling purposes, "hard" ground conditions were used for the analysis of future conditions, since a majority of the project area is paved and the hard site provides the most conservative impact assessment.

Existing (year 2022), near term (year 2027), and future (year 2050) traffic volumes with and without the project were obtained from the project traffic impact analysis (LLG 2026). Table 8 summarizes the future traffic volumes for the area roadway segments. Modeled noise levels do not account for shielding provided by intervening barriers and structures.

Table 8
Future Vehicle Traffic Parameters

Roadway Segment	Average Daily Traffic						Speed (mph)
	Existing	Existing + Project	Year 2027	Year 2027 + Project	Year 2050	Year 2050 + Project	
South Santa Fe Avenue							
Similax Road to Bosstick Boulevard	14,850	14,960	16,110	16,220	22,200	22,310	45
Bosstick Boulevard to Community Drive	16,660	16,770	18,080	18,190	22,200	22,310	45
Community Drive to North Las Flores Drive	16,660	17,030	18,080	18,450	22,200	22,570	45
North Las Flores Drive to North Rancho Santa Fe Road	14,600	14,780	15,840	16,020	21,300	21,480	45
North Rancho Santa Fe Road to North Pacific Street	13,500	13,570	14,650	14,720	24,400	24,470	40
Hollencrest Road							
De Leone Road to Hollenbeck Road	560	600	610	650	830	870	25
North Rancho Santa Fe Avenue							
South Santa Fe Avenue to Capalina Road	11,730	11,840	12,730	12,840	16,800	16,910	40

mph = miles per hour
SOURCE: Linscott, Law & Greenspan, Engineers, Inc. 2026.

4.3 On-site Generated Noise Analysis

On-site noise sources on the project site after completion of construction are anticipated to be those that would be typical of any multi-family use, such as vehicles arriving and leaving, children at play, and landscape maintenance machinery. None of these noise sources are anticipated to violate the City Municipal Code or result in a substantial permanent increase in existing noise levels. However, the project would include rooftop heating, ventilation, and air conditioning (HVAC) equipment. Noise levels due to HVAC equipment were modeled and compared to City limits (see Table 2).

The HVAC equipment would be located on the roof with screened walls. It is not known at this time which manufacturer, brand, or model of unit or units will be selected for use in the project. For the purposes of this analysis, to determine what general noise levels the HVAC units would generate, it was assumed that the rooftop units would be similar to a Carrier unit with a sound power level of 75 dB(A). Noise specifications are contained in Attachment 2. All units were modeled at full capacity during the daytime and nighttime hours.

Noise levels due to on-site sources were modeled using SoundPLAN. The SoundPLAN program models noise propagation following the International Organization for Standardization method *ISO 9613-2 – Acoustics, Attenuation of Sound during Propagation Outdoors*. The model calculates noise levels at selected receiver locations using input parameter estimates such as total noise generated by each noise source; distances between sources, barriers, and receivers; and shielding provided by intervening structures.

5.0 Future Acoustical Environment and Impacts

5.1 Construction Noise

Noise associated with the grading, building, and paving for the project would potentially result in short-term impacts to surrounding residential properties. There are residential uses located northeast, east, southeast, and south of the project site. A variety of noise-generating equipment would be used during the construction phase of the project, such as excavators, backhoes, front-end loaders, and concrete saws, along with others. The exact number and pieces of construction equipment required are not known at this time. As discussed, average construction noise levels were calculated. Based on this analysis, hourly average noise levels would be approximately 85 dB(A) L_{eq} at 50 feet from the center of construction activity when assessing three pieces of common construction equipment working simultaneously. Construction noise is considered a point source and would attenuate at approximately 6 dB(A) for every doubling of distance. To reflect the nature of grading and construction activities, equipment was modeled as an area source distributed over the project footprint. Noise levels were modeled at a series of 18 receivers located at the adjacent uses. The results are summarized in Table 9. Modeled receiver locations and construction noise contours are shown in Figure 5. SoundPLAN data is contained in Attachment 3.

Table 9
Construction Noise Levels

Receiver	Land Use	Noise Level [dB(A) L_{eq}]
1	Single-Family Residential	58
2	Single-Family Residential	60
3	Single-Family Residential	61
4	Single-Family Residential	60
5	Single-Family Residential	59
6	Multi-Family Residential	56
7	Multi-Family Residential	58
8	Multi-Family Residential	68
9	Multi-Family Residential	70
10	Single-Family Residential	63
11	Mobile Home Park	66
12	Mobile Home Park	65
13	Mobile Home Park	61
14	Mobile Home Park	59
15	Industrial	68
16	Industrial	66
17	Industrial	73
18	Commercial	73

dB(A) L_{eq} = A-weighted decibels equivalent noise level

As shown, construction noise levels would range from 56 to 73 dB(A) L_{eq} at the adjacent uses. The City's Municipal Code does not place noise limit restrictions on construction activities; however, other jurisdictions commonly apply a noise level limit of 75 dB(A) L_{eq} at residential uses. Construction noise levels would not exceed 75 dB(A) L_{eq}. Construction activities would generally occur over the period between 7:00 a.m. and 6:00 p.m. on weekdays. Although the existing adjacent uses would be exposed to construction noise levels that may be heard above ambient conditions, the exposure would be temporary and would not exceed 75 dB(A) L_{eq}. As construction activities associated with the project would comply with the time limits established in Section 10.24.020 (b)(9) of the City Municipal Code, temporary increases in noise levels from construction activities would be less than significant.

5.2 Traffic Noise

5.2.1 On-site Traffic and Rail Noise

On-site traffic and rail noise contours were developed using the SoundPLAN program. Noise level contours were modeled at the first-floor level. These contours take into account shielding provided by the proposed buildings and grading. Future vehicle and rail traffic noise-level contours are shown in Figure 6. SoundPLAN data are contained in Attachment 4.

As discussed in Section 2.1, the exterior noise level standard for multi-family uses is 65 CNEL. This standard is applicable at exterior use areas which include second- and third-floor balconies, rooftop decks, and the five proposed amenity areas consisting of active play areas and passive gathering areas The interior noise level standard is 45 CNEL. To refine the noise analysis and determine noise levels at exterior use areas and the building façade, exterior noise levels were calculated at a series of first- through third-floor specific receiver locations at the outdoor use areas and around the proposed building. Modeled receiver locations are shown in Figure 6. Table 10 summarizes the projected future noise levels at the 26 modeled receivers. Modeled noise levels shown in Table 10 do not include noise reduction provided by any noise barriers.

Image Source: Nearmap (flown May 2025)

Project Boundary
Off-site Improvements
Receivers

Construction Noise
60 dB(A) L_{eq}
65 dB(A) L_{eq}
70 dB(A) L_{eq}
75 dB(A) L_{eq}

0 Feet 200

FIGURE 5
Construction Noise Contours

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 12/17/2025 bma

Image Source: Nearmap (flown May 2025)

Project Boundary
Off-site Improvements
Receivers
Site Plan
Amenity Area A 6-foot Barrier
Buildings

Vehicle and Rail Noise
50 CNEL
55 CNEL
60 CNEL
65 CNEL

0 Feet 150

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 12/02/2025 bma

FIGURE 6
Future Vehicle and Rail Noise Contours

Table 10 Future Vehicle and Rail Traffic Noise Levels				
		Exterior Noise Level (CNEL)		
Receiver	Location	First-Floor	Second-Floor	Third-Floor
1	Amenity Area A	**68**	--	--
2	Amenity Area B	46	--	--
3	Amenity Area C	50	--	--
4	Amenity Area D	46	--	--
5	Amenity Area E	54	--	--
6	Amenity Area E	42	--	--
7	Building 1	61	63	65
8	Building 1	**67**	**69**	**70**
9	Building 1	63	65	**66**
10	Building 1 and 2	49	53	55
11	Building 2	57	61	61
12	Building 2	46	50	52
13	Building 2	54	58	60
14	Building 3	54	55	56
15	Building 3	58	60	61
16	Building 3	57	60	60
17	Building 3 and 4	45	49	51
18	Building 4	51	55	59
19	Building 4	48	51	52
20	Building 4	46	51	52
21	Building 5	46	50	51
22	Building 5	45	49	50
23	Building 5	48	54	56
24	Building 5 and 6	43	49	50
25	Building 6	51	56	57
26	Building 6	55	58	59
27	Building 6	49	53	55
28	Building 7	43	45	49
29	Building 7	47	56	60
30	Building 7	59	63	65
31	Building 7	54	56	58
CNEL = community noise equivalent level **Bold** = Exceeds 65 CNEL				

As shown, exterior noise levels are projected to range from 42 to 70 CNEL at the building façades and amenity areas. Noise levels would be compatible with the City's exterior multi-family noise level standard of 65 CNEL at all locations except the amenity area on the south side of Building 1 (Amenity Area A, Receiver 1) and the south and east sides of Building 1 facing the roadways (Receivers 8 and 9). There are second-floor balconies on the south side of Building 1 and third-floor balconies on the east side of Building 1 and a rooftop deck. These balconies and rooftop deck could be exposed to noise levels that exceed 65 CNEL. Based upon these findings, noise control recommendations are necessary at the amenity area south of Building 1, at the balconies on the south and east sides of Building 1, and on the south and east sides of the Building 1 roof deck in order to comply with the City's noise standard of 65 CNEL. A 6-foot barrier adjacent to the amenity area as shown in Figure 6 was modeled using SoundPLAN and would be necessary to reduce noise levels to 65 CNEL or less

at this active play area. Modeling data is provided in Attachment 4. To determine the required barrier heights at the Building 1 balconies and roof deck, the Fresnel barrier noise reductions were modeled. The balcony and roof deck barriers were modeled using this equation-based method rather than SoundPLAN because of the geometry of these barriers when elevated on balconies and the roof deck. These reductions are based on distance, source height, receiver elevation, and barrier height. The Fresnel barrier reduction calculations are provided as Attachment 5. It was calculated that a 3.5-foot balcony barrier would provide a 7.4 dB reduction at the balconies on the south side of Building 1 (Receiver 2), a 5.9 dB reduction at the balconies on the east side of Building 1 (Receiver 3), and a 7.0 dB reduction on the roof deck. In order to reduce noise levels at these locations, the project would include a 3.5-foot balcony railing as a solid barrier. With construction of these barriers, exterior noise levels would be reduced to less than 65 CNEL.

The interior noise level standard is 45 CNEL. Interior noise levels can be reduced through standard construction techniques. When windows are closed, standard construction techniques provide various exterior-to-interior noise level reductions depending on the type of structure and window. Standard light-frame construction would reduce exterior to interior noise levels by at least 20 dB (FHWA 2011).

As shown in Table 10, noise levels would be as high as 70 CNEL at the south side of Building 1 and 66 CNEL at the east side of Building 1. While the proposed 3.5-foot balcony barriers would reduce noise levels to 65 CNEL at a seated receiver, the entire building façade would not get the same noise attenuation, and the evaluation of specific building components is required. The sound transmission class (STC) rating of windows, walls, and roofs is an integer value that rates how well a building component attenuates noise. The STC rating generally reflects the decibel reduction that a building component can achieve. Standard walls and roofs typically have STC ratings greater than 40, while window components have lower ratings; thus, this analysis focuses on the minimum required window STC ratings. Because a noise reduction of up to 25 dB(A) is required to achieve interior noise levels of 45 CNEL or less, window components with an STC rating of 25 or higher are required for units located on the south and east side of Building 1. With the installation of windows with an STC rating of 25 or higher, interior noise levels within the units in Building 1 would be reduced to 45 CNEL and interior noise levels would be less than significant. Interior noise levels at all other buildings would be 45 CNEL with standard light frame construction and without consideration of specific building components.

5.2.2 Off-site Traffic Noise

The project would increase traffic volumes on local roadways. However, the project would not substantially alter the vehicle classifications mix on local or regional roadways, nor would the project alter the speed on an existing roadway or create a new roadway. Thus, the primary factor affecting off-site noise levels would be increased traffic volumes. While changes in noise levels would occur along any roadway where project-related traffic occurs, for noise assessment purposes, noise level increases are assumed to be greatest nearest the project site, as this location would represent the greatest concentration of project-related traffic. Traffic noise increases attributable to the project were assessed against a significance threshold of 3 dB, which is the level at which an increase in noise is considered to be barely perceptible (Caltrans 2013).

Table 11 presents a conservative assessment of traffic noise levels based on the existing, near term (year 2027), and future (year 2050) noise levels without and with the project. Table 11 also summarizes the direct and cumulative traffic noise level increases due to the project. Noise level calculations are contained in Attachment 6.

Table 11
Traffic Noise Level with and without Project and Ambient Noise Increases (CNEL)

Roadway Segment	Existing			Near-Term (Year 2027)			Future (Year 2050)			Cumulative Increase Over Existing
	No Project	Project	Increase	No Project	Project	Increase	No Project	Project	Increase	
South Santa Fe Avenue										
Similax Road to Bosstick Boulevard	71.3	71.3	0.0	71.6	71.7	0.1	73.0	73.1	0.1	1.8
Bosstick Boulevard to Community Drive	71.8	71.8	0.0	72.1	72.2	0.1	73.0	73.1	0.1	1.3
Community Drive to North Las Flores Drive	71.8	71.9	0.1	72.1	72.2	0.1	73.0	73.1	0.1	1.3
North Las Flores Drive to North Rancho Santa Fe Road	71.2	71.3	0.1	71.6	71.6	0.0	72.9	72.9	0.0	1.7
North Rancho Santa Fe Road to North Pacific Street	69.8	69.8	0.0	70.1	70.1	0.0	72.3	72.3	0.0	2.5
Hollencrest Road										
De Leone Road to Hollenbeck Road	52.7	53.0	0.3	53.1	53.4	0.3	54.4	54.6	0.2	1.9
North Rancho Santa Fe Avenue										
South Santa Fe Avenue to Capalina Road	69.1	69.2	0.1	69.5	69.5	0.0	70.7	70.7	0.0	1.6
NOTE: Increase calculations may vary due to independent rounding.										

As shown, the project would not result in a direct or cumulative noise increase of more than 3 dB. Therefore, the project would result in less than significant direct and cumulative impacts related to traffic noise.

5.3 On-site Generated Noise

The primary noise sources on-site would be HVAC equipment. Rooftop HVAC equipment that would have the potential to produce noise in excess of City limits (see Table 2). Using the on-site noise source parameters discussed in Section 4.3, noise levels were modeled at a series of 17 receivers located at the adjacent properties. Noise generated by HVAC equipment would occur on an intermittent basis, primarily during the day and evening hours and less frequently during the nighttime hours. For a worst-case analysis, it was assumed that the HVAC units would operate at maximum capacity during the daytime and nighttime hours.

Modeled receivers and the locations of the HVAC units are shown in Figure 7. Modeled data is included in Attachment 7. Future projected noise levels are summarized in Table 12.

Image Source: Nearmap (flown May 2025)

Project Boundary
Off-site Improvements
Receivers
HVAC
Site Plan
Buildings

HVAC Noise
30 dB(A) L_{eq}
35 dB(A) L_{eq}
40 dB(A) L_{eq}
45 dB(A) L_{eq}

0 Feet 200

RECON

M:\JOBS6\10587\common_gis\PRO\standard_figures\standardfigures.aprx 12/17/2025 bma

FIGURE 7
HVAC Noise Contours

As shown, HVAC noise levels would range from 33 to 42 dB(A) Leq. Noise levels would not exceed the applicable Noise Ordinance limits at the property lines and impacts related to on-site generated noise would be less than significant.

Table 12
HVAC Noise Levels at Adjacent Properties

Receiver	Land Use	Noise Level [dB(A) L_{eq}]	Noise Ordinance Limit Daytime/Nighttime [dB(A) L_{eq}]
1	Single Family Residential	33	60/50
2	Single Family Residential	35	60/50
3	Single Family Residential	36	60/50
4	Single-Family Residential	35	60/50
5	Single-Family Residential	34	60/50
6	Multi-Family Residential	34	65/55
7	Multi-Family Residential	35	65/55
8	Multi-Family Residential	42	65/55
9	Multi-Family Residential	41	65/55
10	Single-Family Residential	35	60/50
11	Mobile Home Park	36	65/55
12	Mobile Home Park	36	65/55
13	Mobile Home Park	35	65/55
14	Mobile Home Park	34	65/55
15	Industrial	39	65/60
16	Industrial	38	65/60
17	Industrial	40	65/60
18	Commercial	39	65/55
dB(A) L_{eq} = A-weighted decibels equivalent noise level			

6.0 Conclusions

6.1 Construction Noise

As shown in Table 9, construction noise levels would range from 56 to 73 dB(A) L_{eq} at the adjacent property lines. The City's Municipal Code does not place noise limit restrictions on construction activities, however, other jurisdictions commonly apply a noise level limit of 75 dB(A) L_{eq} at residential uses. Construction activities would generally occur over the period between 7:00 a.m. and 6:00 p.m. on weekdays. Although the existing adjacent uses would be exposed to construction noise levels that may be heard above ambient conditions, the exposure would be temporary and would not exceed 75 dB(A) L_{eq}. As construction activities associated with the project would comply with the time limits established in Section 10.24.020 (b)(9) of the City Municipal Code, temporary increases in noise levels from construction activities would be less than significant.

6.2 Traffic Noise

6.2.1 On-site Traffic and Rail Noise

The main source of noise at the project site is vehicle traffic on South Santa Fe Avenue and North Las Flores Drive as well as Sprinters on the adjacent rail line. The exterior noise level standard for multi-family uses is 65 CNEL. This standard is applicable at exterior use areas which include second- and third-floor balconies, rooftop decks, and the five proposed amenity areas consisting of active play areas and passive gathering areas. As shown in Table 10, without consideration of any noise barriers, exterior noise levels are projected to range from 42 to 70 CNEL at the building façades and amenity area. Noise levels would be compatible with the City's exterior multi-family noise level standard of 65 CNEL at all locations except the amenity area on the south side of Building 1 (Amenity Area A, Receiver 1) and the south and east sides of Building 1 facing the roadways (Receivers 8 and 9). In order to reduce noise levels at these locations, the project would include a 6-foot barrier adjacent to the amenity area south of Building 1, and a solid 3.5-foot barrier on the balconies located on the south and east sides of Building 1 and on the south and east sides of the Building 1 roof deck. With construction of these barriers, exterior noise levels would be reduced to less than 65 CNEL and exterior noise impacts would be less than significant.

The interior noise level standard is 45 CNEL. Interior noise levels can be reduced through standard construction techniques. When windows are closed, standard construction techniques provide various exterior-to-interior noise level reductions depending on the type of structure and window. Standard light-frame construction would reduce exterior to interior noise levels by at least 20 dB (FHWA 2011). With the installation of windows with an STC rating of 25 or higher, interior noise levels within the units in Building 1 would be reduced to 45 CNEL and interior noise levels would be less than significant. Interior noise levels at all other buildings would be 45 CNEL with standard light frame construction and without consideration of specific building components.

6.2.2 Off-site Traffic Noise

The additional vehicle trips associated with the project would increase noise levels on nearby roadways. A noise increase of 3 dB or more would be considered significant because 3 dB is the level at which an increase in noise is perceptible to a person. As shown in Table 11, the project would not result in a direct or cumulative noise increase of more than 3 dB. Therefore, the project would result in less than significant direct and cumulative impact related to traffic noise.

6.3 On-site Generated Noise

The noise sources on the project site after completion of construction are anticipated to be those that would be typical of any residential use, such as vehicles arriving and leaving, children at play, and landscape maintenance machinery. None of these noise sources are anticipated to violate the City Municipal Code. Rooftop HVAC noise levels were modeled at the adjacent properties. As shown in Table 12, HVAC noise levels would range from 33 to 42 dB(A) L_{eq}. Noise levels would not exceed the applicable Noise Ordinance limits at the property lines.

7.0 References Cited

California Department of Transportation (Caltrans)
2013 Technical Noise Supplement. November.

Federal Highway Administration (FHWA)
2006 Roadway Construction Noise Model. FHWA-HEP-05-054, SOT-VNTSC-FHWA-05-01. Final Report. January.

2008 Roadway Construction Noise Mode, V1.1. Washington, D.C.

2011 Highway Traffic Noise: Analysis and Abatement Guidance. FHWA-HEP-10-025. December.

Federal Transit Administration (FTA)
2018 Transit Noise and Vibration Impact Assessment. FTA Report No. 0123. Prepared by John A. Volpe National Transportation Systems Center. September.

Linscott, Law, & Greenspan, Engineers, Inc. (LLG)
2026 Local Transportation Analysis for the Santa Fe Flores Project. LLG Ref. 3-24-3940. January.

Navcon Engineering, Inc.
2018 SoundPLAN Essential version 4.1.

San Diego Association of Governments (SANDAG)
2025 Transportation Forecast Information Center. Year 2050 ABM2+/2021 RP Traffic Volumes. Accessed January 20, 2025. https://tfic.sandag.org/.

San Marcos, City of
2012 City of San Marcos General Plan Update, Noise Element.

ATTACHMENTS

ATTACHMENT 1

Noise Measurement Data

Summary				
Start	2022/03/22	13:34:51		
Stop	2022/03/22	13:49:56		
Duration		0:15:04.7		
Run Time		0:15:02.6		
Pause		0:00:02.1		
Pre Calibration	2022/03/22	13:33:32		
Post Calibration		None		
Calibration Deviation		---		
Overall Settings				
RMS Weight		A Weighting		
Peak Weight		A Weighting		
Detector		Slow		
Preamp		PRMLxT1		
Microphone Correction		Off		
Integration Method		Linear		
Overload		144.6 dB		
		A	**C**	**Z**
Under Range Peak		**100.6**	97.6	102.6 dB
Under Range Limit		**37.8**	37.4	44.5 dB
Noise Floor		28.6	28.3	35.3 dB
Results				
LAeq		63.2 dB		
LAE		92.8 dB		
EA		210.368 µPa²h		
EA8		6.712 mPa²h		
EA40		33.562 mPa²h		
LApeak (max)	2022/03/22	13:37:15	101.8 dB	
LASmax	2022/03/22	13:39:26	74.7 dB	
LASmin	2022/03/22	13:46:59	51.6 dB	
SEA		-99.9 dB		
LAS > 60.0 dB (Exceedence Counts / Duration)		31	563.6 s	
LAS > 70.0 dB (Exceedence Counts / Duration)		6	27.3 s	
LApeak > 135.0 dB (Exceedence Counts / Duration)		0	0.0 s	
LApeak > 137.0 dB (Exceedence Counts / Duration)		0	0.0 s	
LApeak > 140.0 dB (Exceedence Counts / Duration)		0	0.0 s	
LCeq		75.2 dB		
LAeq		63.2 dB		
LCeq - LAeq		12.0 dB		
LAleq		65.0 dB		
LAeq		63.2 dB		
LAleq - LAeq		1.8 dB		
# Overloads		0		
Overload Duration		0.0 s		
Dose Settings				
Dose Name		OSHA-1	OSHA-2	
Exch. Rate		5	5 dB	
Threshold		90	80 dB	
Criterion Level		90	90 dB	
Criterion Duration		8	8 h	
Results				
Dose		-99.9	-99.9 %	
Projected Dose		-99.9	-99.9 %	
TWA (Projected)		-99.9	-99.9 dB	
TWA (t)		-99.9	-99.9 dB	
Lep (t)		48.2	48.2 dB	
Statistics				
LAS5.00		68.6 dB		
LAS10.00		66.6 dB		
LAS33.30		62.9 dB		
LAS50.00		60.5 dB		
LAS66.60		58.4 dB		
LAS90.00		55.0 dB		

Summary				
Start	2022/03/22 13:55:50			
Stop	2022/03/22 14:10:51			
Duration	0:15:00.5			
Run Time	0:15:00.5			
Pause	0:00:00.0			
Pre Calibration	2022/03/22 13:33:30			
Post Calibration	None			
Calibration Deviation	---			
Overall Settings				
RMS Weight	A Weighting			
Peak Weight	A Weighting			
Detector	Slow			
Preamp	PRMLxT1			
Microphone Correction	Off			
Integration Method	Linear			
Overload	144.6 dB			
	A	**C**	**Z**	
Under Range Peak	**100.6**	97.6	102.6	dB
Under Range Limit	**37.8**	37.4	44.5	dB
Noise Floor	28.6	28.3	35.3	dB
Results				
LAeq	57.5 dB			
LAE	87.0 dB			
EA	55.989 µPa²h			
EA8	1.791 mPa²h			
EA40	8.953 mPa²h			
LApeak (max)	2022/03/22 14:03:57	102.3	dB	
LASmax	2022/03/22 14:09:26	66.5	dB	
LASmin	2022/03/22 14:03:45	49.9	dB	
SEA	-99.9 dB			
LAS > 60.0 dB (Exceedence Counts / Duration)	19	185.3	s	
LAS > 70.0 dB (Exceedence Counts / Duration)	0	0.0	s	
LApeak > 135.0 dB (Exceedence Counts / Duration)	0	0.0	s	
LApeak > 137.0 dB (Exceedence Counts / Duration)	0	0.0	s	
LApeak > 140.0 dB (Exceedence Counts / Duration)	0	0.0	s	
LCeq	66.1 dB			
LAeq	57.5 dB			
LCeq - LAeq	8.6 dB			
LAleq	59.3 dB			
LAeq	57.5 dB			
LAleq - LAeq	1.8 dB			
# Overloads	0			
Overload Duration	0.0 s			
Dose Settings				
Dose Name	OSHA-1	OSHA-2		
Exch. Rate	5	5	dB	
Threshold	90	80	dB	
Criterion Level	90	90	dB	
Criterion Duration	8	8	h	
Results				
Dose	-99.9	-99.9	%	
Projected Dose	-99.9	-99.9	%	
TWA (Projected)	-99.9	-99.9	dB	
TWA (t)	-99.9	-99.9	dB	
Lep (t)	42.4	42.4	dB	
Statistics				
LAS5.00	61.7 dB			
LAS10.00	60.6 dB			
LAS33.30	57.6 dB			
LAS50.00	56.1 dB			
LAS66.60	54.4 dB			
LAS90.00	52.7 dB			

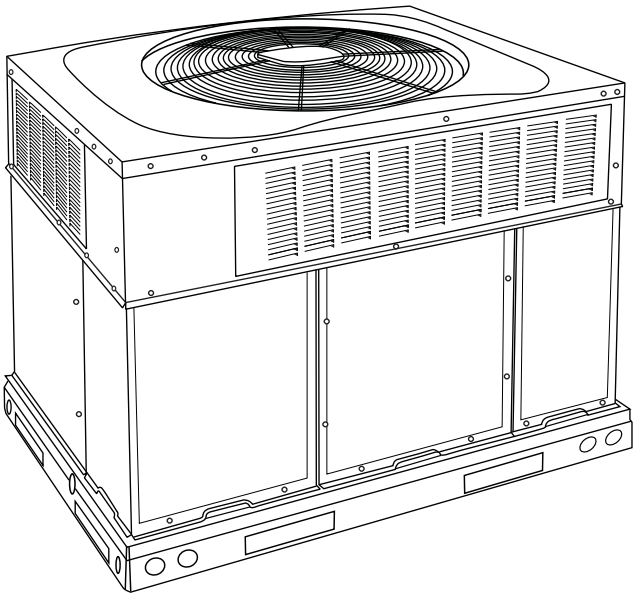
ATTACHMENT 2

HVAC Specifications

50VG–A
Performance™ 16 SEER 2–Stage Packaged Air Conditioner System with Puron® (R–410A) Refrigerant
Single and Three Phase
2 to 5 Nominal Tons (Sizes 24–60)

Carrier
turn to the experts

Product Data



A09033

Fig. 1 - Unit 50VG-A

Single-Packaged Products with Energy-Saving Features and Puron® refrigerant.

- 15.0-16.0 SEER / 12.0-12.5 EER
- Factory-Installed TXV
- Multi-speed ECM Blower Motor - Standard
- Sound levels as low as 72dBA
- Two Stages of Cooling
- Dehumidification Feature

FEATURES/BENEFITS

One-piece cooling unit with optional electric heater, low sound levels, easy installation, low maintenance, and dependable performance.

Puron Environmentally Sound Refrigerant is Carrier's unique refrigerant designed to help protect the environment. Puron is an HFC refrigerant which does not contain chlorine that can harm the ozone layer. Puron refrigerant is in service in millions of systems proving highly reliable, environmentally sound performance.

Easy Installation

Factory-assembled package is a compact, fully self-contained, electric cooling unit that is prewired, pre-piped, and pre-charged for minimum installation expense. These units are available in a variety of standard cooling sizes with voltage options to meet residential and light commercial requirements. Units are lightweight and install easily on a rooftop or at ground level. The high tech composite base eliminates rust problems associated with ground level applications.

Innovative Unit Base Design

On the inside a high-tech composite material will not rust and incorporates a sloped drain pan which improves drainage and helps inhibit mold, algae and bacterial growth. On the outside metal base rails provide added stability as well as easier handling and rigging.

Convertible duct configuration

Unit is designed for use in either downflow or horizontal applications. Each unit is converted from horizontal to downflow and includes horizontal duct covers. Downflow operation is provided in the field to allow vertical ductwork connections. The basepan seals on the bottom openings to ensure a positive seal in the vertical airflow mode.

Efficient operation High-efficiency design offers SEER (Seasonal Energy Efficiency Ratios) of up to 16.0. (See page 4.)

Durable, dependable components

Scroll Compressors have 2 stages of cooling and are designed for high efficiency. Each compressor is hermetically sealed against contamination to help promote longer life and dependable operation. Each compressor also has vibration isolation to provide quieter operation. All compressors have internal high pressure and overcurrent protection.

Multi-speed ECM Blower Motor is standard on all 50VG-A.

Direct-drive PSC (Permanent Split Capacitor) condenser-fan motors are designed to help reduce energy consumption and provide for cooing operation down to 40°F (4.4°C) outdoor temperature. Motormaster® II low ambient kit is available as a field-installed accessory.

Thermostatic Expansion Valve - A hard shutoff, balance port TXV maintains a constant superheat at the evaporator exit (cooling cycle) resulting in higher overall system efficiency.

Refrigerant system is designed to provide dependability. Liquid filter driers are used to promote clean, unrestricted operation. Each unit leaves the factory with a full refrigerant charge. Refrigerant service connections make checking operating pressures easier.

High and Low Pressure Switches provide added reliability for the compressor.

Indoor and Outdoor coils are computer-designed for optimum heat transfer and efficiency. The indoor coil is fabricated from copper tube and aluminum fins and is located inside the unit for protection against damage. The outdoor coil is internally mounted on the top tier of the unit.

Low sound ratings ensure a quiet indoor and outdoor environment with sound ratings as low as 72dBA. (See Page 4.)

Easy to service cabinets provide easy 3 panel accessibility to serviceable components during maintenance and installation. The basepan with integrated drain pan provides easy ground level installation with a mounting pad. A nesting feature ensures a positive basepan to roof curb seal when the unit is roof mounted. A convenient 3/4-in. (19.05 mm) wide perimeter flange makes frame mounting on a rooftop easy.

AHRI* CAPACITIES

Cooling Capacities and Efficiencies

Unit Model 50VG-A	Nominal Tons	Standard CFM (High / Low Stage)	Net Cooling Capacities - Btuh (High Stage)	EER @A**	SEER†
24	2	800 / 600	23000	12.0	15.0
30	2-1/2	1000 / 750	29000	12.0	15.0
36	3	1200 / 900	35400	12.5	16.0
42	3-1/2	1400 / 1050	42000	12.5	16.0
48	4	1600 / 1200	47500	12.3	16.0
60	5	1750 / 1200	57000	12.3	16.0

LEGEND
dB–Sound Levels (decibels)
db—Dry Bulb
SEER—Seasonal Energy Efficiency Ratio
wb—Wet Bulb
COP–Coefficient of Performance
* Air Conditioning, Heating & Refrigeration Institute.
**At "A" conditions–80°F (26.7°C) indoor db/67°F (19.4°C) indoor wb & 95°F (35°C) outdoor db.
† Rated in accordance with U.S. Government DOE Department of Energy) test procedures and/or AHRI Standards 210/240.

Notes:
1. Ratings are net values, reflecting the effects of circulating fan heat. Ratings are based on:
Cooling Standard: 80°F (26.7°C) db, 67°F wb (19.4°C) indoor entering–air temperature and 95°F db (35°C) outdoor entering–air temperature.
2. Before purchasing this appliance, read important energy cost and efficiency information available from AHRIdirectory.org.

A-WEIGHTED SOUND POWER LEVEL (dBA)

Model 50VG-A	Sound Ratings (dBA)	TYPICAL OCTAVE BAND SPECTRUM (dBA without tone adjustment)						
		125	250	500	1000	2000	4000	8000
24	73	60.0	62.5	68.5	68.5	64.0	60.0	53.0
30	77	57.5	67.0	73.5	72.0	67.0	61.0	52.5
36	73	62.5	65.5	67.5	68.0	65.5	60.0	52.5
42	73	60.5	63.5	68.0	68.0	66.0	60.5	53.0
48	72	60.0	63.5	66.0	67.0	63.5	58.5	49.5
60	75	69.0	67.0	69.0	68.0	65.0	61.5	54.0

NOTE: Tested in accordance with AHRI Standard 270 (not listed in AHRI).

ATTACHMENT 3

SoundPLAN Data – Construction Noise

10587 Santa Fe Flores Townhomes

SoundPLAN Data - Construction

Source name	Reference	Noise Level	Corrections		
			Cwall	CI	CT
		dB(A)	dB(A)	dB(A)	dB(A)
Construction	Lw/unit	116.3	-	-	-

10587 Santa Fe Flores Townhomes

SoundPLAN Data - Construction

No.	Coordinates X (meters)	Y (meters)	Height (meters)	Noise Level dB(A)
1	481468.23	3668972.47	182.38	58.4
2	481477.03	3668933.16	185.26	60.2
3	481491.51	3668901.09	186.46	60.8
4	481513.24	3668863.85	186.82	59.9
5	481534.96	3668832.30	186.16	58.7
6	481452.72	3668803.33	161.69	56.1
7	481417.03	3668787.30	160.02	57.7
8	481389.61	3668758.33	159.09	67.6
9	481373.58	3668720.06	157.61	69.9
10	481348.75	3668660.57	154.54	63.1
11	481317.72	3668679.71	153.92	66.0
12	481280.47	3668693.16	153.14	64.7
13	481232.89	3668717.47	152.07	61.4
14	481185.82	3668741.78	151.46	58.9
15	481288.85	3668803.43	156.64	67.9
16	481306.71	3668845.77	157.91	66.3
17	481370.21	3668885.46	167.46	73.2
18	481303.57	3668756.45	153.75	72.6

ATTACHMENT 4

SoundPLAN Data – On-site Traffic and Rail Noise

Station	ADT	Traffic values Vehicles type	Vehicle nar	day	evening	night	Speed		Control device	Constr. Speed	Affect. veh.	Road surface	Gradient Min / Max
km	Veh/24h			Veh/h	Veh/h	Veh/h	km/h			km/h	%		%
S Santa Fe Avenue		Traffic direction:	In entry direction										
0+000	21474	Total	-	1378	716	310	-		none	-	-	Average (of DGAC and PCC)	2.481481481
0+000	21474	Automobiles	-	1282	666	288		72	none	-	-	Average (of DGAC and PCC)	2.481481481
0+000	21474	Medium trucks	-	41	21	9		72	none	-	-	Average (of DGAC and PCC)	2.481481481
0+000	21474	Heavy trucks	-	28	14	6		72	none	-	-	Average (of DGAC and PCC)	2.481481481
0+000	21474	Buses	-	14	7	3		72	none	-	-	Average (of DGAC and PCC)	2.481481481
0+000	21474	Motorcycles	-	14	7	3		72	none	-	-	Average (of DGAC and PCC)	2.481481481
0+000	21474	Auxiliary vehicle	-	-	-	-	-		none	-	-	Average (of DGAC and PCC)	2.481481481
0+426	22566	Total	-	1448	752	326	-		none	-	-	Average (of DGAC and PCC)	-2.923076923
0+426	22566	Automobiles	-	1347	699	303		72	none	-	-	Average (of DGAC and PCC)	-2.923076923
0+426	22566	Medium trucks	-	43	23	10		72	none	-	-	Average (of DGAC and PCC)	-2.923076923
0+426	22566	Heavy trucks	-	29	15	7		72	none	-	-	Average (of DGAC and PCC)	-2.923076923
0+426	22566	Buses	-	14	8	3		72	none	-	-	Average (of DGAC and PCC)	-2.923076923
0+426	22566	Motorcycles	-	14	8	3		72	none	-	-	Average (of DGAC and PCC)	-2.923076923
0+426	22566	Auxiliary vehicle	-	-	-	-	-		none	-	-	Average (of DGAC and PCC)	-2.923076923
0+985	-	-	-	-	-	-							
N Las Flores Drive		Traffic direction:	In entry direction										
0+000	3396	Total	-	218	113	49	-		none	-	-	Average (of DGAC and PCC)	42
0+000	3396	Automobiles	-	203	105	46		40	none	-	-	Average (of DGAC and PCC)	42
0+000	3396	Medium trucks	-	7	3	1		40	none	-	-	Average (of DGAC and PCC)	42
0+000	3396	Heavy trucks	-	4	2	1		40	none	-	-	Average (of DGAC and PCC)	42
0+000	3396	Buses	-	2	1	0		40	none	-	-	Average (of DGAC and PCC)	42
0+000	3396	Motorcycles	-	2	1	0		40	none	-	-	Average (of DGAC and PCC)	42
0+000	3396	Auxiliary vehicle	-	-	-	-	-		none	-	-	Average (of DGAC and PCC)	42
0+258	1602	Total	-	103	53	23	-		none	-	-	Average (of DGAC and PCC)	0.0 / 19.3
0+258	1602	Automobiles	-	96	49	21		40	none	-	-	Average (of DGAC and PCC)	0.0 / 19.3
0+258	1602	Medium trucks	-	3	2	1		40	none	-	-	Average (of DGAC and PCC)	0.0 / 19.3
0+258	1602	Heavy trucks	-	2	1	0		40	none	-	-	Average (of DGAC and PCC)	0.0 / 19.3
0+258	1602	Buses	-	1	1	0		40	none	-	-	Average (of DGAC and PCC)	0.0 / 19.3
0+258	1602	Motorcycles	-	1	1	0		40	none	-	-	Average (of DGAC and PCC)	0.0 / 19.3
0+258	1602	Auxiliary vehicle	-	-	-	-	-		none	-	-	Average (of DGAC and PCC)	0.0 / 19.3
0+628	-	-	-	-	-	-							

10587 Santa Fe Flores Townhomes

SoundPLAN Data - Vehicle and Rail Traffic

Track Station km	Coordinates of track axis X	Y	Z	Track type [dB]	Curve radius [dB]	Multiple reflections [dB]	Corrected mission level day	Evening	night
Sprinter	Rail track:	Direction:	Section: 1	Km: 0+000					
Train type	Number of trains day	Evening	night	Speed km/h	Length per train m	Max	Emission level day dB(A)	Evening dB(A)	night dB(A)
0	48	12	18	80	80	yes	57.3	57.3	54.3
0+000	481709.9	3668428	173.36	-	-	-	-	57.3	57.3
0+951	481421.7	3669304	162.19	-	-	-	-	57.3	57.3

	Coordinates				Noise Level without Amenity Area A Barrier				Noise Level with Amenity Area A Barrier				Difference			
No.	X	Y	Floor	Height	Day	Evening	Night	CNEL	Day	Evening	Night	CNEL	Day	Evening	Night	CNEL
	(meters)			(meters)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1	481335.65	3668716.01	1.Fl	153.62	66.2	63.3	59.7	68.1	61.8	59.0	55.3	63.7	-4.4	-4.3	-4.3	-4.3
1	481335.65	3668716.01	2.Fl	156.72	67.8	64.9	61.3	69.7	67.6	64.8	61.1	69.5	-0.2	-0.2	-0.2	-0.2
1	481335.65	3668716.01	3.Fl	159.82	67.8	65.0	61.4	69.7	67.8	65.0	61.3	69.7	0.0	0.0	0.0	0.0
2	481355.89	3668781.10	1.Fl	153.90	44.1	41.5	38.0	46.3	44.1	41.5	38.0	46.3	0.0	0.0	0.0	0.0
2	481355.89	3668781.10	2.Fl	157.00	47.4	44.8	41.2	49.5	47.4	44.8	41.2	49.5	0.0	0.0	0.0	0.0
2	481355.89	3668781.10	3.Fl	160.10	50.8	48.3	44.8	53.0	50.8	48.3	44.8	53.0	0.0	0.0	0.0	0.0
3	481402.17	3668834.91	1.Fl	164.87	47.2	45.0	41.6	49.7	47.2	45.0	41.6	49.7	0.0	0.0	0.0	0.0
3	481402.17	3668834.91	2.Fl	167.97	51.6	49.2	45.8	53.9	51.5	49.2	45.7	53.8	-0.1	-0.1	-0.1	-0.1
3	481402.17	3668834.91	3.Fl	171.07	56.1	53.6	50.1	58.3	56.1	53.6	50.0	58.3	0.0	0.0	0.0	0.0
4	481347.96	3668870.55	1.Fl	163.63	42.9	41.4	38.2	46.0	42.9	41.4	38.2	46.0	0.0	0.0	0.0	0.0
4	481347.96	3668870.55	2.Fl	166.73	48.6	46.6	43.3	51.3	48.6	46.6	43.3	51.3	0.0	0.0	0.0	0.0
4	481347.96	3668870.55	3.Fl	169.83	49.9	48.0	44.6	52.6	49.9	48.0	44.6	52.6	0.0	0.0	0.0	0.0
5	481330.02	3668811.50	1.Fl	160.91	51.8	49.1	45.5	53.8	51.8	49.1	45.5	53.8	0.0	0.0	0.0	0.0
5	481330.02	3668811.50	2.Fl	164.01	55.0	52.3	48.7	57.0	55.0	52.3	48.6	57.0	0.0	0.0	0.0	0.0
5	481330.02	3668811.50	3.Fl	167.11	56.9	54.1	50.5	58.9	56.9	54.1	50.5	58.9	0.0	0.0	0.0	0.0
6	481326.76	3668793.80	1.Fl	154.66	39.5	37.5	34.2	42.2	39.5	37.5	34.2	42.2	0.0	0.0	0.0	0.0
6	481326.76	3668793.80	2.Fl	157.76	42.1	40.5	37.2	45.1	42.1	40.5	37.2	45.1	0.0	0.0	0.0	0.0
6	481326.76	3668793.80	3.Fl	160.86	46.1	44.0	40.5	48.6	46.1	44.0	40.5	48.6	0.0	0.0	0.0	0.0
7	481331.07	3668741.36	1.Fl	153.90	59.0	56.2	52.5	60.9	59.0	56.2	52.5	60.9	0.0	0.0	0.0	0.0
7	481331.07	3668741.36	2.Fl	157.00	61.4	58.6	54.9	63.3	61.4	58.6	54.9	63.3	0.0	0.0	0.0	0.0
7	481331.07	3668741.36	3.Fl	160.10	63.0	60.1	56.5	64.9	63.0	60.1	56.5	64.9	0.0	0.0	0.0	0.0
8	481336.40	3668724.08	1.Fl	153.90	65.3	62.5	58.8	67.2	63.1	60.3	56.6	65.0	-2.2	-2.2	-2.2	-2.2
8	481336.40	3668724.08	2.Fl	157.00	67.4	64.6	60.9	69.3	67.3	64.4	60.8	69.2	-0.1	-0.1	-0.1	-0.1
8	481336.40	3668724.08	3.Fl	160.10	67.9	65.0	61.4	69.8	67.9	65.0	61.4	69.8	0.0	0.0	0.0	0.0
9	481351.47	3668732.17	1.Fl	153.96	61.0	58.2	54.6	62.9	60.8	58.0	54.4	62.7	-0.2	-0.2	-0.2	-0.2
9	481351.47	3668732.17	2.Fl	157.06	62.6	59.7	56.1	64.5	62.5	59.7	56.0	64.4	-0.1	-0.1	-0.1	-0.1
9	481351.47	3668732.17	3.Fl	160.16	63.6	60.8	57.2	65.5	63.6	60.8	57.2	65.5	0.0	0.0	0.0	0.0
10	481344.49	3668750.54	1.Fl	153.90	46.6	44.1	40.6	48.8	46.6	44.1	40.6	48.8	0.0	0.0	0.0	0.0
10	481344.49	3668750.54	2.Fl	157.00	51.3	48.7	45.1	53.4	51.4	48.7	45.1	53.4	0.0	0.0	0.0	0.0
10	481344.49	3668750.54	3.Fl	160.10	53.2	50.6	47.0	55.3	53.2	50.6	47.0	55.3	0.0	0.0	0.0	0.0
11	481359.92	3668758.08	1.Fl	153.90	54.7	51.9	48.2	56.6	54.7	51.9	48.3	56.7	0.0	0.0	0.0	0.0
11	481359.92	3668758.08	2.Fl	157.00	58.5	55.8	52.1	60.5	58.5	55.8	52.1	60.5	0.0	0.0	0.0	0.0
11	481359.92	3668758.08	3.Fl	160.10	59.5	56.7	53.1	61.4	59.5	56.7	53.1	61.4	0.0	0.0	0.0	0.0
12	481355.15	3668776.09	1.Fl	153.90	43.9	41.4	37.9	46.1	43.9	41.4	37.9	46.1	0.0	0.0	0.0	0.0
12	481355.15	3668776.09	2.Fl	157.00	47.8	45.2	41.7	50.0	47.8	45.2	41.7	50.0	0.0	0.0	0.0	0.0
12	481355.15	3668776.09	3.Fl	160.10	49.9	47.5	44.1	52.2	49.9	47.5	44.1	52.2	0.0	0.0	0.0	0.0
13	481339.34	3668768.00	1.Fl	153.90	52.2	49.4	45.8	54.2	52.2	49.4	45.8	54.2	0.0	0.0	0.0	0.0
13	481339.34	3668768.00	2.Fl	157.00	56.0	53.2	49.6	57.9	56.0	53.2	49.6	57.9	0.0	0.0	0.0	0.0
13	481339.34	3668768.00	3.Fl	160.10	57.8	55.0	51.4	59.8	57.8	55.0	51.4	59.8	0.0	0.0	0.0	0.0
14	481360.11	3668813.57	1.Fl	164.57	51.9	49.3	45.7	54.0	51.9	49.3	45.7	54.0	0.0	0.0	0.0	0.0
14	481360.11	3668813.57	2.Fl	167.67	52.7	50.0	46.4	54.7	52.7	50.0	46.4	54.7	0.0	0.0	0.0	0.0
14	481360.11	3668813.57	3.Fl	170.77	53.4	50.8	47.2	55.5	53.4	50.8	47.2	55.5	0.0	0.0	0.0	0.0
15	481366.91	3668795.75	1.Fl	164.34	56.2	53.5	49.9	58.2	56.2	53.5	49.9	58.2	0.0	0.0	0.0	0.0
15	481366.91	3668795.75	2.Fl	167.44	58.1	55.4	51.7	60.1	58.1	55.4	51.7	60.1	0.0	0.0	0.0	0.0
15	481366.91	3668795.75	3.Fl	170.54	59.2	56.4	52.8	61.1	59.2	56.4	52.8	61.1	0.0	0.0	0.0	0.0
16	481386.75	3668803.65	1.Fl	164.57	55.1	52.3	48.7	57.0	55.1	52.3	48.7	57.0	0.0	0.0	0.0	0.0
16	481386.75	3668803.65	2.Fl	167.67	58.1	55.4	51.9	60.2	58.1	55.4	51.9	60.2	0.0	0.0	0.0	0.0
16	481386.75	3668803.65	3.Fl	170.77	58.4	55.7	52.1	60.4	58.4	55.7	52.1	60.4	0.0	0.0	0.0	0.0
17	481379.40	3668822.58	1.Fl	164.87	42.6	40.7	37.4	45.3	42.6	40.7	37.4	45.3	0.0	0.0	0.0	0.0
17	481379.40	3668822.58	2.Fl	167.97	46.5	44.8	41.5	49.4	46.5	44.8	41.5	49.4	0.0	0.0	0.0	0.0
17	481379.40	3668822.58	3.Fl	171.07	47.6	45.9	42.6	50.5	47.6	45.9	42.6	50.5	0.0	0.0	0.0	0.0
18	481397.04	3668829.19	1.Fl	164.87	48.6	46.4	42.9	51.0	48.6	46.4	42.9	51.0	0.0	0.0	0.0	0.0
18	481397.04	3668829.19	2.Fl	167.97	52.7	50.2	46.7	54.9	52.8	50.2	46.7	54.9	0.0	0.0	0.0	0.0
18	481397.04	3668829.19	3.Fl	171.07	56.6	54.0	50.5	58.7	56.6	54.0	50.5	58.7	0.0	0.0	0.0	0.0
19	481390.79	3668848.85	1.Fl	164.87	44.6	43.8	40.6	48.3	44.6	43.8	40.6	48.3	0.0	0.0	0.0	0.0
19	481390.79	3668848.85	2.Fl	167.97	46.8	46.0	42.8	50.5	46.8	46.0	42.8	50.5	0.0	0.0	0.0	0.0
19	481390.79	3668848.85	3.Fl	171.07	48.1	47.2	44.0	51.7	48.1	47.2	44.0	51.7	0.0	0.0	0.0	0.0
20	481372.23	3668840.95	1.Fl	164.87	43.2	41.5	38.2	46.1	43.2	41.5	38.2	46.1	0.0	0.0	0.0	0.0
20	481372.23	3668840.95	2.Fl	167.97	48.8	46.5	43.0	51.2	48.8	46.5	43.0	51.2	0.0	0.0	0.0	0.0
20	481372.23	3668840.95	3.Fl	171.07	49.5	47.2	43.7	51.9	49.5	47.2	43.7	51.9	0.0	0.0	0.0	0.0
21	481358.45	3668847.75	1.Fl	163.35	42.9	41.6	38.4	46.2	42.9	41.6	38.4	46.2	0.0	0.0	0.0	0.0
21	481358.45	3668847.75	2.Fl	166.45	47.2	45.3	41.9	49.9	47.2	45.3	41.9	49.9	0.0	0.0	0.0	0.0
21	481358.45	3668847.75	3.Fl	169.55	48.2	46.3	43.0	51.0	48.2	46.3	43.0	51.0	0.0	0.0	0.0	0.0
22	481354.78	3668864.47	1.Fl	163.35	41.6	40.4	37.2	45.0	41.6	40.4	37.2	45.0	0.0	0.0	0.0	0.0
22	481354.78	3668864.47	2.Fl	166.45	45.8	44.6	41.5	49.2	45.8	44.6	41.5	49.2	0.0	0.0	0.0	0.0
22	481354.78	3668864.47	3.Fl	169.55	46.9	45.7	42.5	50.2	46.9	45.7	42.5	50.2	0.0	0.0	0.0	0.0
23	481338.24	3668856.75	1.Fl	163.36	46.2	43.5	39.9	48.2	46.2	43.5	39.9	48.2	0.0	0.0	0.0	0.0
23	481338.24	3668856.75	2.Fl	166.46	52.4	49.7	46.1	54.4	52.4	49.7	46.1	54.4	0.0	0.0	0.0	0.0
23	481338.24	3668856.75	3.Fl	169.56	53.8	51.1	47.5	55.8	53.8	51.1	47.5	55.8	0.0	0.0	0.0	0.0
24	481341.92	3668839.85	1.Fl	162.53	40.3	38.5	35.1	43.1	40.3	38.5	35.1	43.1	0.0	0.0	0.0	0.0
24	481341.92	3668839.85	2.Fl	165.63	46.1	44.0	40.5	48.6	46.1	44.0	40.5	48.6	0.0	0.0	0.0	0.0
24	481341.92	3668839.85	3.Fl	168.73	48.0	45.7	42.2	50.3	48.0	45.7	42.2	50.3	0.0	0.0	0.0	0.0
25	481326.48	3668829.93	1.Fl	161.82	49.1	46.4	42.8	51.1	49.1	46.4	42.8	51.1	0.0	0.0	0.0	0.0
25	481326.48	3668829.93	2.Fl	164.92	53.7	50.9	47.3	55.7	53.7	50.9	47.3	55.7	0.0	0.0	0.0	0.0
25	481326.48	3668829.93	3.Fl	168.02	55.2	52.4	48.8	57.1	55.2	52.4	48.8	57.1	0.0	0.0	0.0	0.0
26	481330.89	3668813.57	1.Fl	161.73	52.9	50.1	46.5	54.9	52.9	50.1	46.5	54.9	0.0	0.0	0.0	0.0
26	481330.89	3668813.57	2.Fl	164.83	55.6	52.8	49.2	57.5	55.6	52.8	49.2	57.5	0.0	0.0	0.0	0.0
26	481330.89	3668813.57	3.Fl	167.93	57.4	54.7	51.0	59.4	57.4	54.7	51.0	59.4	0.0	0.0	0.0	0.0
27	481346.51	3668821.84	1.Fl	161.82	46.9	44.3	40.8	49.0	46.9	44.3	40.8	49.0	0.0	0.0	0.0	0.0
27	481346.51	3668821.84	2.Fl	164.92	51.2	48.6	45.0	53.3	51.2	48.6	45.0	53.3	0.0	0.0	0.0	0.0
27	481346.51	3668821.84	3.Fl	168.02	52.6	50.0	46.4	54.7	52.6	50.0	46.4	54.7	0.0	0.0	0.0	0.0
28	481322.44	3668793.91	1.Fl	154.66	39.8	38.0	34.6	42.6	39.8	38.0	34.6	42.6	0.0	0.0	0.0	0.0
28	481322.44	3668793.91	2.Fl	157.76	42.3	40.8	37.5	45.3	42.3	40.8	37.5	45.3	0.0	0.0	0.0	0.0
28	481322.44	3668793.91	3.Fl	160.86	46.0	43.9	40.5	48.6	46.0	43.9	40.5	48.6	0.0	0.0	0.0	0.0
29	481307.92	3668785.09	1.Fl	154.66	45.4	42.7	39.1	47.4	45.4	42.7	39.1	47.4	0.0	0.0	0.0	0.0
29	481307.92	3668785.09	2.Fl	157.76	53.6	50.8	47.2	55.5	53.6	50.8	47.2	55.5	0.0	0.0	0.0	0.0
29	481307.92	3668785.09	3.Fl	160.86	58.3	55.4	51.8	60.2	58.3	55.4	51.8	60.2	0.0	0.0	0.0	0.0
30	481311.78	3668768.92	1.Fl	154.66	57.5	54.7	51.0	59.4	57.4	54.5	50.9	59.3	-0.1	-0.1	-0.1	-0.1
30	481311.78	3668768.92	2.Fl	157.76	61.0	58.2	54.6	62.9	61.0	58.1	54.5	62.9	-0.1	-0.1	-0.1	-0.1
30	481311.78	3668768.92	3.Fl	160.86	62.9	60.1	56.4	64.8	62.9	60.1	56.4	64.8	0.0	0.0	0.0	0.0
31	481326.85	3668775.72	1.Fl	154.70	51.7	48.9	45.3	53.6	51.6	48.8	45.2	53.5	-0.1	-0.1	-0.1	-0.1
31	481326.85	3668775.72	2.Fl	157.80	54.1	51.3	47.7	56.1	54.0	51.3	47.7	56.0	-0.1	-0.1	-0.1	-0.1
31	481326.85	3668775.72	3.Fl	160.90	55.8	53.1	49.5	57.8	55.6	53.0	49.4	57.7	-0.1	-0.1	-0.1	-0.1

Source name									Noise Level without Amenity Area A Barrier				Noise Level with Amenity Area A Barrier			
									Day	Evening	Night	CNEL	Day	Evening	Night	CNEL
									dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1	1.Fl	66.2	63.3	59.7	68.1	61.8	59.0	55.3	63.7							
N Las Flores Drive									51.4	48.5	44.9	53.3	47.0	44.1	40.5	48.9
S Santa Fe Avenue									66.0	63.2	59.5	67.9	61.6	58.8	55.2	63.5
Sprinter									37.8	37.8	34.8	42.2	37.7	37.7	34.7	42.2
1	2.Fl	67.8	64.9	61.3	69.7	67.6	64.8	61.1	69.5							
N Las Flores Drive									52.9	50.0	46.4	54.8	52.7	49.8	46.2	54.6
S Santa Fe Avenue									67.6	64.8	61.2	69.5	67.5	64.6	61.0	69.4
Sprinter									38.3	38.3	35.3	42.8	38.3	38.3	35.3	42.7
1	3.Fl	67.8	65.0	61.4	69.7	67.8	65.0	61.3	69.7							
N Las Flores Drive									53.0	50.1	46.5	54.9	53.0	50.1	46.5	54.9
S Santa Fe Avenue									67.7	64.8	61.2	69.6	67.7	64.8	61.2	69.6
Sprinter									39.7	39.7	36.7	44.1	39.6	39.6	36.6	44.1
2	1.Fl	44.1	41.5	38.0	46.3	44.1	41.5	38.0	46.3							
N Las Flores Drive									42.7	39.8	36.2	44.5	42.7	39.8	36.2	44.5
S Santa Fe Avenue									37.6	34.7	31.1	39.5	37.6	34.7	31.1	39.5
Sprinter									32.5	32.5	29.5	36.9	32.5	32.5	29.5	36.9
2	2.Fl	47.4	44.8	41.2	49.5	47.4	44.8	41.2	49.5							
N Las Flores Drive									46.2	43.4	39.7	48.1	46.2	43.4	39.7	48.1
S Santa Fe Avenue									39.8	36.9	33.3	41.7	39.8	36.9	33.3	41.7
Sprinter									35.3	35.3	32.2	39.7	35.3	35.3	32.2	39.7
2	3.Fl	50.8	48.3	44.8	53.0	50.8	48.3	44.8	53.0							
N Las Flores Drive									48.4	45.5	41.9	50.3	48.4	45.5	41.9	50.3
S Santa Fe Avenue									46.1	43.3	39.6	48.0	46.1	43.3	39.6	48.0
Sprinter									40.2	40.2	37.2	44.7	40.2	40.2	37.2	44.7
3	1.Fl	47.2	45.0	41.6	49.7	47.2	45.0	41.6	49.7							
N Las Flores Drive									45.2	42.4	38.7	47.1	45.2	42.3	38.7	47.1
S Santa Fe Avenue									39.9	37.1	33.5	41.8	39.8	36.9	33.3	41.7
Sprinter									39.8	39.8	36.8	44.2	39.8	39.8	36.8	44.2
3	2.Fl	51.6	49.2	45.8	53.9	51.5	49.2	45.7	53.8							
N Las Flores Drive									48.3	45.5	41.8	50.2	48.3	45.5	41.8	50.2
S Santa Fe Avenue									47.7	44.8	41.2	49.6	47.4	44.6	40.9	49.3
Sprinter									42.7	42.7	39.7	47.1	42.7	42.7	39.7	47.1
3	3.Fl	56.1	53.6	50.1	58.3	56.1	53.6	50.0	58.3							
N Las Flores Drive									52.0	49.1	45.5	53.9	52.0	49.1	45.5	53.9
S Santa Fe Avenue									53.4	50.5	46.9	55.3	53.3	50.5	46.8	55.2
Sprinter									45.3	45.3	42.3	49.7	45.3	45.3	42.3	49.7
4	1.Fl	42.9	41.4	38.2	46.0	42.9	41.4	38.2	46.0							
N Las Flores Drive									36.7	33.8	30.2	38.6	36.7	33.8	30.2	38.6
S Santa Fe Avenue									38.5	35.7	32.0	40.4	38.5	35.7	32.0	40.4
Sprinter									39.0	39.0	35.9	43.4	39.0	39.0	35.9	43.4
4	2.Fl	48.6	46.6	43.3	51.3	48.6	46.6	43.3	51.3							
N Las Flores Drive									37.2	34.3	30.7	39.1	37.2	34.3	30.7	39.1
S Santa Fe Avenue									46.8	44.0	40.4	48.7	46.8	44.0	40.4	48.7
Sprinter									42.6	42.6	39.6	47.1	42.6	42.6	39.6	47.1
4	3.Fl	49.9	48.0	44.6	52.6	49.9	48.0	44.6	52.6							
N Las Flores Drive									37.7	34.8	31.2	39.6	37.7	34.8	31.2	39.6
S Santa Fe Avenue									48.4	45.5	41.9	50.3	48.4	45.5	41.9	50.3
Sprinter									43.7	43.7	40.7	48.2	43.7	43.7	40.7	48.2
5	1.Fl	51.8	49.1	45.5	53.8	51.8	49.1	45.5	53.8							
N Las Flores Drive									38.8	35.9	32.3	40.7	38.8	35.9	32.3	40.7
S Santa Fe Avenue									51.5	48.7	45.0	53.4	51.5	48.7	45.0	53.4
Sprinter									36.0	36.0	33.0	40.4	36.0	36.0	33.0	40.4
5	2.Fl	55.0	52.3	48.7	57.0	55.0	52.3	48.6	57.0							
N Las Flores Drive									40.6	37.7	34.1	42.5	40.6	37.7	34.1	42.5
S Santa Fe Avenue									54.8	51.9	48.3	56.7	54.8	51.9	48.3	56.7
Sprinter									37.7	37.7	34.7	42.1	37.7	37.7	34.7	42.1
5	3.Fl	56.9	54.1	50.5	58.9	56.9	54.1	50.5	58.9							
N Las Flores Drive									41.8	39.0	35.3	43.7	41.8	39.0	35.3	43.7
S Santa Fe Avenue									56.7	53.9	50.3	58.6	56.7	53.9	50.2	58.6
Sprinter									38.6	38.6	35.6	43.1	38.6	38.6	35.6	43.1
6	1.Fl	39.5	37.5	34.2	42.2	39.5	37.5	34.2	42.2							
N Las Flores Drive									36.4	33.6	29.9	38.3	36.4	33.6	29.9	38.3
S Santa Fe Avenue									33.5	30.7	27.0	35.4	33.5	30.7	27.0	35.4
Sprinter									33.5	33.5	30.5	37.9	33.5	33.5	30.5	37.9
6	2.Fl	42.1	40.5	37.2	45.1	42.1	40.5	37.2	45.1							
N Las Flores Drive									38.5	35.6	32.0	40.4	38.5	35.6	32.0	40.4
S Santa Fe Avenue									35.8	32.9	29.3	37.7	35.8	32.9	29.3	37.7
Sprinter									37.5	37.5	34.4	41.9	37.5	37.5	34.4	41.9
6	3.Fl	46.1	44.0	40.5	48.6	46.1	44.0	40.5	48.6							
N Las Flores Drive									40.0	37.2	33.5	41.9	40.0	37.2	33.5	41.9
S Santa Fe Avenue									43.6	40.7	37.1	45.5	43.6	40.7	37.1	45.5
Sprinter									39.0	39.0	36.0	43.4	39.0	39.0	36.0	43.4
7	1.Fl	59.0	56.2	52.5	60.9	59.0	56.2	52.5	60.9							
N Las Flores Drive									25.6	22.7	19.1	27.5	25.6	22.7	19.1	27.5
S Santa Fe Avenue									59.0	56.1	52.5	60.9	59.0	56.1	52.5	60.9
Sprinter									33.3	33.3	30.3	37.7	33.3	33.3	30.3	37.7
7	2.Fl	61.4	58.6	54.9	63.3	61.4	58.6	54.9	63.3							
N Las Flores Drive									27.6	24.7	21.1	29.5	27.6	24.7	21.1	29.5
S Santa Fe Avenue									61.4	58.5	54.9	63.3	61.4	58.5	54.9	63.3
Sprinter									33.7	33.7	30.7	38.1	33.7	33.7	30.7	38.1
7	3.Fl	63.0	60.1	56.5	64.9	63.0	60.1	56.5	64.9							
N Las Flores Drive									31.0	28.1	24.5	32.9	31.0	28.1	24.5	32.9
S Santa Fe Avenue									63.0	60.1	56.5	64.9	63.0	60.1	56.5	64.9
Sprinter									34.1	34.1	31.1	38.5	34.1	34.1	31.1	38.5

Source name									Noise Level without Amenity Area A Barrier				Noise Level with Amenity Area A Barrier			
									Day	Evening	Night	CNEL	Day	Evening	Night	CNEL
									dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
8	1.Fl	65.3	62.5	58.8	67.2	63.1	60.3	56.6	65.0							
N Las Flores Drive									50.3	47.4	43.8	52.2	46.4	43.5	39.9	48.3
S Santa Fe Avenue									65.2	62.3	58.7	67.1	63.0	60.2	56.5	64.9
Sprinter									36.2	36.2	33.2	40.6	36.1	36.1	33.1	40.5
8	2.Fl	67.4	64.6	60.9	69.3	67.3	64.4	60.8	69.2							
N Las Flores Drive									51.9	49.0	45.4	53.8	51.5	48.6	45.0	53.4
S Santa Fe Avenue									67.3	64.4	60.8	69.2	67.2	64.3	60.7	69.1
Sprinter									36.2	36.2	33.2	40.6	36.2	36.2	33.2	40.6
8	3.Fl	67.9	65.0	61.4	69.8	67.9	65.0	61.4	69.8							
N Las Flores Drive									52.1	49.2	45.6	54.0	52.1	49.2	45.6	54.0
S Santa Fe Avenue									67.8	64.9	61.3	69.7	67.8	64.9	61.3	69.7
Sprinter									37.2	37.2	34.2	41.6	37.2	37.2	34.1	41.6
9	1.Fl	61.0	58.2	54.6	62.9	60.8	58.0	54.4	62.7							
N Las Flores Drive									55.1	52.2	48.6	56.9	55.0	52.1	48.5	56.9
S Santa Fe Avenue									59.7	56.8	53.2	61.6	59.4	56.6	52.9	61.3
Sprinter									40.1	40.1	37.1	44.6	40.1	40.1	37.1	44.6
9	2.Fl	62.6	59.7	56.1	64.5	62.5	59.7	56.0	64.4							
N Las Flores Drive									56.2	53.3	49.7	58.1	56.2	53.3	49.7	58.1
S Santa Fe Avenue									61.4	58.5	54.9	63.3	61.3	58.4	54.8	63.2
Sprinter									41.3	41.3	38.3	45.8	41.3	41.3	38.3	45.8
9	3.Fl	63.6	60.8	57.2	65.5	63.6	60.8	57.2	65.5							
N Las Flores Drive									56.0	53.1	49.5	57.8	56.0	53.1	49.5	57.9
S Santa Fe Avenue									62.8	59.9	56.3	64.7	62.7	59.9	56.3	64.6
Sprinter									42.4	42.4	39.4	46.8	42.4	42.4	39.4	46.8
10	1.Fl	46.6	44.1	40.6	48.8	46.6	44.1	40.6	48.8							
N Las Flores Drive									41.3	38.4	34.8	43.2	41.3	38.4	34.8	43.2
S Santa Fe Avenue									44.2	41.4	37.8	46.1	44.2	41.4	37.8	46.1
Sprinter									37.2	37.2	34.2	41.6	37.2	37.2	34.2	41.6
10	2.Fl	51.3	48.7	45.1	53.4	51.4	48.7	45.1	53.4							
N Las Flores Drive									45.1	42.2	38.6	47.0	45.1	42.2	38.6	47.0
S Santa Fe Avenue									49.9	47.0	43.4	51.8	49.9	47.0	43.4	51.8
Sprinter									38.4	38.4	35.4	42.8	38.4	38.4	35.4	42.8
10	3.Fl	53.2	50.6	47.0	55.3	53.2	50.6	47.0	55.3							
N Las Flores Drive									45.1	42.2	38.6	47.0	45.1	42.2	38.6	47.0
S Santa Fe Avenue									52.3	49.4	45.8	54.2	52.3	49.4	45.8	54.2
Sprinter									40.2	40.2	37.2	44.7	40.2	40.2	37.2	44.7
11	1.Fl	54.7	51.9	48.2	56.6	54.7	51.9	48.3	56.7							
N Las Flores Drive									50.1	47.2	43.6	52.0	50.1	47.2	43.6	52.0
S Santa Fe Avenue									52.8	50.0	46.3	54.7	52.9	50.0	46.4	54.8
Sprinter									31.6	31.6	28.6	36.0	31.6	31.6	28.6	36.0
11	2.Fl	58.5	55.8	52.1	60.5	58.5	55.8	52.1	60.5							
N Las Flores Drive									54.7	51.8	48.2	56.6	54.7	51.8	48.2	56.6
S Santa Fe Avenue									56.1	53.2	49.6	58.0	56.1	53.3	49.6	58.0
Sprinter									40.9	40.9	37.9	45.3	40.9	40.9	37.9	45.3
11	3.Fl	59.5	56.7	53.1	61.4	59.5	56.7	53.1	61.4							
N Las Flores Drive									54.8	51.9	48.3	56.7	54.8	51.9	48.3	56.7
S Santa Fe Avenue									57.5	54.7	51.1	59.4	57.5	54.7	51.1	59.4
Sprinter									42.2	42.2	39.2	46.6	42.2	42.2	39.2	46.6
12	1.Fl	43.9	41.4	37.9	46.1	43.9	41.4	37.9	46.1							
N Las Flores Drive									43.1	40.2	36.5	44.9	43.1	40.2	36.5	44.9
S Santa Fe Avenue									32.4	29.6	26.0	34.3	32.4	29.6	26.0	34.3
Sprinter									33.8	33.8	30.8	38.3	33.8	33.8	30.8	38.3
12	2.Fl	47.8	45.2	41.7	50.0	47.8	45.2	41.7	50.0							
N Las Flores Drive									47.2	44.4	40.7	49.1	47.2	44.4	40.7	49.1
S Santa Fe Avenue									33.3	30.4	26.8	35.2	33.3	30.4	26.8	35.2
Sprinter									37.0	37.0	34.0	41.5	37.0	37.0	34.0	41.5
12	3.Fl	49.9	47.5	44.1	52.2	49.9	47.5	44.1	52.2							
N Las Flores Drive									49.0	46.1	42.5	50.8	49.0	46.1	42.5	50.8
S Santa Fe Avenue									37.5	34.7	31.0	39.4	37.5	34.7	31.0	39.4
Sprinter									41.3	41.3	38.3	45.7	41.3	41.3	38.3	45.7
13	1.Fl	52.2	49.4	45.8	54.2	52.2	49.4	45.8	54.2							
N Las Flores Drive									31.0	28.1	24.5	32.9	31.0	28.1	24.5	32.9
S Santa Fe Avenue									52.1	49.3	45.7	54.0	52.1	49.3	45.7	54.0
Sprinter									33.1	33.1	30.0	37.5	33.1	33.1	30.0	37.5
13	2.Fl	56.0	53.2	49.6	57.9	56.0	53.2	49.6	57.9							
N Las Flores Drive									32.5	29.6	26.0	34.4	32.5	29.6	26.0	34.4
S Santa Fe Avenue									55.9	53.1	49.4	57.8	55.9	53.1	49.4	57.8
Sprinter									36.6	36.6	33.6	41.1	36.6	36.6	33.6	41.1
13	3.Fl	57.8	55.0	51.4	59.8	57.8	55.0	51.4	59.8							
N Las Flores Drive									34.5	31.7	28.0	36.4	34.5	31.7	28.0	36.4
S Santa Fe Avenue									57.7	54.9	51.3	59.6	57.7	54.9	51.3	59.6
Sprinter									38.6	38.6	35.6	43.0	38.6	38.6	35.6	43.0
14	1.Fl	51.9	49.3	45.7	54.0	51.9	49.3	45.7	54.0							
N Las Flores Drive									34.9	32.1	28.4	36.8	35.0	32.1	28.5	36.8
S Santa Fe Avenue									51.6	48.8	45.2	53.5	51.6	48.8	45.2	53.5
Sprinter									38.6	38.6	35.6	43.0	38.6	38.6	35.6	43.0
14	2.Fl	52.7	50.0	46.4	54.7	52.7	50.0	46.4	54.7							
N Las Flores Drive									35.5	32.6	29.0	37.4	35.5	32.7	29.0	37.4
S Santa Fe Avenue									52.4	49.5	45.9	54.3	52.4	49.5	45.9	54.3
Sprinter									39.0	39.0	36.0	43.4	39.0	39.0	36.0	43.4
14	3.Fl	53.4	50.8	47.2	55.5	53.4	50.8	47.2	55.5							
N Las Flores Drive									35.8	32.9	29.3	37.7	35.8	33.0	29.3	37.7
S Santa Fe Avenue									53.2	50.3	46.7	55.1	53.2	50.3	46.7	55.1
Sprinter									39.5	39.5	36.5	43.9	39.5	39.5	36.5	43.9

Source name										Noise Level without Amenity Area A Barrier				Noise Level with Amenity Area A Barrier			
										Day	Evening	Night	CNEL	Day	Evening	Night	CNEL
										dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
15	1.Fl	56.2	53.5	49.9	58.2	56.2	53.5	49.9	58.2								
N Las Flores Drive										48.9	46.0	42.4	50.8	48.9	46.0	42.4	50.8
S Santa Fe Avenue										55.2	52.4	48.8	57.1	55.2	52.4	48.8	57.1
Sprinter										39.5	39.5	36.5	44.0	39.5	39.5	36.5	44.0
15	2.Fl	58.1	55.4	51.7	60.1	58.1	55.4	51.7	60.1								
N Las Flores Drive										50.1	47.2	43.6	52.0	50.1	47.2	43.6	52.0
S Santa Fe Avenue										57.3	54.5	50.8	59.2	57.3	54.5	50.8	59.2
Sprinter										40.6	40.6	37.6	45.0	40.6	40.6	37.6	45.0
15	3.Fl	59.2	56.4	52.8	61.1	59.2	56.4	52.8	61.1								
N Las Flores Drive										50.2	47.3	43.7	52.0	50.2	47.3	43.7	52.0
S Santa Fe Avenue										58.5	55.6	52.0	60.4	58.5	55.6	52.0	60.4
Sprinter										41.4	41.4	38.4	45.8	41.4	41.4	38.4	45.8
16	1.Fl	55.1	52.3	48.7	57.0	55.1	52.3	48.7	57.0								
N Las Flores Drive										51.8	48.9	45.3	53.7	51.8	48.9	45.3	53.7
S Santa Fe Avenue										52.1	49.2	45.6	54.0	52.1	49.3	45.6	54.0
Sprinter										38.5	38.5	35.5	42.9	38.5	38.5	35.5	42.9
16	2.Fl	58.1	55.4	51.9	60.2	58.1	55.4	51.9	60.2								
N Las Flores Drive										55.2	52.3	48.7	57.1	55.2	52.3	48.7	57.1
S Santa Fe Avenue										54.6	51.7	48.1	56.5	54.6	51.8	48.1	56.5
Sprinter										44.5	44.5	41.5	48.9	44.5	44.5	41.5	48.9
16	3.Fl	58.4	55.7	52.1	60.4	58.4	55.7	52.1	60.4								
N Las Flores Drive										55.0	52.1	48.5	56.9	55.0	52.1	48.5	56.9
S Santa Fe Avenue										55.2	52.3	48.7	57.1	55.2	52.3	48.7	57.1
Sprinter										45.7	45.7	42.7	50.1	45.7	45.7	42.7	50.1
17	1.Fl	42.6	40.7	37.4	45.3	42.6	40.7	37.4	45.3								
N Las Flores Drive										40.4	37.6	33.9	42.3	40.4	37.6	33.9	42.3
S Santa Fe Avenue										33.4	30.6	27.0	35.3	33.4	30.6	27.0	35.3
Sprinter										36.9	36.9	33.9	41.4	36.9	36.9	33.9	41.4
17	2.Fl	46.5	44.8	41.5	49.4	46.5	44.8	41.5	49.4								
N Las Flores Drive										43.7	40.8	37.1	45.5	43.7	40.8	37.1	45.5
S Santa Fe Avenue										38.3	35.4	31.8	40.2	38.3	35.4	31.8	40.2
Sprinter										41.7	41.7	38.7	46.1	41.7	41.7	38.7	46.1
17	3.Fl	47.6	45.9	42.6	50.5	47.6	45.9	42.6	50.5								
N Las Flores Drive										44.1	41.2	37.6	45.9	44.1	41.2	37.6	45.9
S Santa Fe Avenue										41.5	38.6	35.0	43.4	41.5	38.6	35.0	43.4
Sprinter										42.6	42.6	39.6	47.1	42.6	42.6	39.6	47.1
18	1.Fl	48.6	46.4	42.9	51.0	48.6	46.4	42.9	51.0								
N Las Flores Drive										46.2	43.3	39.6	48.0	46.2	43.3	39.6	48.0
S Santa Fe Avenue										42.9	40.1	36.4	44.8	42.9	40.1	36.5	44.8
Sprinter										40.7	40.7	37.7	45.2	40.7	40.7	37.7	45.2
18	2.Fl	52.7	50.2	46.7	54.9	52.8	50.2	46.7	54.9								
N Las Flores Drive										49.4	46.5	42.9	51.3	49.4	46.5	42.9	51.3
S Santa Fe Avenue										49.3	46.5	42.8	51.2	49.3	46.5	42.9	51.2
Sprinter										42.2	42.2	39.2	46.6	42.2	42.2	39.2	46.6
18	3.Fl	56.6	54.0	50.5	58.7	56.6	54.0	50.5	58.7								
N Las Flores Drive										52.7	49.9	46.2	54.6	52.7	49.9	46.2	54.6
S Santa Fe Avenue										53.6	50.8	47.1	55.5	53.6	50.8	47.2	55.5
Sprinter										45.5	45.5	42.5	49.9	45.5	45.5	42.5	49.9
19	1.Fl	44.6	43.8	40.6	48.3	44.6	43.8	40.6	48.3								
N Las Flores Drive										39.9	37.0	33.4	41.7	39.9	37.0	33.4	41.7
S Santa Fe Avenue										30.7	27.9	24.2	32.6	30.7	27.9	24.2	32.6
Sprinter										42.6	42.6	39.6	47.0	42.6	42.6	39.6	47.0
19	2.Fl	46.8	46.0	42.8	50.5	46.8	46.0	42.8	50.5								
N Las Flores Drive										40.8	37.9	34.3	42.7	40.8	37.9	34.3	42.7
S Santa Fe Avenue										37.7	34.9	31.3	39.6	37.7	34.9	31.2	39.6
Sprinter										44.8	44.8	41.8	49.2	44.8	44.8	41.8	49.2
19	3.Fl	48.1	47.2	44.0	51.7	48.1	47.2	44.0	51.7								
N Las Flores Drive										42.5	39.6	36.0	44.4	42.5	39.6	36.0	44.4
S Santa Fe Avenue										39.6	36.7	33.1	41.5	39.6	36.7	33.1	41.5
Sprinter										45.8	45.8	42.8	50.3	45.8	45.8	42.8	50.3
20	1.Fl	43.2	41.5	38.2	46.1	43.2	41.5	38.2	46.1								
N Las Flores Drive										32.1	29.2	25.6	34.0	32.1	29.2	25.6	34.0
S Santa Fe Avenue										41.0	38.1	34.5	42.9	41.0	38.1	34.5	42.9
Sprinter										38.3	38.3	35.3	42.7	38.3	38.3	35.3	42.7
20	2.Fl	48.8	46.5	43.0	51.2	48.8	46.5	43.0	51.2								
N Las Flores Drive										33.0	30.2	26.5	34.9	33.0	30.2	26.5	34.9
S Santa Fe Avenue										48.1	45.2	41.6	50.0	48.1	45.2	41.6	50.0
Sprinter										40.1	40.1	37.1	44.5	40.1	40.1	37.1	44.5
20	3.Fl	49.5	47.2	43.7	51.9	49.5	47.2	43.7	51.9								
N Las Flores Drive										31.7	28.8	25.2	33.6	31.7	28.8	25.2	33.6
S Santa Fe Avenue										48.8	45.9	42.3	50.7	48.8	45.9	42.3	50.7
Sprinter										40.9	40.9	37.9	45.4	40.9	40.9	37.9	45.4
21	1.Fl	42.9	41.6	38.4	46.2	42.9	41.6	38.4	46.2								
N Las Flores Drive										33.8	31.0	27.3	35.7	33.8	31.0	27.4	35.7
S Santa Fe Avenue										39.0	36.2	32.6	40.9	39.0	36.2	32.6	40.9
Sprinter										39.6	39.6	36.6	44.1	39.6	39.6	36.6	44.1
21	2.Fl	47.2	45.3	41.9	49.9	47.2	45.3	41.9	49.9								
N Las Flores Drive										35.8	33.0	29.3	37.7	35.8	33.0	29.3	37.7
S Santa Fe Avenue										45.4	42.5	38.9	47.3	45.4	42.5	38.9	47.3
Sprinter										41.5	41.5	38.5	45.9	41.5	41.5	38.5	45.9
21	3.Fl	48.2	46.3	43.0	51.0	48.2	46.3	43.0	51.0								
N Las Flores Drive										37.8	34.9	31.3	39.7	37.8	35.0	31.3	39.7
S Santa Fe Avenue										46.2	43.4	39.8	48.1	46.2	43.4	39.8	48.1
Sprinter										42.6	42.6	39.6	47.0	42.6	42.6	39.6	47.0

Source name										Noise Level without Amenity Area A Barrier				Noise Level with Amenity Area A Barrier			
										Day	Evening	Night	CNEL	Day	Evening	Night	CNEL
										dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
22	1.Fl	41.6	40.4	37.2	45.0	41.6	40.4	37.2	45.0								
N Las Flores Drive										37.2	34.3	30.7	39.1	37.2	34.3	30.7	39.1
S Santa Fe Avenue										32.3	29.4	25.8	34.2	32.3	29.4	25.8	34.2
Sprinter										38.7	38.7	35.7	43.2	38.7	38.7	35.7	43.2
22	2.Fl	45.8	44.6	41.5	49.2	45.8	44.6	41.5	49.2								
N Las Flores Drive										38.2	35.3	31.7	40.1	38.2	35.3	31.7	40.1
S Santa Fe Avenue										40.4	37.6	34.0	42.3	40.4	37.6	34.0	42.3
Sprinter										43.0	43.0	40.0	47.4	43.0	43.0	40.0	47.4
22	3.Fl	46.9	45.7	42.5	50.2	46.9	45.7	42.5	50.2								
N Las Flores Drive										38.7	35.8	32.2	40.6	38.7	35.8	32.2	40.6
S Santa Fe Avenue										42.0	39.2	35.6	43.9	42.0	39.2	35.6	43.9
Sprinter										44.0	44.0	41.0	48.4	44.0	44.0	41.0	48.4
23	1.Fl	46.2	43.5	39.9	48.2	46.2	43.5	39.9	48.2								
N Las Flores Drive										17.7	14.8	11.2	19.6	17.7	14.8	11.2	19.6
S Santa Fe Avenue										46.0	43.1	39.5	47.9	46.0	43.1	39.5	47.9
Sprinter										32.7	32.7	29.6	37.1	32.7	32.7	29.6	37.1
23	2.Fl	52.4	49.7	46.1	54.4	52.4	49.7	46.1	54.4								
N Las Flores Drive										18.6	15.8	12.1	20.5	18.6	15.8	12.1	20.5
S Santa Fe Avenue										52.3	49.5	45.8	54.2	52.3	49.5	45.8	54.2
Sprinter										37.1	37.1	34.1	41.6	37.1	37.1	34.1	41.6
23	3.Fl	53.8	51.1	47.5	55.8	53.8	51.1	47.5	55.8								
N Las Flores Drive										23.3	20.5	16.8	25.2	23.3	20.5	16.8	25.2
S Santa Fe Avenue										53.7	50.9	47.2	55.6	53.7	50.9	47.2	55.6
Sprinter										38.1	38.1	35.1	42.5	38.1	38.1	35.1	42.5
24	1.Fl	40.3	38.5	35.1	43.1	40.3	38.5	35.1	43.1								
N Las Flores Drive										30.6	27.8	24.1	32.5	30.6	27.8	24.1	32.5
S Santa Fe Avenue										38.0	35.2	31.6	39.9	38.0	35.2	31.6	39.9
Sprinter										35.0	35.0	31.9	39.4	35.0	35.0	31.9	39.4
24	2.Fl	46.1	44.0	40.5	48.6	46.1	44.0	40.5	48.6								
N Las Flores Drive										30.2	27.4	23.7	32.1	30.2	27.4	23.7	32.1
S Santa Fe Avenue										45.1	42.2	38.6	47.0	45.1	42.2	38.6	47.0
Sprinter										38.9	38.9	35.8	43.3	38.9	38.9	35.8	43.3
24	3.Fl	48.0	45.7	42.2	50.3	48.0	45.7	42.2	50.3								
N Las Flores Drive										32.8	29.9	26.3	34.7	32.8	29.9	26.3	34.7
S Santa Fe Avenue										47.2	44.3	40.7	49.1	47.2	44.3	40.7	49.1
Sprinter										39.4	39.4	36.3	43.8	39.4	39.4	36.3	43.8
25	1.Fl	49.1	46.4	42.8	51.1	49.1	46.4	42.8	51.1								
N Las Flores Drive										17.8	14.9	11.3	19.7	17.8	14.9	11.3	19.7
S Santa Fe Avenue										49.0	46.2	42.6	50.9	49.0	46.2	42.6	50.9
Sprinter										32.6	32.6	29.6	37.0	32.6	32.6	29.6	37.0
25	2.Fl	53.7	50.9	47.3	55.7	53.7	50.9	47.3	55.7								
N Las Flores Drive										19.4	16.5	12.9	21.3	19.4	16.5	12.9	21.3
S Santa Fe Avenue										53.6	50.8	47.1	55.5	53.6	50.8	47.1	55.5
Sprinter										36.5	36.5	33.5	40.9	36.5	36.5	33.5	40.9
25	3.Fl	55.2	52.4	48.8	57.1	55.2	52.4	48.8	57.1								
N Las Flores Drive										23.5	20.6	17.0	25.4	23.5	20.6	17.0	25.4
S Santa Fe Avenue										55.1	52.3	48.7	57.0	55.1	52.3	48.7	57.0
Sprinter										36.8	36.8	33.8	41.3	36.8	36.8	33.8	41.3
26	1.Fl	52.9	50.1	46.5	54.9	52.9	50.1	46.5	54.9								
N Las Flores Drive										39.0	36.1	32.5	40.9	39.0	36.1	32.5	40.8
S Santa Fe Avenue										52.6	49.7	46.1	54.5	52.6	49.7	46.1	54.5
Sprinter										36.8	36.8	33.8	41.2	36.8	36.8	33.8	41.2
26	2.Fl	55.6	52.8	49.2	57.5	55.6	52.8	49.2	57.5								
N Las Flores Drive										41.0	38.2	34.5	42.9	41.0	38.1	34.5	42.9
S Santa Fe Avenue										55.3	52.5	48.8	57.2	55.3	52.5	48.8	57.2
Sprinter										38.6	38.6	35.6	43.0	38.6	38.6	35.6	43.0
26	3.Fl	57.4	54.7	51.0	59.4	57.4	54.7	51.0	59.4								
N Las Flores Drive										42.3	39.4	35.8	44.2	42.3	39.4	35.8	44.2
S Santa Fe Avenue										57.2	54.4	50.8	59.1	57.2	54.4	50.8	59.1
Sprinter										39.3	39.3	36.3	43.7	39.3	39.3	36.3	43.7
27	1.Fl	46.9	44.3	40.8	49.0	46.9	44.3	40.8	49.0								
N Las Flores Drive										33.7	30.8	27.2	35.6	33.7	30.8	27.2	35.6
S Santa Fe Avenue										46.3	43.5	39.8	48.2	46.3	43.5	39.8	48.2
Sprinter										35.6	35.6	32.6	40.0	35.6	35.6	32.6	40.0
27	2.Fl	51.2	48.6	45.0	53.3	51.2	48.6	45.0	53.3								
N Las Flores Drive										37.7	34.8	31.2	39.6	37.7	34.8	31.2	39.6
S Santa Fe Avenue										50.8	47.9	44.3	52.7	50.8	47.9	44.3	52.7
Sprinter										38.8	38.8	35.8	43.2	38.8	38.8	35.8	43.2
27	3.Fl	52.6	50.0	46.4	54.7	52.6	50.0	46.4	54.7								
N Las Flores Drive										39.4	36.5	32.9	41.3	39.4	36.5	32.9	41.3
S Santa Fe Avenue										52.2	49.3	45.7	54.1	52.2	49.3	45.7	54.1
Sprinter										39.9	39.9	36.9	44.3	39.9	39.9	36.9	44.3
28	1.Fl	39.8	38.0	34.6	42.6	39.8	38.0	34.6	42.6								
N Las Flores Drive										37.0	34.1	30.5	38.9	37.0	34.1	30.5	38.9
S Santa Fe Avenue										32.8	29.9	26.3	34.7	32.8	29.9	26.3	34.7
Sprinter										34.3	34.3	31.3	38.7	34.3	34.3	31.3	38.7
28	2.Fl	42.3	40.8	37.5	45.3	42.3	40.8	37.5	45.3								
N Las Flores Drive										38.7	35.9	32.2	40.6	38.7	35.9	32.2	40.6
S Santa Fe Avenue										34.8	31.9	28.3	36.7	34.8	31.9	28.3	36.7
Sprinter										38.1	38.1	35.1	42.5	38.1	38.1	35.1	42.5
28	3.Fl	46.0	43.9	40.5	48.6	46.0	43.9	40.5	48.6								
N Las Flores Drive										40.1	37.2	33.6	42.0	40.1	37.2	33.6	42.0
S Santa Fe Avenue										43.4	40.5	36.9	45.3	43.4	40.5	36.9	45.3
Sprinter										39.1	39.1	36.1	43.5	39.1	39.1	36.1	43.5

Source name										Noise Level without Amenity Area A Barrier				Noise Level with Amenity Area A Barrier			
										Day	Evening	Night	CNEL	Day	Evening	Night	CNEL
										dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
29	1.Fl	45.4	42.7	39.1	47.4	45.4	42.7	39.1	47.4								
N Las Flores Drive										18.6	15.7	12.1	20.4	18.5	15.7	12.1	20.4
S Santa Fe Avenue										45.2	42.3	38.7	47.1	45.2	42.3	38.7	47.1
Sprinter										31.7	31.7	28.7	36.2	31.7	31.7	28.7	36.2
29	2.Fl	53.6	50.8	47.2	55.5	53.6	50.8	47.2	55.5								
N Las Flores Drive										20.0	17.2	13.6	21.9	20.0	17.2	13.5	21.9
S Santa Fe Avenue										53.6	50.7	47.1	55.5	53.6	50.7	47.1	55.5
Sprinter										31.9	31.9	28.9	36.4	31.9	31.9	28.9	36.4
29	3.Fl	58.3	55.4	51.8	60.2	58.3	55.4	51.8	60.2								
N Las Flores Drive										24.1	21.2	17.6	26.0	24.1	21.2	17.6	26.0
S Santa Fe Avenue										58.2	55.4	51.8	60.1	58.2	55.4	51.8	60.1
Sprinter										33.2	33.2	30.2	37.7	33.2	33.2	30.2	37.7
30	1.Fl	57.5	54.7	51.0	59.4	57.4	54.5	50.9	59.3								
N Las Flores Drive										40.7	37.9	34.2	42.6	40.6	37.7	34.1	42.5
S Santa Fe Avenue										57.4	54.5	50.9	59.3	57.2	54.4	50.8	59.1
Sprinter										34.2	34.2	31.2	38.6	34.2	34.2	31.2	38.6
30	2.Fl	61.0	58.2	54.6	62.9	61.0	58.1	54.5	62.9								
N Las Flores Drive										41.8	38.9	35.3	43.7	41.4	38.6	34.9	43.3
S Santa Fe Avenue										61.0	58.1	54.5	62.9	60.9	58.1	54.4	62.8
Sprinter										35.3	35.3	32.2	39.7	35.3	35.3	32.2	39.7
30	3.Fl	62.9	60.1	56.4	64.8	62.9	60.1	56.4	64.8								
N Las Flores Drive										42.7	39.8	36.2	44.6	42.6	39.8	36.1	44.5
S Santa Fe Avenue										62.8	60.0	56.4	64.7	62.8	60.0	56.4	64.8
Sprinter										37.4	37.4	34.4	41.8	37.4	37.4	34.4	41.8
31	1.Fl	51.7	48.9	45.3	53.6	51.6	48.8	45.2	53.5								
N Las Flores Drive										38.5	35.6	32.0	40.4	38.3	35.4	31.8	40.2
S Santa Fe Avenue										51.4	48.5	44.9	53.3	51.3	48.4	44.8	53.2
Sprinter										34.6	34.6	31.6	39.0	34.6	34.6	31.6	39.0
31	2.Fl	54.1	51.3	47.7	56.1	54.0	51.3	47.7	56.0								
N Las Flores Drive										39.9	37.0	33.4	41.8	39.9	37.0	33.4	41.8
S Santa Fe Avenue										53.9	51.0	47.4	55.8	53.8	50.9	47.3	55.7
Sprinter										36.7	36.7	33.7	41.2	36.7	36.7	33.7	41.2
31	3.Fl	55.8	53.1	49.5	57.8	55.6	53.0	49.4	57.7								
N Las Flores Drive										41.2	38.4	34.7	43.1	41.2	38.3	34.7	43.1
S Santa Fe Avenue										55.4	52.6	49.0	57.3	55.3	52.5	48.8	57.2
Sprinter										41.6	41.6	38.6	46.0	41.6	41.6	38.6	46.0

ATTACHMENT 5

Fresnel Barrier Reduction Calculations

Fresnel Barrier Reduction Calculations

Receiver 8, Level 2, Santa Fe Avenue

Reference Noise Level	69.2			GF = 500				
Reference Distance	104			2nd Floor = 510				
Site Conditions	Hard			Balcony Wall = 3.5				
Distance from Barrier to Source	Distance from Barrier to Receiver	Distance from Source to Receiver	Height of Source	Height of Wall	Height of Receiver	Noise Level Reduction	Unabated Noise Level	Resultant Noise Level
108	3	111	498	513.5	513	6.97	69	61.66

Receiver 8, Level 2, Las Flores Drive

Reference Noise Level	53.8			GF = 500				
Reference Distance	72			2nd Floor = 510				
Site Conditions	Hard			Balcony Wall = 3.5				
Distance from Barrier to Source	Distance from Barrier to Receiver	Distance from Source to Receiver	Height of Source	Height of Wall	Height of Receiver	Noise Level Reduction	Unabated Noise Level	Resultant Noise Level
46	3	49	504	513.5	513	7.58	57	49.56

Receiver 8, Level 2, Combined Santa Fe Avenue and Las Flores Drive

No Barrier	69.3
With Barrier	61.9
Barrier Reduction	7.4

Receiver 9, Level 3, Santa Fe Avenue

Reference Noise Level	64.7			GF = 500				
Reference Distance	151			3rd Floor = 520				
Site Conditions	Hard			Balcony Wall = 3.5				
Distance from Barrier to Source	Distance from Barrier to Receiver	Distance from Source to Receiver	Height of Source	Height of Wall	Height of Receiver	Noise Level Reduction	Unabated Noise Level	Resultant Noise Level
108	3	111	498	523.5	523	7.98	67	59.39

Receiver 9, Level 3, Las Flores Drive

Reference Noise Level	57.8			GF = 500				
Reference Distance	39			3rd Floor = 510				
Site Conditions	Hard			Balcony Wall = 3.5				
Distance from Barrier to Source	Distance from Barrier to Receiver	Distance from Source to Receiver	Height of Source	Height of Wall	Height of Receiver	Noise Level Reduction	Unabated Noise Level	Resultant Noise Level
46	3	49	504	523.5	523	9.84	56	45.98

Receiver 9, Level 3, Combined Santa Fe Avenue and Las Flores Drive

No Barrier	65.5
With Barrier	59.6
Barrier Reduction	5.9

10587 Santa Fe Flores Townhomes
Fresnel Barrier Reduction Calculations

Receiver 8, Roof Deck, Santa Fe Avenue

Reference Noise Level	69.2			GF = 500				
Reference Distance	104			Roof = 530				
Site Conditions	Hard			Balcony Wall = 3.5				
Distance from Barrier to Source	Distance from Barrier to Receiver	Distance from Source to Receiver	Height of Source	Height of Wall	Height of Receiver	Noise Level Reduction	Unabated Noise Level	Resultant Noise Level
108	3	111	498	533.5	533	8.98	69	59.65

Receiver 8, Roof Deck Las Flores Drive

Reference Noise Level	53.8			GF = 500				
Reference Distance	72			Roof = 530				
Site Conditions	Hard			Balcony Wall = 3.5				
Distance from Barrier to Source	Distance from Barrier to Receiver	Distance from Source to Receiver	Height of Source	Height of Wall	Height of Receiver	Noise Level Reduction	Unabated Noise Level	Resultant Noise Level
46	3	49	504	533.5	533	11.64	57	45.50

Receiver 8, Roof Deck, Combined Santa Fe Avenue and Las Flores Drive

No Barrier	69.3
With Barrier	59.8
Barrier Reduction	9.5

Receiver 9, Roof Deck, Santa Fe Avenue

Reference Noise Level	64.7			GF = 500				
Reference Distance	151			Roof = 530				
Site Conditions	Hard			Balcony Wall = 3.5				
Distance from Barrier to Source	Distance from Barrier to Receiver	Distance from Source to Receiver	Height of Source	Height of Wall	Height of Receiver	Noise Level Reduction	Unabated Noise Level	Resultant Noise Level
108	3	111	498	533.5	533	8.98	67	58.39

Receiver 9, Roof Deck, Las Flores Drive

Reference Noise Level	57.8			GF = 500				
Reference Distance	39			Roof = 530				
Site Conditions	Hard			Balcony Wall = 3.5				
Distance from Barrier to Source	Distance from Barrier to Receiver	Distance from Source to Receiver	Height of Source	Height of Wall	Height of Receiver	Noise Level Reduction	Unabated Noise Level	Resultant Noise Level
46	3	49	504	533.5	533	11.64	56	44.18

Receiver 9, Roof Deck, Combined Santa Fe Avenue and Las Flores Drive

No Barrier	65.5
With Barrier	58.6
Barrier Reduction	7.0

ATTACHMENT 6

FHWA RD-77-108 – Off-site Traffic Noise

FHWA RD-77-108

Traffic Noise Prediction Model

Data Input Sheet

Project Name : Santa Fe Flores Townhomes
Project Number : 10587
Modeled Condition : Existing

Surface Refelction: CNEL
Assessment Metric: Hard
Peak ratio to ADT: 10.0
Traffic Desc. (Peak or ADT) : ADT

Segment	Roadway	Segment	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	K-Factor
WITHOUT PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	14,850	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
2	S. Santa Fe Avenue	Bosstick Boulevard to Community Drive	16,660	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
3	S. Santa Fe Avenue	Community Drive to Las Flores Drive	16,660	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	14,600	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	13,500	40	50	95.00	3.00	2.00	77.00	10.00	13.00	
6	Hollencrest Road	De Leone Road to Hollenbeck Road	560	25	50	95.00	3.00	2.00	77.00	10.00	13.00	
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	11,730	40	50	95.00	3.00	2.00	77.00	10.00	13.00	
WITH PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	14,960	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
2	S. Santa Fe Avenue	Bosstick Boulevard to Community Drive	16,770	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
3	S. Santa Fe Avenue	Community Drive to Las Flores Drive	17,030	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	14,780	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	13,570	40	50	95.00	3.00	2.00	77.00	10.00	13.00	
6	Hollencrest Road	De Leone Road to Hollenbeck Road	600	25	50	95.00	3.00	2.00	77.00	10.00	13.00	
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	11,840	40	50	95.00	3.00	2.00	77.00	10.00	13.00	

FHWA RD-77-108

Traffic Noise Prediction Model

Predicted Noise Levels

Project Name : Santa Fe Flores Townhomes
Project Number : 10587
Modeled Condition : Existing
Assessment Metric: Hard

			Noise Levels, dBA Hard				Distance to Traffic Noise Level Contours, Feet					
Segment	Roadway	Segment	Auto	MT	HT	Total	75 dB	70 dB	65 dB	60 dB	55 dB	50 dB
WITHOUT PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	69.2	62.5	65.2	71.3	21	67	213	674	2,133	6,745
2	S. Santa Fe Avenue	Bosstick Boulevard to Community Drive	69.7	63.0	65.7	71.8	24	76	239	757	2,393	7,568
3	S. Santa Fe Avenue	Community Drive to Las Flores Drive	69.7	63.0	65.7	71.8	24	76	239	757	2,393	7,568
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	69.2	62.4	65.1	71.2	21	66	208	659	2,084	6,591
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	67.3	61.3	64.3	69.8	15	48	151	477	1,510	4,775
6	Hollencrest Road	De Leone Road to Hollenbeck Road	47.6	44.3	50.1	52.7	0	1	3	9	29	93
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	66.7	60.6	63.7	69.1	13	41	129	406	1,285	4,064
WITH PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	69.3	62.5	65.2	71.3	21	67	213	674	2,133	6,745
2	S. Santa Fe Avenue	Bosstick Boulevard to Community Drive	69.8	63.0	65.7	71.8	24	76	239	757	2,393	7,568
3	S. Santa Fe Avenue	Community Drive to Las Flores Drive	69.8	63.1	65.8	71.9	24	77	245	774	2,449	7,744
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	69.2	62.4	65.2	71.3	21	67	213	674	2,133	6,745
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	67.4	61.3	64.3	69.8	15	48	151	477	1,510	4,775
6	Hollencrest Road	De Leone Road to Hollenbeck Road	47.9	44.6	50.4	53.0	0	1	3	10	32	100
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	66.8	60.7	63.8	69.2	13	42	132	416	1,315	4,159

2030

FHWA RD-77-108

Traffic Noise Prediction Model

Data Input Sheet

Project Name : Santa Fe Flores Townhomes
Project Number : 10587
Modeled Condition : Near-Term (2027)

Surface Refelction: CNEL
Assessment Metric: Hard
Peak ratio to ADT: 10.0
Traffic Desc. (Peak or ADT) : ADT

Segment	Roadway	Segment	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	K-Factor
WITHOUT PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	16,110	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
2	S. Santa Fe Avenue	Bosstick Boulevard to Community Drive	18,080	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
3	S. Santa Fe Avenue	Community Drive to Las Flores Drive	18,080	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	15,840	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	14,650	40	50	95.00	3.00	2.00	77.00	10.00	13.00	
6	Hollencrest Road	De Leone Road to Hollenbeck Road	610	25	50	95.00	3.00	2.00	77.00	10.00	13.00	
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	12,730	40	50	95.00	3.00	2.00	77.00	10.00	13.00	
WITH PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	16,220	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
2	S. Santa Fe Avenue	Bosstick Boulevard to Community Drive	18,190	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
3	S. Santa Fe Avenue	Community Drive to Las Flores Drive	18,450	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	16,020	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	14,720	40	50	95.00	3.00	2.00	77.00	10.00	13.00	
6	Hollencrest Road	De Leone Road to Hollenbeck Road	650	25	50	95.00	3.00	2.00	77.00	10.00	13.00	
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	12,840	40	50	95.00	3.00	2.00	77.00	10.00	13.00	

FHWA RD-77-108

Traffic Noise Prediction Model

Predicted Noise Levels

Project Name : Santa Fe Flores Townhomes
Project Number : 10587
Modeled Condition : Near-Term (2027)
Assessment Metric: Hard

			Noise Levels, dBA Hard				Distance to Traffic Noise Level Contours, Feet					
Segment	Roadway	Segment	Auto	MT	HT	Total	75 dB	70 dB	65 dB	60 dB	55 dB	50 dB
WITHOUT PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	69.6	62.8	65.6	71.6	23	72	229	723	2,285	7,227
2	S. Santa Fe Avenue	Bosstick Boulevard to Community Drive	70.1	63.3	66.1	72.1	26	81	256	811	2,564	8,109
3	S. Santa Fe Avenue	Community Drive to Las Flores Drive	70.1	63.3	66.1	72.1	26	81	256	811	2,564	8,109
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	69.5	62.7	65.5	71.6	23	72	229	723	2,285	7,227
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	67.7	61.6	64.7	70.1	16	51	162	512	1,618	5,116
6	Hollencrest Road	De Leone Road to Hollenbeck Road	48.0	44.6	50.5	53.1	0	1	3	10	32	102
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	67.1	61.0	64.1	69.5	14	45	141	446	1,409	4,456
WITH PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	69.6	62.9	65.6	71.7	23	74	234	740	2,339	7,396
2	S. Santa Fe Avenue	Bosstick Boulevard to Community Drive	70.1	63.4	66.1	72.2	26	83	262	830	2,624	8,298
3	S. Santa Fe Avenue	Community Drive to Las Flores Drive	70.2	63.4	66.1	72.2	26	83	262	830	2,624	8,298
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	69.6	62.8	65.5	71.6	23	72	229	723	2,285	7,227
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	67.7	61.6	64.7	70.1	16	51	162	512	1,618	5,116
6	Hollencrest Road	De Leone Road to Hollenbeck Road	48.3	44.9	50.8	53.4	0	1	3	11	35	109
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	67.1	61.0	64.1	69.5	14	45	141	446	1,409	4,456

FHWA RD-77-108

Traffic Noise Prediction Model

Data Input Sheet

Project Name : Santa Fe Flores Townhomes
Project Number : 10587
Modeled Condition : Long-Term (2050)

Surface Refelction: CNEL
Assessment Metric: Hard
Peak ratio to ADT: 10.0
Traffic Desc. (Peak or ADT) : ADT

Segment	Roadway	Segment	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	K-Factor
WITHOUT PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	22,200	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
2	S. Santa Fe Avenue	Bosstick Boulevard to Community Drive	22,200	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
3	S. Santa Fe Avenue	Community Drive to Las Flores Drive	22,200	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	21,300	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	24,400	40	50	95.00	3.00	2.00	77.00	10.00	13.00	
6	Hollencrest Road	De Leone Road to Hollenbeck Road	830	25	50	95.00	3.00	2.00	77.00	10.00	13.00	
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	16,800	40	50	95.00	3.00	2.00	77.00	10.00	13.00	
WITH PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	22,310	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
2	S. Santa Fe Avenue	Bosstick Boulevard to Community Drive	22,310	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
3	S. Santa Fe Avenue	Community Drive to Las Flores Drive	22,570	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	21,480	45	50	95.00	3.00	2.00	77.00	10.00	13.00	
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	24,470	40	50	95.00	3.00	2.00	77.00	10.00	13.00	
6	Hollencrest Road	De Leone Road to Hollenbeck Road	870	25	50	95.00	3.00	2.00	77.00	10.00	13.00	
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	16,910	40	50	95.00	3.00	2.00	77.00	10.00	13.00	

FHWA RD-77-108

Traffic Noise Prediction Model

Predicted Noise Levels

Project Name : Santa Fe Flores Townhomes
Project Number : 10587
Modeled Condition : Long-Term (2050)
Assessment Metric: Hard

			Noise Levels, dBA Hard				Distance to Traffic Noise Level Contours, Feet					
Segment	Roadway	Segment	Auto	MT	HT	Total	75 dB	70 dB	65 dB	60 dB	55 dB	50 dB
WITHOUT PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	71.0	64.2	67.0	73.0	32	100	315	998	3,155	9,976
2	S. Santa Fe Avenue	Bosstick Boulevard to Community Drive	71.0	64.2	67.0	73.0	32	100	315	998	3,155	9,976
3	S. Santa Fe Avenue	Community Drive to Las Flores Drive	71.0	64.2	67.0	73.0	32	100	315	998	3,155	9,976
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	70.8	64.0	66.8	72.9	31	97	308	975	3,083	9,749
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	69.9	63.8	66.9	72.3	27	85	269	849	2,685	8,491
6	Hollencrest Road	De Leone Road to Hollenbeck Road	49.3	46.0	51.8	54.4	0	1	4	14	44	138
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	68.3	62.2	65.3	70.7	19	59	186	587	1,858	5,874
WITH PROJECT												
1	S. Santa Fe Avenue	Smilax Road to Bosstick Boulevard	71.0	64.2	67.0	73.1	32	102	323	1,021	3,228	10,209
2	S. Santa Fe Avenue	Bosstick Boulevard to Community Drive	71.0	64.2	67.0	73.1	32	102	323	1,021	3,228	10,209
3	S. Santa Fe Avenue	Community Drive to Las Flores Drive	71.0	64.3	67.0	73.1	32	102	323	1,021	3,228	10,209
4	S. Santa Fe Avenue	Las Flores Drive to N. Rancho Santa Fe Road	70.8	64.1	66.8	72.9	31	97	308	975	3,083	9,749
5	S. Santa Fe Avenue	N. Rancho Santa Fe Road and N. Pacific Street	69.9	63.8	66.9	72.3	27	85	269	849	2,685	8,491
6	Hollencrest Road	De Leone Road to Hollenbeck Road	49.6	46.2	52.0	54.6	0	1	5	14	46	144
7	N. Rancho Santa Fe Road	S. Santa Fe Avenue to Capalina Road	68.3	62.2	65.3	70.7	19	59	186	587	1,858	5,874

ATTACHMENT 7

SoundPLAN Data – On-site Generated Noise

Source name	Reference	Noise Level dB(A)	Corrections Cwall dB(A)	CI dB(A)	CT dB(A)
HVAC1	Lw/unit	75	-	-	-
HVAC2	Lw/unit	75	-	-	-
HVAC3	Lw/unit	75	-	-	-
HVAC4	Lw/unit	75	-	-	-
HVAC5	Lw/unit	75	-	-	-
HVAC6	Lw/unit	75	-	-	-
HVAC7	Lw/unit	75	-	-	-
HVAC8	Lw/unit	75	-	-	-
HVAC9	Lw/unit	75	-	-	-
HVAC10	Lw/unit	75	-	-	-
HVAC11	Lw/unit	75	-	-	-
HVAC12	Lw/unit	75	-	-	-
HVAC13	Lw/unit	75	-	-	-
HVAC14	Lw/unit	75	-	-	-
HVAC15	Lw/unit	75	-	-	-
HVAC16	Lw/unit	75	-	-	-
HVAC17	Lw/unit	75	-	-	-
HVAC18	Lw/unit	75	-	-	-
HVAC19	Lw/unit	75	-	-	-
HVAC20	Lw/unit	75	-	-	-
HVAC21	Lw/unit	75	-	-	-
HVAC22	Lw/unit	75	-	-	-
HVAC23	Lw/unit	75	-	-	-
HVAC24	Lw/unit	75	-	-	-
HVAC25	Lw/unit	75	-	-	-
HVAC26	Lw/unit	75	-	-	-
HVAC27	Lw/unit	75	-	-	-
HVAC28	Lw/unit	75	-	-	-
HVAC29	Lw/unit	75	-	-	-
HVAC30	Lw/unit	75	-	-	-
HVAC31	Lw/unit	75	-	-	-
HVAC32	Lw/unit	75	-	-	-
HVAC33	Lw/unit	75	-	-	-
HVAC34	Lw/unit	75	-	-	-
HVAC35	Lw/unit	75	-	-	-
HVAC36	Lw/unit	75	-	-	-
HVAC37	Lw/unit	75	-	-	-
HVAC38	Lw/unit	75	-	-	-
HVAC39	Lw/unit	75	-	-	-
HVAC40	Lw/unit	75	-	-	-
HVAC41	Lw/unit	75	-	-	-
HVAC42	Lw/unit	75	-	-	-
HVAC43	Lw/unit	75	-	-	-
HVAC44	Lw/unit	75	-	-	-
HVAC45	Lw/unit	75	-	-	-
HVAC46	Lw/unit	75	-	-	-

10587 Santa Fe Flores Townhomes

SoundPLAN Data - HVAC

No.	Coordinates X	Y	Height	Noise Level
	(meters)		(meters)	dB(A)
1	481468.23	3668972.47	182.38	32.8
2	481477.03	3668933.16	185.26	34.8
3	481491.51	3668901.09	186.46	35.5
4	481513.24	3668863.85	186.82	35.3
5	481534.96	3668832.30	186.16	34.3
6	481452.72	3668803.33	161.69	33.9
7	481417.03	3668787.30	160.02	35.0
8	481389.61	3668758.33	159.84	41.9
9	481373.58	3668720.06	157.61	40.7
10	481348.75	3668660.57	154.54	35.0
11	481317.72	3668679.71	153.92	35.5
12	481280.47	3668693.16	153.14	35.8
13	481232.89	3668717.47	152.07	34.9
14	481185.82	3668741.78	151.46	33.6
15	481288.85	3668803.43	156.64	39.0
16	481306.71	3668845.77	157.91	38.0
17	481370.21	3668885.46	167.45	39.6
18	481303.57	3668756.45	154.67	38.8

Source name				Noise Level dB(A)
1	1.Fl	32.8	0.0	
HVAC1				10.9
HVAC2				11.3
HVAC3				10.7
HVAC4				12.3
HVAC5				10.8
HVAC6				9.9
HVAC7				8.0
HVAC8				7.6
HVAC9				7.4
HVAC10				5.6
HVAC11				6.3
HVAC12				6.3
HVAC13				14.7
HVAC14				15.0
HVAC15				12.6
HVAC16				10.0
HVAC17				13.2
HVAC18				15.4
HVAC19				16.1
HVAC20				16.3
HVAC21				16.5
HVAC22				15.4
HVAC23				16.3
HVAC24				16.9
HVAC25				17.5
HVAC26				18.9
HVAC27				18.7
HVAC28				17.9
HVAC29				18.3
HVAC30				18.3
HVAC31				18.5
HVAC32				18.7
HVAC33				18.7
HVAC34				18.9
HVAC35				19.2
HVAC36				19.2
HVAC37				19.2
HVAC38				19.2
HVAC39				16.8
HVAC40				16.8
HVAC41				16.9
HVAC42				16.8
HVAC43				16.8
HVAC44				16.9
HVAC45				16.8
HVAC46				16.7
2	1.Fl	34.8	0.0	
HVAC1				13.7
HVAC2				15.4
HVAC3				14.9
HVAC4				15.6
HVAC5				15.6
HVAC6				12.6
HVAC7				10.1
HVAC8				10.9
HVAC9				16.3
HVAC10				7.6
HVAC11				9.0
HVAC12				7.9
HVAC13				12.6
HVAC14				14.5
HVAC15				14.9
HVAC16				11.9
HVAC17				14.8
HVAC18				12.9
HVAC19				17.2
HVAC20				18.9
HVAC21				16.9
HVAC22				17.0
HVAC23				17.6
HVAC24				18.2
HVAC25				18.8
HVAC26				20.6
HVAC27				20.1
HVAC28				19.3
HVAC29				20.7
HVAC30				19.6
HVAC31				20.6
HVAC32				21.1
HVAC33				20.8
HVAC34				21.8
HVAC35				21.4
HVAC36				21.0
HVAC37				21.4
HVAC38				21.2
HVAC39				18.3
HVAC40				18.6
HVAC41				18.7
HVAC42				19.7
HVAC43				19.0
HVAC44				18.7
HVAC45				19.6
HVAC46				19.4

Source name				Noise Level dB(A)
3	1.Fl	35.5	0.0	
HVAC1				15.8
HVAC2				15.9
HVAC3				15.3
HVAC4				15.9
HVAC5				16.1
HVAC6				16.2
HVAC7				12.8
HVAC8				17.0
HVAC9				16.7
HVAC10				16.8
HVAC11				14.0
HVAC12				9.8
HVAC13				11.9
HVAC14				13.2
HVAC15				14.4
HVAC16				14.8
HVAC17				13.3
HVAC18				10.2
HVAC19				17.2
HVAC20				17.9
HVAC21				18.9
HVAC22				17.5
HVAC23				17.3
HVAC24				17.8
HVAC25				19.0
HVAC26				20.7
HVAC27				20.2
HVAC28				19.7
HVAC29				21.0
HVAC30				19.6
HVAC31				21.6
HVAC32				22.6
HVAC33				21.9
HVAC34				21.7
HVAC35				21.6
HVAC36				21.0
HVAC37				22.4
HVAC38				22.0
HVAC39				19.2
HVAC40				20.0
HVAC41				20.0
HVAC42				20.1
HVAC43				19.5
HVAC44				19.0
HVAC45				20.5
HVAC46				20.2
4	1.Fl	35.3	0.0	
HVAC1				16.4
HVAC2				16.8
HVAC3				15.6
HVAC4				16.1
HVAC5				16.9
HVAC6				16.7
HVAC7				17.0
HVAC8				17.4
HVAC9				17.0
HVAC10				17.4
HVAC11				17.6
HVAC12				16.9
HVAC13				14.0
HVAC14				13.0
HVAC15				13.4
HVAC16				12.8
HVAC17				11.7
HVAC18				10.4
HVAC19				18.2
HVAC20				16.6
HVAC21				16.6
HVAC22				18.4
HVAC23				16.8
HVAC24				17.5
HVAC25				18.1
HVAC26				19.7
HVAC27				19.2
HVAC28				19.4
HVAC29				19.8
HVAC30				18.7
HVAC31				21.1
HVAC32				22.6
HVAC33				21.7
HVAC34				21.0
HVAC35				20.8
HVAC36				20.5
HVAC37				21.5
HVAC38				21.2
HVAC39				19.4
HVAC40				20.7
HVAC41				19.9
HVAC42				19.5
HVAC43				19.3
HVAC44				19.0
HVAC45				20.0
HVAC46				19.6

Source name				Noise Level dB(A)
5	1.Fl	34.3	0.0	
HVAC1				16.6
HVAC2				17.0
HVAC3				15.4
HVAC4				15.9
HVAC5				17.2
HVAC6				17.0
HVAC7				17.3
HVAC8				17.8
HVAC9				16.5
HVAC10				16.9
HVAC11				17.9
HVAC12				17.4
HVAC13				15.4
HVAC14				15.3
HVAC15				14.9
HVAC16				11.7
HVAC17				13.4
HVAC18				11.5
HVAC19				16.2
HVAC20				15.8
HVAC21				15.5
HVAC22				15.7
HVAC23				16.4
HVAC24				16.3
HVAC25				16.6
HVAC26				16.9
HVAC27				17.2
HVAC28				18.0
HVAC29				18.2
HVAC30				17.2
HVAC31				20.1
HVAC32				20.6
HVAC33				19.8
HVAC34				19.5
HVAC35				19.3
HVAC36				19.2
HVAC37				20.0
HVAC38				19.6
HVAC39				18.3
HVAC40				19.8
HVAC41				18.8
HVAC42				18.7
HVAC43				18.4
HVAC44				18.2
HVAC45				19.5
HVAC46				18.9
6	1.Fl	33.9	0.0	
HVAC1				19.1
HVAC2				19.7
HVAC3				20.0
HVAC4				20.6
HVAC5				20.0
HVAC6				19.7
HVAC7				19.7
HVAC8				20.9
HVAC9				21.4
HVAC10				21.6
HVAC11				20.5
HVAC12				18.2
HVAC13				16.6
HVAC14				13.1
HVAC15				12.5
HVAC16				3.4
HVAC17				7.6
HVAC18				12.8
HVAC19				7.2
HVAC20				6.5
HVAC21				6.2
HVAC22				5.5
HVAC23				6.2
HVAC24				6.8
HVAC25				6.4
HVAC26				5.1
HVAC27				4.9
HVAC28				3.7
HVAC29				4.4
HVAC30				4.8
HVAC31				7.7
HVAC32				9.1
HVAC33				10.2
HVAC34				11.5
HVAC35				13.9
HVAC36				15.6
HVAC37				12.7
HVAC38				10.8
HVAC39				12.5
HVAC40				15.4
HVAC41				19.5
HVAC42				21.6
HVAC43				23.9
HVAC44				23.6
HVAC45				20.3
HVAC46				18.1

Source name				Noise Level dB(A)
7	1.Fl	35.0	0.0	
HVAC1				20.9
HVAC2				22.7
HVAC3				23.1
HVAC4				24.2
HVAC5				23.1
HVAC6				19.1
HVAC7				20.3
HVAC8				24.5
HVAC9				21.3
HVAC10				22.6
HVAC11				20.7
HVAC12				16.4
HVAC13				14.7
HVAC14				13.8
HVAC15				13.1
HVAC16				12.5
HVAC17				13.7
HVAC18				14.6
HVAC19				10.3
HVAC20				9.9
HVAC21				9.1
HVAC22				5.0
HVAC23				9.5
HVAC24				10.5
HVAC25				7.1
HVAC26				5.8
HVAC27				5.3
HVAC28				5.1
HVAC29				5.4
HVAC30				6.0
HVAC31				9.4
HVAC32				11.3
HVAC33				13.0
HVAC34				14.2
HVAC35				15.6
HVAC36				16.8
HVAC37				15.0
HVAC38				11.7
HVAC39				16.5
HVAC40				15.4
HVAC41				20.6
HVAC42				21.6
HVAC43				22.7
HVAC44				23.2
HVAC45				15.9
HVAC46				12.6
8	1.Fl	41.9	0.0	
HVAC1				25.3
HVAC2				27.2
HVAC3				28.2
HVAC4				29.7
HVAC5				27.8
HVAC6				26.5
HVAC7				27.0
HVAC8				30.4
HVAC9				31.8
HVAC10				32.6
HVAC11				30.5
HVAC12				29.0
HVAC13				24.2
HVAC14				23.6
HVAC15				22.9
HVAC16				23.5
HVAC17				24.0
HVAC18				26.7
HVAC19				24.0
HVAC20				20.8
HVAC21				20.6
HVAC22				12.9
HVAC23				12.3
HVAC24				8.7
HVAC25				7.7
HVAC26				6.6
HVAC27				7.0
HVAC28				5.3
HVAC29				5.7
HVAC30				5.6
HVAC31				9.4
HVAC32				12.8
HVAC33				20.5
HVAC34				21.5
HVAC35				21.9
HVAC36				24.3
HVAC37				12.8
HVAC38				10.1
HVAC39				17.4
HVAC40				19.7
HVAC41				24.3
HVAC42				24.1
HVAC43				25.0
HVAC44				27.5
HVAC45				24.6
HVAC46				23.6

Source name				Noise Level dB(A)
9	1.Fl	40.7	0.0	
HVAC1				25.3
HVAC2				29.1
HVAC3				32.7
HVAC4				32.4
HVAC5				28.9
HVAC6				25.2
HVAC7				23.8
HVAC8				27.0
HVAC9				29.9
HVAC10				28.6
HVAC11				26.2
HVAC12				24.1
HVAC13				20.3
HVAC14				15.8
HVAC15				15.2
HVAC16				14.6
HVAC17				15.8
HVAC18				17.5
HVAC19				21.4
HVAC20				19.0
HVAC21				20.1
HVAC22				20.8
HVAC23				21.8
HVAC24				20.4
HVAC25				10.5
HVAC26				18.0
HVAC27				16.2
HVAC28				16.2
HVAC29				10.1
HVAC30				6.9
HVAC31				7.8
HVAC32				9.5
HVAC33				17.7
HVAC34				18.4
HVAC35				19.3
HVAC36				17.6
HVAC37				10.4
HVAC38				10.1
HVAC39				17.6
HVAC40				18.1
HVAC41				24.4
HVAC42				20.1
HVAC43				20.7
HVAC44				23.7
HVAC45				22.0
HVAC46				22.1
10	1.Fl	35.0	0.0	
HVAC1				23.2
HVAC2				23.0
HVAC3				25.5
HVAC4				24.2
HVAC5				22.0
HVAC6				20.8
HVAC7				18.4
HVAC8				19.8
HVAC9				21.7
HVAC10				21.6
HVAC11				19.3
HVAC12				17.5
HVAC13				14.7
HVAC14				14.2
HVAC15				19.8
HVAC16				14.5
HVAC17				13.5
HVAC18				12.5
HVAC19				15.5
HVAC20				16.4
HVAC21				16.2
HVAC22				14.8
HVAC23				15.7
HVAC24				14.9
HVAC25				15.2
HVAC26				12.9
HVAC27				11.5
HVAC28				11.0
HVAC29				12.0
HVAC30				14.6
HVAC31				8.1
HVAC32				8.3
HVAC33				14.8
HVAC34				15.3
HVAC35				14.1
HVAC36				13.4
HVAC37				9.6
HVAC38				9.6
HVAC39				16.7
HVAC40				16.9
HVAC41				18.7
HVAC42				20.2
HVAC43				17.3
HVAC44				19.0
HVAC45				18.8
HVAC46				18.9

Source name				Noise Level dB(A)
11	1.Fl	35.5	0.0	
HVAC1				24.8
HVAC2				23.8
HVAC3				25.0
HVAC4				21.7
HVAC5				22.2
HVAC6				21.5
HVAC7				18.5
HVAC8				18.1
HVAC9				18.5
HVAC10				17.1
HVAC11				17.1
HVAC12				16.9
HVAC13				22.5
HVAC14				23.1
HVAC15				23.3
HVAC16				21.4
HVAC17				22.6
HVAC18				21.3
HVAC19				18.5
HVAC20				19.5
HVAC21				19.7
HVAC22				18.9
HVAC23				19.0
HVAC24				11.4
HVAC25				11.0
HVAC26				12.4
HVAC27				12.9
HVAC28				10.9
HVAC29				11.4
HVAC30				9.2
HVAC31				7.0
HVAC32				7.0
HVAC33				6.8
HVAC34				7.5
HVAC35				8.4
HVAC36				8.9
HVAC37				8.8
HVAC38				8.8
HVAC39				12.4
HVAC40				12.5
HVAC41				12.4
HVAC42				13.1
HVAC43				14.6
HVAC44				17.4
HVAC45				15.9
HVAC46				16.5
12	1.Fl	35.8	0.0	
HVAC1				24.6
HVAC2				22.1
HVAC3				22.7
HVAC4				20.0
HVAC5				20.8
HVAC6				23.8
HVAC7				22.4
HVAC8				19.6
HVAC9				18.0
HVAC10				17.7
HVAC11				19.4
HVAC12				21.6
HVAC13				22.9
HVAC14				22.3
HVAC15				22.1
HVAC16				21.0
HVAC17				21.5
HVAC18				21.6
HVAC19				19.8
HVAC20				19.3
HVAC21				19.8
HVAC22				18.8
HVAC23				16.3
HVAC24				18.8
HVAC25				12.9
HVAC26				12.0
HVAC27				12.7
HVAC28				10.6
HVAC29				11.0
HVAC30				10.7
HVAC31				15.5
HVAC32				7.5
HVAC33				7.2
HVAC34				7.9
HVAC35				8.6
HVAC36				8.9
HVAC37				9.0
HVAC38				14.4
HVAC39				18.4
HVAC40				16.4
HVAC41				16.3
HVAC42				16.8
HVAC43				17.7
HVAC44				19.2
HVAC45				18.6
HVAC46				18.5

Source name				Noise Level dB(A)
13	1.Fl	34.9	0.0	
HVAC1				22.6
HVAC2				20.1
HVAC3				19.5
HVAC4				18.4
HVAC5				19.4
HVAC6				21.8
HVAC7				21.1
HVAC8				19.1
HVAC9				18.4
HVAC10				17.8
HVAC11				18.6
HVAC12				20.1
HVAC13				20.6
HVAC14				21.2
HVAC15				24.3
HVAC16				21.3
HVAC17				19.1
HVAC18				18.2
HVAC19				19.1
HVAC20				19.5
HVAC21				18.1
HVAC22				17.5
HVAC23				19.1
HVAC24				18.2
HVAC25				11.9
HVAC26				13.9
HVAC27				16.7
HVAC28				16.0
HVAC29				14.9
HVAC30				9.8
HVAC31				10.8
HVAC32				13.7
HVAC33				9.0
HVAC34				8.4
HVAC35				8.0
HVAC36				7.8
HVAC37				10.6
HVAC38				16.5
HVAC39				16.6
HVAC40				16.5
HVAC41				15.5
HVAC42				16.1
HVAC43				16.9
HVAC44				18.2
HVAC45				16.8
HVAC46				17.7
14	1.Fl	33.6	0.0	
HVAC1				18.6
HVAC2				17.5
HVAC3				17.1
HVAC4				19.4
HVAC5				17.5
HVAC6				18.4
HVAC7				18.1
HVAC8				19.8
HVAC9				19.5
HVAC10				16.6
HVAC11				20.0
HVAC12				18.8
HVAC13				18.4
HVAC14				18.5
HVAC15				19.9
HVAC16				19.4
HVAC17				18.3
HVAC18				19.5
HVAC19				16.3
HVAC20				15.9
HVAC21				17.4
HVAC22				16.9
HVAC23				15.7
HVAC24				18.1
HVAC25				18.4
HVAC26				18.5
HVAC27				16.2
HVAC28				15.6
HVAC29				14.7
HVAC30				13.7
HVAC31				9.6
HVAC32				10.4
HVAC33				9.7
HVAC34				10.8
HVAC35				9.9
HVAC36				9.0
HVAC37				12.0
HVAC38				13.8
HVAC39				15.6
HVAC40				15.8
HVAC41				15.3
HVAC42				15.6
HVAC43				15.5
HVAC44				15.7
HVAC45				15.4
HVAC46				16.9

Source name				Noise Level dB(A)
15	1.Fl	39.0	0.0	
HVAC1				14.4
HVAC2				12.0
HVAC3				11.4
HVAC4				11.2
HVAC5				12.0
HVAC6				13.6
HVAC7				14.2
HVAC8				12.6
HVAC9				12.3
HVAC10				20.2
HVAC11				13.2
HVAC12				14.5
HVAC13				22.9
HVAC14				26.3
HVAC15				31.3
HVAC16				32.6
HVAC17				26.7
HVAC18				23.4
HVAC19				26.5
HVAC20				20.2
HVAC21				26.1
HVAC22				25.0
HVAC23				26.2
HVAC24				25.1
HVAC25				14.4
HVAC26				17.2
HVAC27				23.1
HVAC28				21.7
HVAC29				17.7
HVAC30				12.0
HVAC31				7.6
HVAC32				6.7
HVAC33				6.2
HVAC34				7.2
HVAC35				8.3
HVAC36				9.0
HVAC37				9.8
HVAC38				10.5
HVAC39				12.6
HVAC40				18.2
HVAC41				16.0
HVAC42				16.0
HVAC43				15.8
HVAC44				21.0
HVAC45				18.8
HVAC46				23.9
16	1.Fl	38.0	0.0	
HVAC1				14.5
HVAC2				15.2
HVAC3				15.1
HVAC4				15.0
HVAC5				15.9
HVAC6				15.8
HVAC7				19.0
HVAC8				19.2
HVAC9				18.3
HVAC10				7.5
HVAC11				19.4
HVAC12				21.1
HVAC13				22.7
HVAC14				23.7
HVAC15				25.5
HVAC16				27.4
HVAC17				24.9
HVAC18				25.3
HVAC19				19.6
HVAC20				22.7
HVAC21				28.3
HVAC22				29.4
HVAC23				23.5
HVAC24				19.9
HVAC25				20.6
HVAC26				21.7
HVAC27				27.7
HVAC28				26.5
HVAC29				21.9
HVAC30				18.3
HVAC31				8.7
HVAC32				6.8
HVAC33				5.6
HVAC34				7.7
HVAC35				6.8
HVAC36				6.9
HVAC37				8.5
HVAC38				10.9
HVAC39				11.2
HVAC40				8.3
HVAC41				6.8
HVAC42				6.8
HVAC43				6.8
HVAC44				6.7
HVAC45				8.7
HVAC46				10.7

Source name				Noise Level dB(A)
17	1.Fl	39.6	0.0	
HVAC1				18.4
HVAC2				18.6
HVAC3				15.2
HVAC4				13.6
HVAC5				18.7
HVAC6				19.0
HVAC7				20.2
HVAC8				20.6
HVAC9				12.5
HVAC10				9.7
HVAC11				17.3
HVAC12				21.0
HVAC13				11.2
HVAC14				7.8
HVAC15				7.3
HVAC16				7.1
HVAC17				7.7
HVAC18				11.5
HVAC19				15.3
HVAC20				15.2
HVAC21				14.9
HVAC22				16.0
HVAC23				15.7
HVAC24				16.4
HVAC25				25.1
HVAC26				26.3
HVAC27				25.1
HVAC28				30.3
HVAC29				28.8
HVAC30				30.9
HVAC31				29.5
HVAC32				26.7
HVAC33				27.0
HVAC34				24.4
HVAC35				22.1
HVAC36				21.2
HVAC37				23.0
HVAC38				26.6
HVAC39				25.9
HVAC40				18.3
HVAC41				15.6
HVAC42				15.6
HVAC43				15.5
HVAC44				15.4
HVAC45				19.5
HVAC46				23.7
18	1.Fl	38.8	0.0	
HVAC1				29.2
HVAC2				23.9
HVAC3				22.0
HVAC4				22.1
HVAC5				24.0
HVAC6				29.5
HVAC7				29.2
HVAC8				23.7
HVAC9				22.4
HVAC10				21.3
HVAC11				23.6
HVAC12				28.1
HVAC13				26.8
HVAC14				25.0
HVAC15				27.6
HVAC16				21.7
HVAC17				22.6
HVAC18				28.7
HVAC19				12.2
HVAC20				11.8
HVAC21				12.8
HVAC22				11.4
HVAC23				9.1
HVAC24				11.0
HVAC25				7.1
HVAC26				6.5
HVAC27				7.5
HVAC28				5.7
HVAC29				5.7
HVAC30				5.2
HVAC31				5.4
HVAC32				4.9
HVAC33				4.0
HVAC34				4.5
HVAC35				5.4
HVAC36				6.0
HVAC37				6.5
HVAC38				7.7
HVAC39				11.6
HVAC40				9.5
HVAC41				9.2
HVAC42				9.8
HVAC43				11.0
HVAC44				22.4
HVAC45				12.0
HVAC46				12.2

ATTACHMENT D.11

VEHICLE MILES TRAVELED ASSESSMENT

LINSCOTT LAW & GREENSPAN
engineers

Engineers & Planners
Traffic
Transportation
Parking

Linscott, Law & Greenspan, Engineers
4542 Ruffner Street
Suite 100
San Diego , CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers.com

Pasadena
Irvine
San Diego
Woodland Hills

December 4, 2025

Mr. Paul Mayer
Santa Fe Flores LP
PO Box 903
Rancho Santa Fe, CA 92067

LLG Reference: 3-24-3940

Subject: **Santa Fe Flores Townhomes VMT Assessment**
San Marcos, California

Dear Mr. Mayer:

Linscott, Law & Greenspan, Engineers (LLG) has prepared this assessment of Vehicle Miles Traveled (VMT) for the Santa Fe Flores Townhomes project ("Project"). The Project site is located at 2966, 2972 and 2982 S. Santa Fe Avenue, on the northwest corner of the S. Santa Fe Avenue / N. Las Flores Drive intersection in the City of San Marcos. The Project proposes the development of 46 multi-family dwelling units. The Project's site plan is shown on ***Figure 1***.

This assessment has been prepared to evaluate the effects of the Project based on VMT, as proposed by the California Governor's Office of Planning and Research (OPR) to implement California State Law Senate Bill (SB) 743 and subsequently adopted by the City of San Marcos in November 2020. The analysis methodology contained in this report utilizes the City of San Marcos' latest *Transportation Impact Analysis Guidelines* (November 16, 2020).

VMT BACKGROUND

VMT is defined as the "amount and distance of automobile travel attributable to a project" per CEQA Guidelines Section 15064.3. VMT is a measure of the use and efficiency of the transportation network as well land uses in a region. VMT is calculated based on individual vehicle trips generated and their associated trip lengths. VMT accounts for two-way (roundtrip) travel and is estimated for a typical weekday for the purposes of measuring transportation impacts.

The potential transportation impacts of the proposed Project are based on VMT to satisfy the California Environmental Quality Act (CEQA) guidelines through SB 743. Public Resources Code section 20199, enacted pursuant to SB 743, identifies VMT as

Philip M. Linscott, PE (1924-2000)
William A. Law, PE (1921-2018)
Jack M. Greenspan, PE (Ret.)
Paul W. Wilkinson, PE (Ret.)
John P. Keating, PE (Ret.)
David S. Shender, PE
John A. Boarman, PE
Clare M. Look-Jaeger, PE
Richard E. Barretto, PE
Keil D. Maberry, PE
Walter B. Musial, PE
Kalyan C. Yellapu, PE
Dave Roseman, PE
An LG2WB Company Founded 2046

an appropriate metric for measuring transportation impacts along with the elimination of auto delay/Level of service (LOS) for CEQA purposes statewide.

VMT ASSESSMENT

Based on the City of San Marcos *Transportation Impact Analysis Guidelines*, the requirement to prepare a detailed transportation VMT analysis applies to all land development projects except for those that meet at least one of the provided screening criteria. A project that meets at least one of the screening criteria listed below would be considered to have a less-than-significant impact due to the project or location characteristics.

1. Small Projects (less than 110 daily vehicle trips)
2. Affordable Housing (100% deed restricted)
3. Local Serving Retail and Public Facilities (50,000 square feet gross floor area or less)
4. Adjacency to High-Quality Transit
5. Map-Based Screening (projects located in VMT efficient areas): Residential and employment projects that are proposed in areas that generate VMT below adopted City thresholds can be presumed to have a less-than-significant transportation impact and would not require a detailed VMT analysis. This determination must be made using SANDAG's online residential and employment VMT maps, which show census tracts in the city where the VMT is below the regional average. The following types of projects could be screened out using this approach:
    - Residential projects proposed in census tracts with residential VMT per capita below the City's threshold of exceeding 85 percent of the SANDAG regional average
    - Employment projects proposed in census tracts with work VMT per employee below the City's threshold of exceeding 85 percent of the SANDAG regional average

Per SANDAG's online residential VMT map, the Project site is located within Census Tract 200.18 as shown in ***Figure 2***. The VMT per capita of this Census Tract is 15.4 VMT, which is 81.2% of the SANDAG regional average of 19.0 VMT per capita. Therefore, screening criteria number five (5) listed above is applicable. As such, the Project can be presumed to have a less-than-significant transportation impact and would not require a detailed VMT analysis.

Please call me with any questions.

Sincerely,

Linscott, Law & Greenspan, Engineers

John Boarman, P.E.
Principal
California Registration: C50033

cc: File

LLG

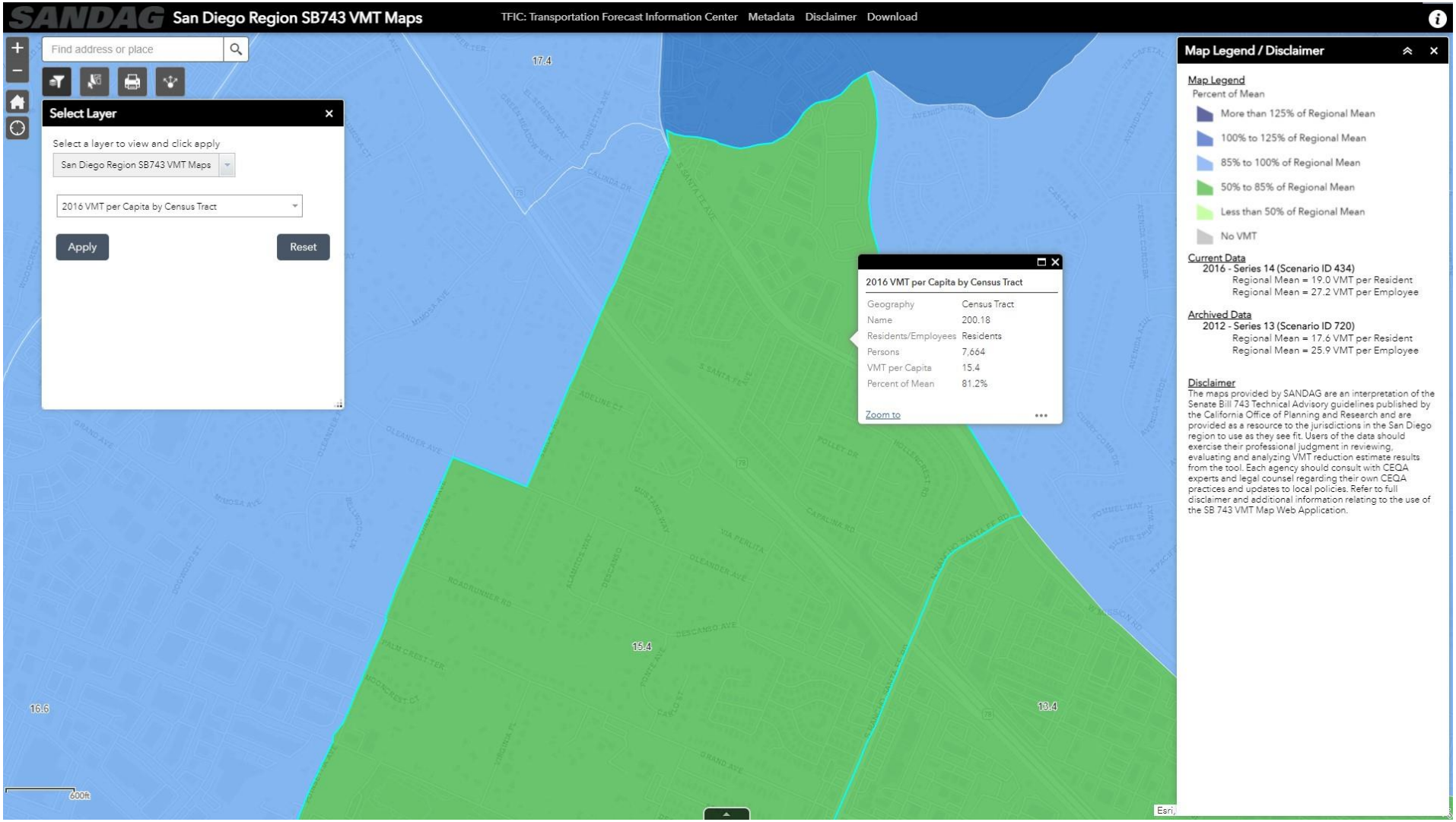
N:\3940\Figures
Date: 11/26/25

Figure 1

Project Site Plan

SANTA FE FLORES TOWNHOMES

2049



LLG

N:\3940\Figures
Date: 08/07/24

Figure 2

SANDAG Screening Map Results

SANTA FE FLORES TOWNHOMES

2050

ATTACHMENT D.12

BUENA SANITATION DISTRICT LETTER, JULY 17, 2025

CITY OF VISTA
CALIFORNIA

BUENA SANITATION DISTRICT

July 17, 2025

City of San Marcos
Attn: Associate Planner Sarah Cluff
1 Civic Center Drive
San Marcos, CA 92069

Re: Sewer Service for GPA25-0001 – Santa Fe Flores 46-Unit Condos

Dear Ms. Cluff,

The project applicant has requested the Buena Sanitation District (BSD) to provide sanitary sewer service for the proposed 46-unit condominium project located at S. Santa Fe Av. and Las Flores Dr. in the City of San Marcos. Though BSD infrastructure is available and has sufficient capacity, the subject property is not located within the BSD boundary. Pursuant to CA Government Code 56133, BSD cannot commit to serve the property unless San Diego LAFCO first approves an Out of Area Service request.

In March 2025, BSD staff submitted a request to serve the project to LAFCO, but a CEQA determination must be made on the project before LAFCO can move forward with the request. To facilitate the CEQA review, this letter serves to confirm that contingent upon LAFCO approval, satisfaction of BSD's infrastructure improvement requirements, payment of fees, and recordation of an Out of Area Service Agreement, BSD is willing to provide sewer service to the subject project. A formal sewer commitment letter can be provided if/when LAFCO approves the OAS request.

Please let me know if you have any questions.

Sincerely,

Steven Nowak, PE, PLS
Principal Engineer

ATTACHMENT D.13

BUENA SANITATION DISTRICT LETTER, SEPTEMBER 3, 2025

CITY OF VISTA
CALIFORNIA

Buena Sanitation District

September 3, 2025

City of San Marcos
Attn: Associate Planner Sarah Cluff
1 Civic Center Drive
San Marcos, CA 92069

Subject: Reconsideration of August 4, 2025 Sewer Service Determination – Santa Fe Flores 46-Unit Condos (GPA25-0001)

Dear Ms. Cluff,

This letter serves to formally rescind the Buena Sanitation District's (BSD) correspondence dated August 4, 2025, regarding sewer service availability for the proposed Santa Fe Flores 46-unit condominium project located at S. Santa Fe Avenue and Las Flores Drive in the City of San Marcos.

Upon further evaluation, BSD has determined that it will proceed with offering sewer service to the Santa Fe Flores project. This decision is based on consideration of the historic project timeline and minor impact to BSD's downstream system capacity. In addition to meeting BSD's requirements and LAFCO approval, the project shall provide a proportional cost-share contribution towards capacity improvements as previously discussed with the applicant.

Please note that this determination is exclusive to the Santa Fe Flores project and does not establish a precedent for other projects located outside the BSD jurisdictional boundary within the City of San Marcos. Future requests for sewer availability can only be considered once BSD realizes progress on securing necessary easements to construct planned downstream capacity improvements.

Should you have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

Ken Knatz, P.E.
Sewer Engineering Manager

ATTACHMENT E1

PROJECT CIVIL PLANS

TENTATIVE SUBDIVISION MAP FOR CONDOMINIUM PURPOSES FOR:
2972 & 2982 S. SANTA FE AVENUE

LEGEND

PROPERTY BOUNDARY
CENTERLINE OF ROAD
RIGHT-OF-WAY
ADJACENT PROPERTY LINE
EXISTING CONTOUR LINE — 64
EXISTING SPOT ELEVATION — (XXX.XX) FG
PROPOSED SPOT ELEVATION — XXX.XX FS
PROPOSED CURB & GUTTER
PROPOSED RIBBON GUTTER
PROPOSED RETAINING WALL
PROPOSED GRADING DAYLIGHT
PROPOSED STORM DRAIN — SD
PROPOSED DOMESTIC WATER — W
PROPOSED FIRE WATER — F
PROPOSED SEWER — S
PROPOSED BUILDING
PROPOSED AC PAVEMENT
PROPOSED CONCRETE PAVEMENT
PROPOSED ARTIFICIAL TURF
PROPOSED UNDERGROUND STORM DRAIN DETENTION SYSTEM
PROPOSED PROPRIETARY BIOFILTRATION SYSTEM
PROPOSED FIRE HYDRANT
PROPOSED AREA DRAIN
EXISTING WATER MAIN — W
EXISTING SEWER MAIN — S
EXISTING STORM DRAIN — SD
EXISTING GAS MAIN — G
EXISTING TELECOM CONDUIT — T
CURB OUTLET
CLEANOUT/WEIR CONTROL STRUCTURE
BROW DITCH

RAW EARTHWORK QUANTITIES

CUT:	23,300 CY
FILL:	3,200 CY
NET (EXPORT):	20,100 CY

THE ABOVE RAW EARTHWORK QUANTITIES ARE ESTIMATES ONLY. CONTRACTOR SHALL NOT RELY UPON QUANTITIES FOR BID PURPOSES. CONTRACTOR TO VERIFY EARTHWORK QUANTITIES TO THEIR SATISFACTION PRIOR TO START OF WORK.

NOTE: QUANTITIES DO NOT INCLUDE ANY EARTHWORK FOR REMEDIAL PURPOSES. EARTHWORK ESTIMATES ARE BASED ON IN PLACE VOLUMES AN DO NOT ACCOUNT FOR ANY SHRINKAGE OR SWELL OF THE SOIL THAT MAY OCCUR DURING GRADING.

LANDSCAPE EASEMENT NOTES

ALL PROPOSED PRIVATE IMPROVEMENTS WITHIN EXISTING CITY LANDSCAPE MAINTENANCE EASEMENT WILL REQUIRE AN ENCROACHMENT AGREEMENT AND ALL PRIVATE IMPROVEMENTS AND APPURTENANCES WITHIN LANDSCAPE MAINTENANCE EASEMENT TO BE PRIVATELY OWNED AND MAINTAINED.

CONDOMINIUM NOTE

THIS SUBDIVISION IS A RESIDENTIAL CONDOMINIUM PROJECT AS DEFINED IN SECTION 4125 OF THE CIVIL CODE OF THE STATE OF CALIFORNIA AND IS FILED PURSUANT TO THE SUBDIVISION MAP ACT, THE TOTAL NUMBER OF RESIDENTIAL CONDOMINIUM UNITS IS 46.

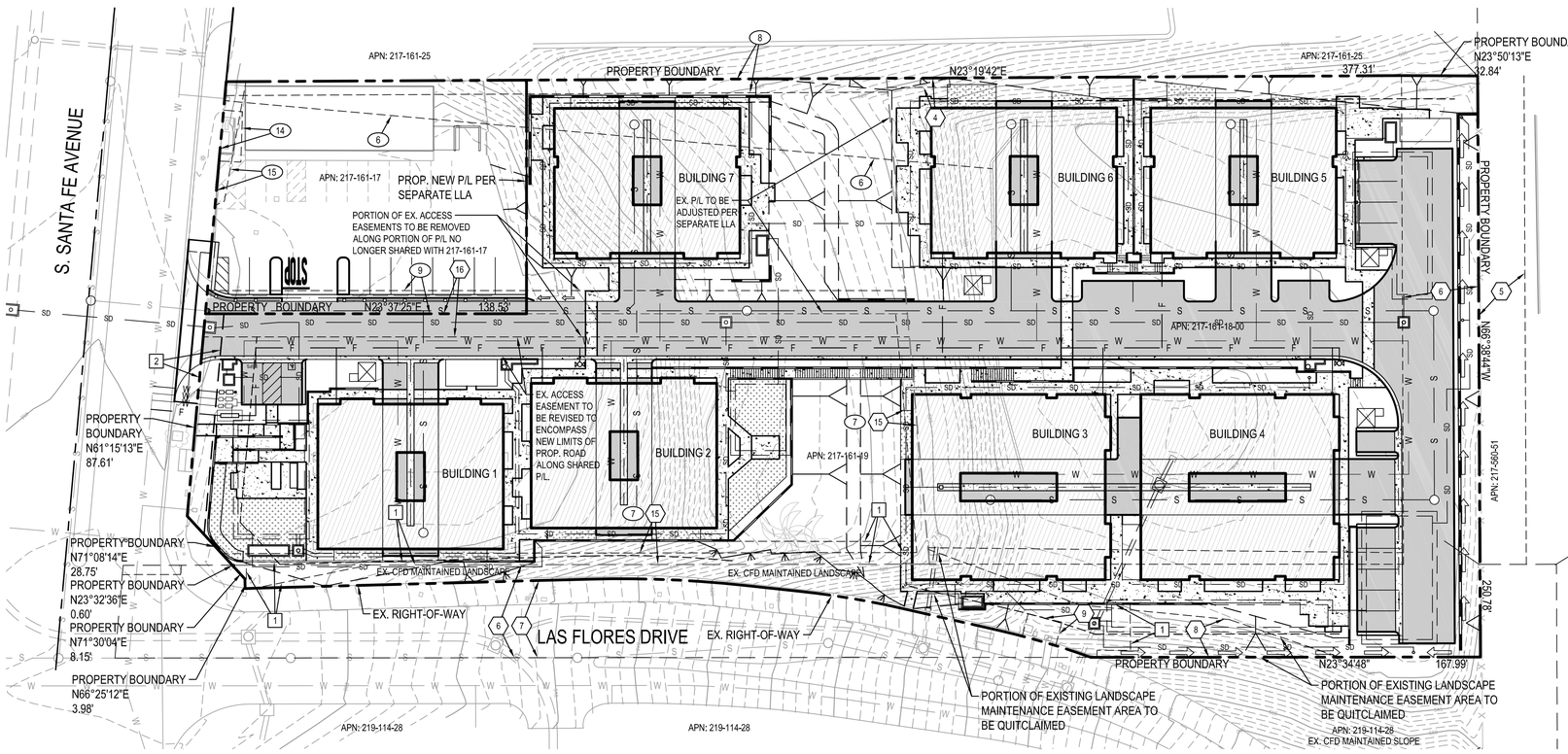
PROPOSED EASEMENT INFORMATION

1. PROPOSED LANDSCAPE MAINTENANCE EASEMENT FOR OPEN SPACE SLOPE TO THE CITY OF SAN MARCOS.
2. PROPOSED 8-FOOT WIDE IRREVOCABLE OFFER OF DEDICATION TO THE CITY OF SAN MARCOS.

EXISTING EASEMENT INFORMATION (217-161-18, -19)

2. EASEMENT GRANTED TO THE COUNTY OF SAN DIEGO FOR PUBLIC HIGHWAY PURPOSES, RECORDED JUNE 11, 1913 IN BOOK 500, PAGE 135, OFFICIAL RECORDS TO BE VACATED. NOT PLOTTABLE.
3. EASEMENT GRANTED TO VISTA IRRIGATION DISTRICT FOR PIPELINE AND OTHER DISTRICT WORKS, RECORDED OCTOBER 24, 1925, IN BOOK 1136, PAGE 238, OFFICIAL RECORDS TO BE QUITCLAIMED. NOT PLOTTABLE.
4. EASEMENT GRANTED TO SAN DIEGO GAS AND ELECTRIC COMPANY FOR PUBLIC UTILITIES, INGRESS AND EGRESS, RECORDED JUNE 19, 1973 AS DOC. NO. 73-167727, OFFICIAL RECORDS TO BE QUITCLAIMED.
5. EASEMENT GRANTED TO THE COUNTY OF SAN DIEGO FOR UTILITY PURPOSES, RECORDED OCTOBER 25, 1979 AS DOC. NO. 79-448104, OFFICIAL RECORDS TO BE VACATED.
6. EASEMENT GRANTED TO THE COUNTY OF SAN DIEGO FOR UTILITY PURPOSES, RECORDED JUNE 24, 1987 AS DOC. NO. 87-353275 TO BE VACATED.
7. EASEMENT GRANTED TO THE CITY OF SAN MARCOS FOR PUBLIC STREET AND UTILITY PURPOSES, RECORDED OCTOBER 13, 2005 AS DOC. NO. 2005-0887133.
8. EASEMENT GRANTED TO THE CITY OF SAN MARCOS FOR OPEN SPACE SLOPE LANDSCAPE MAINTENANCE AND ACCESS PURPOSES, RECORDED OCTOBER 13, 2005 AS DOC. NO. 2005-0887134, OFFICIAL RECORDS.
9. EASEMENT GRANTED TO VISTA IRRIGATION DISTRICT FOR UTILITY PURPOSES, RECORDED NOVEMBER 17, 2005 AS DOC. NO. 2005-0996226, OFFICIAL RECORDS TO BE REVISED.
13. EASEMENT GRANTED TO COUNTY OF SAN DIEGO FOR PUBLIC STREET PURPOSES, RECORDED JUNE 11, 1913 IN BOOK 500, PAGE 135 OF DEEDS TO BE VACATED, NOT PLOTTABLE.
14. EASEMENT GRANTED TO VISTA IRRIGATION DISTRICT FOR PIPELINES, INGRESS AND EGRESS, AND ALL NECESSARY APPURTENANCES, RECORDED OCTOBER 24, 1925 IN BOOK 1136, PAGE 238 OF DEEDS TO BE QUITCLAIMED, NOT PLOTTABLE.
15. EASEMENT GRANTED TO BARENY COLEMAN AND JEAN S. COLEMAN FOR PUBLIC UTILITIES, INGRESS AND EGRESS RECORDED OCTOBER 27, 1959 IN BOOK 7959, PAGE 126, OFFICIAL RECORDS TO BE QUITCLAIMED.
16. EASEMENT GRANTED TO FAIRMONT FOODS COMPANY FOR ROAD AND UTILITY PURPOSES, RECORDED JULY 5, 1973 AS DOC. NO. 73-184604, OFFICIAL RECORDS TO BE ADJUSTED.
17. EASEMENT GRANTED TO COUNTY OF SAN DIEGO FOR UTILITIES, INGRESS AND EGRESS, RECORDED JUNE 24, 1987 AS DOC. NO. 87-353275, OFFICIAL RECORDS TO BE VACATED. NOT PLOTTABLE.

NOTE: ALL EXISTING COUNTY HIGHWAY EASEMENTS WITHIN THE PROPERTY BOUNDARIES TO BE VACATED.



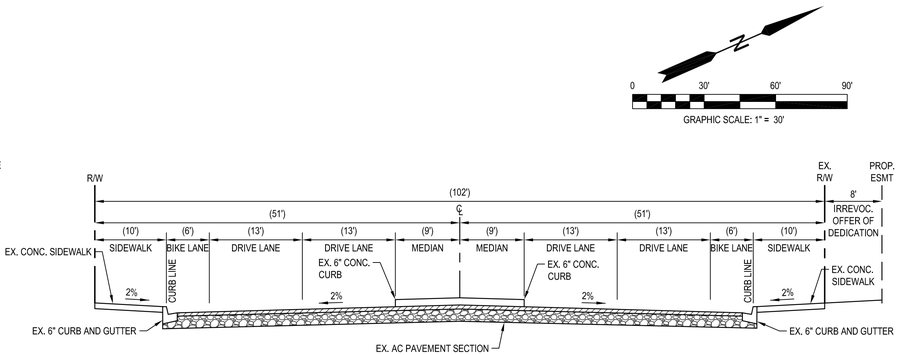
ABBREVIATIONS

AC	ASPHALT CONCRETE	ELEC	ELECTRICAL	MH	MANHOLE	SL	STREET LIGHT
ADA	AMERICAN WITH DISABILITIES ACT	EX	EXISTING	MIN	MINIMUM	SMH	SEWER MANHOLE
BFD	BACKFLOW DEVICE	FF	FINISH FLOOR	PA	PLANTER AREA	TC	TOP OF CURB
BLDG	BUILDING	FG	FINISHED GRADE	PBOX	PULL BOX	TD	TOP OF DECK
BS	BOTTOM OF STAIRS	FL	FLOW LINE	P/L	PROPERTY LINE	TE	TRASH ENCLOSURE
BW	BOTTOM OF WALL	FM	FORCE MAIN	POC	POINT OF CONNECTION	TG	TOP OF GRATE
CB	CATCH BASIN	FS	FINISHED SURFACE	POT	PATH OF TRAVEL	TS	TOP OF STAIRS
CF	CURB FACE	GA	GUY ANCHOR	PP	POWER POLE	TW	TOP OF WALL
CMU	CONCRETE MASONRY UNIT	GB	GRADE BREAK	PROP	PROPOSED	TYP	TYPICAL
CO	CLEANOUT	GFF	GARAGE FINISH FLOOR	PVC	POLYVINYL CHLORIDE	WAR	WATER AIR RELEASE
COMM	COMMUNICATIONS	GP	GUY POLE	R/W	RIGHT-OF-WAY	WM	WATER METER
CONC	CONCRETE	GV	GAS VALVE	SCO	SEWER CLEANOUT	WV	WATER VALVE
DOM W	DOMESTIC WATER	HP	HIGH POINT	SD	STORM DRAIN		
DS	DOWNSPOUT	HT	HEIGHT	SDCO	STORM DRAIN CLEANOUT		
EG	EDGE OF GUTTER	INV	INVERT	SDMH	STORM DRAIN MANHOLE		

EXISTING EASEMENT INFORMATION (217-161-17)

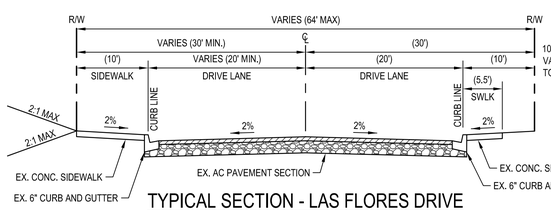
4. EASEMENT GRANTED TO THE COUNTY OF SAN DIEGO FOR PUBLIC HIGHWAY PURPOSES, RECORDED JUNE 11, 1913, BOOK 500, PAGE 136, OFFICIAL RECORDS. NOT PLOTTABLE.
5. EASEMENT GRANTED TO VISTA IRRIGATION DISTRICT FOR PIPELINE AND OTHER DISTRICT WORK PURPOSES, RECORDED OCTOBER 24, 1925, IN BOOK 1136, PAGE 238, OFFICIAL RECORDS TO BE QUITCLAIMED. NOT PLOTTABLE.
6. EASEMENT GRANTED TO SAN DIEGO GAS AND ELECTRIC COMPANY FOR PUBLIC UTILITY PURPOSES, RECORDED APRIL 25, 1951, IN BOOK 4073, PAGE 83, OFFICIAL RECORDS TO BE QUITCLAIMED.
7. EASEMENT GRANTED TO BARNEY COLEMAN AND JEAN S. COLEMAN FOR INGRESS AND EGRESS FOR PUBLIC UTILITY PURPOSES, RECORDED OCTOBER 27, 1959 IN BOOK 7959, PAGE 126, OFFICIAL RECORDS TO BE QUITCLAIMED.
8. EASEMENT GRANTED TO SAN DIEGO GAS AND ELECTRIC COMPANY FOR PUBLIC UTILITY PURPOSES, RECORDED JUNE 19, 1973, DOCUMENT NO. 73-167728, OFFICIAL RECORDS TO BE QUITCLAIMED.
9. EASEMENT GRANTED TO MARY ELIZABETH ESHLEMAN FOR ROAD AND UTILITY PURPOSES, RECORDED JULY 5, 1973, DOCUMENT NO. 1973-184604, OFFICIAL RECORDS. A PORTION TO BE QUITCLAIMED.
14. EASEMENT GRANTED TO SAN DIEGO GAS & ELECTRIC COMPANY FOR PUBLIC UTILITY PURPOSES, RECORDED JULY 3, 2003, DOCUMENT NO. 2003-0793497, OFFICIAL RECORDS.
15. EASEMENT GRANTED TO CITY OF SAN MARCOS FOR SLOPE AND DRAINAGE PURPOSES, RECORDED MARCH 12, 2004, DOCUMENT NO. 2004-0206660, OFFICIAL RECORDS.

NOTE: ALL EXISTING COUNTY HIGHWAY EASEMENTS WITHIN THE PROPERTY BOUNDARIES TO BE VACATED.



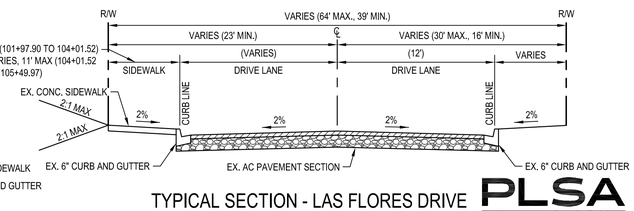
TYPICAL SECTION - S. SANTA FE AVENUE

SCALE: NTS



TYPICAL SECTION - LAS FLORES DRIVE

SCALE: NTS
UP TO STA. 101+97.90 (PER IP-4629)



TYPICAL SECTION - LAS FLORES DRIVE

SCALE: NTS
UP TO STA. 101+97.90 TO STA. 105+49.97 (PER IP-4629)

PLSA
PLSAENGINEERING.COM

GRAPHIC SCALE: 1" = 30'

OWNER'S STATEMENT

WE HEREBY CERTIFY THAT WE ARE THE RECORD OWNERS OF THE PROPERTY SHOWN ON THESE PLANS AND THAT SAID PLANS SHOW OUR ENTIRE CONTIGUOUS OWNERSHIP (EXCLUDING SUBDIVISION LOTS). WE UNDERSTAND THAT PROPERTY IS CONSIDERED CONTIGUOUS EVEN IF IT IS SEPARATED BY ROADS, STREETS, UTILITY EASEMENTS OR RAILROADS RIGHTS-OF-WAY.

OWNER

SANTA FE FLORES LP
CONTACT: PAUL MAYER
P.O. BOX 903
RANCHO SANTA FE, CA 92067

PAUL MAYER

ENGINEER OF WORK

REGISTERED PROFESSIONAL ENGINEER — WILLIAM J. SUITER — No. RCE 68964 — EXP. 12-31-25 — Civil — STATE OF CALIFORNIA

WILLIAM J. SUITER RCE 68964

LEGAL DESCRIPTION

PORTION OF LOT 4 IN BLOCK 95 OF RANCHO LOS VALLECITOS DE SAN MARCOS, IN THE CITY OF SAN MARCOS, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP NO. 806, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, DECEMBER 21, 1895.

ASSESSOR'S PARCEL NUMBER

217-161-18-00, 217-161-19-00, PORTION OF 217-161-17-00

AERIAL TOPOGRAPHY

AERIAL TOPOGRAPHY SUPPLIED BY: HOOPER LAND COMPANY
1642 MOON ROCK ROAD
FALLBROOK, CA 92028
(760) 723-2891
SURVEY COMPLETED: JUNE 2020

GENERAL NOTES:

1. APN: 217-161-18-00, 217-161-19-00 , PORTION OF 217-161-17-00
2. GROSS ACREAGE: 2.87 AC
3. GROSS ACREAGE WITHOUT LAS FLORES ROW: 2.60 AC
4. NET ACREAGE : 2.60 AC
5. NUMBER OF DWELLING UNITS: 46
6. EXISTING ZONING: MULTIFAMILY RESIDENTIAL 3-10 (R-3-10) & COMMERCIAL (C)
7. PROPOSED ZONING: MULTIFAMILY RESIDENTIAL 3-8 (R-3-8)
8. EXISTING GENERAL PLAN: MEDIUM DENSITY RESIDENTIAL 2 (MDR2) & COMMERCIAL (C)
9. PROPOSED GENERAL PLAN: MEDIUM HIGH DENSITY RESIDENTIAL (MHDR)
10. FINISH GRADES SHOWN HEREON ARE APPROXIMATE AND ARE SUBJECT TO CHANGE IN FINAL DESIGN.
11. PROPOSED DENSITY: 17.69 DU/AC
12. CUT AND FILL SLOPES NO STEEPER THAN 2:1
13. PUBLIC SERVICES AND DISTRICTS:
    GAS & ELECTRIC: SAN DIEGO GAS AND ELECTRIC
    TELEPHONE: AT&T
    WATER: VISTA IRRIGATION DISTRICT
    SEWER: BUENA SANITATION DISTRICT/ CITY OF VISTA
    FIRE DISTRICT: CITY OF SAN MARCOS
    SCHOOL DISTRICT: SAN MARCOS UNIFIED SCHOOL DISTRICT
14. PROPOSED SETBACKS: FRONT YARD = MINIMUM 15'
    SIDE YARD = MINIMUM 10'
    REAR YARD= MINIMUM 10'
13. SEE STORM WATER QUALITY MANAGMENT PLAN PREPARED BY: PLSA (DATED: JUNE 2025)
14. SEE PRELIMINARY DRAINAGE STUDY PREPARED BY: PLSA (DATED: JUNE 2025)
15. SEE GEOTECHNICAL EVALUATION PREPARED BY: GEOCON , INC. DATED: AUGUST 12, 2024 (PROJECT NO. G3355-42-01)

PROJECT DESCRIPTION

GENERAL PLAN AMENDMENT, ZONE CHANGE, MULTI-FAMILY SITE DEVELOPMENT PLAN AND TENTATIVE SUBDIVISION MAP (TSP) FOR CONDOMINIUM PURPOSES PROPOSING A 46-UNIT MULTIFAMILY DEVELOPMENT WITH PARKING LOTS, ACCESS DRIVE, AMENITY AREAS, MISCELLANEOUS HARDSCAPE AND LANDSCAPING.

SHEET INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	PRELIMINARY GRADING PLAN
3	SITE SECTIONS
4-7	DETAILS

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA COORDINATE SYSTEM, NAD 83 (CCS83), ZONE 6, AS DETERMINED LOCALLY BY A LINE BETWEEN FIRST ORDER CONTROL STATIONS SM127 AND VC 009 BEING A GRID BEARING OF S 0°54'41" E AS DERIVED FROM GEODETIC VALUES SHOWN ON RECORD OF SURVEY 13928, CITY OF SAN MARCOS SURVEY CONTROL, FILED ON 10/01/1992 AS FILE NUMBER 92-625379 IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY.

BENCHMARK

ELEVATIONS SHOWN HEREON ARE BASED ON 2" IRON PIPE & DISK AS SHOWN ON ROS 13928 AS SM 127. ELEVATION: 450.50 FEET. NGVD 29. NAVD88 = RAISE ELEVATIONS BY +/- 2.3'.

SHEET: 1 OF 7 — CITY OF SAN MARCOS

GENERAL PLAN AMENDMENT NUMBER: GPA25-0001
OWNER: SANTA FE FLORES LP — CONTACT: PAUL MAYER — PHONE: 858-888-2488
ADDRESS: PO BOX 903, RANCHO SANTA FE, CA 92067
ARCHITECT, ENGINEER, DESIGNER: PLSA — PHONE: 949-661-6695
ADDRESS: 34270 PACIFIC COAST HIGHWAY SUITE B, DANA POINT, CA 92629
TYPE OF DEVELOPMENT: RESIDENTIAL, TOWNHOMES
ZONE: MULTIFAMILY RESIDENTIAL (R-3-6) — APN(S): 217-161-17, -18, -19

SITE DATA				DWELLING	UNITS	OPEN SPACE DATA	
AREA (SQ. FT.)		COVERAGE %		STUDIO	-	COMMON (SF)	PRIVATE (SF)
LOT:	113,209	100%		1 BDRM	-	14,795	21,610
BUILDING:	38,672	34%		2 BDRM	-		
PARKING/PVMT:	35,778	32%		3 BDRM	46		
LOADING:	0	0%		4 BDRM	-		
LANDSCAPING:	38,759	34%		TOTAL UNITS	46		

PARKING		ORD. REQ.		DRIVEWAY (SIZE & SLOPE)	SETBACKS	
GARAGE	92	LOADING	0	ONE WAY: N/A	FRONT: 15'	REAR: 10'
GUEST	14	HANDICAP	1	TWO WAY: 24' MIN	L. SIDE: 10'	
OPEN	0	TOTAL	107	SLOPE: VARIES	R. SIDE: 10'	

S. SANTA FE AVENUE

EXISTING COMMERCIAL BUILDING
APN: 217-161-17

PROP. NEW P/L PER SEPARATE LLA

EX. P/L TO BE ADJUSTED PER SEPARATE LLA

PROPERTY BOUNDARY
N23°50'13"E
32.84'

APN: 217-161-25

377.31'

PROPERTY BOUNDARY
N23°19'42"E

PROPERTY BOUNDARY
N23°37'25"E
138.53'

PROPERTY BOUNDARY
N61°15'13"E, 87.61'

PROPERTY BOUNDARY
N71°08'14"E
28.75'

PROPERTY BOUNDARY
N23°32'36"E
0.60'

PROPERTY BOUNDARY
N71°30'04"E
8.15'

PROPERTY BOUNDARY
N66°25'12"E
3.98'

PROPERTY BOUNDARY
N23°34'48"
167.99'

PROPERTY BOUNDARY
N69°38'44"W
260.78'

BUILDING 1 FF=499.00
BUILDING 2 FF=499.00
BUILDING 3 FF=535.00
BUILDING 4 FF=536.00
BUILDING 5 FF=531.00
BUILDING 6 FF=526.00
BUILDING 7 FF=502.50

AMENITY AREA FG=499.00

LAS FLORES DRIVE

EX. RIGHT-OF-WAY

APN: 219-114-28

EX. RAISED MEDIAN

EX. VEHICULAR GUARDRAIL

PROP. PERMANENT SHORING WALL

PROP. RETAINING WALL

PROP. STAIRS

PROP. CONC. RIBBON GUTTER

PROP. CURB INLET

PROP. 8" S

PROP. DOM. W

PROP. 6" S

PROP. SMH

PROP. TRANSF.

PROP. TRANSFORMER

PROP. FIRE SERVICE BACKFLOW

PROP. (2) DOM. WATER METERS & BACKFLOWS

PROP. IRRIG. WATER METER & BACKFLOW

PROP. CONNECTION TO EX. 10" W

PROP. 18" PRIVATE SD. EMRA TO BE PROVIDED.

PROP. SDCO (TYPE A) PER SDRSD D-09.

PROP. CURB OUTLET PER SDRSD D-25A

PROP. DRIVEWAY PER CITY OF SAN MARCOS RADIUS TYPE DRIVEWAY

PROP. 3' WIDE RIBBON GUTTER. PERMISSION TO GRADE LETTER TO BE PROVIDED.

STRIPING OF RELOCATED EX. STALLS & NEW STOP LEGEND. PERMISSION TO GRADE LETTER TO BE PROVIDED.

EX. AC PARKING LOT

EX. TRASH ENCLOSURE TO BE REMOVED AND REBUILT/RELOCATED. PERMISSION TO GRADE LETTER TO BE PROVIDED.

LINE OF SIGHT PER CITY INTERSECTION SIGHT DISTANCE GUIDELINES

360' STOPPING LINE OF SIGHT PER CITY INTERSECTION SIGHT DISTANCE GUIDELINES (45 MPH DESIGN SPEED)

PROP. MASONRY RETAINING WALL (5' MAX EXPOSED HT.)

PROP. MSE "GEOGRID" RET. WALL

APPROX. LIMITS OF GEOGRID FABRIC

PROPRIETARY BIOFILTRATION SYSTEM (BMP 4-B)
499.50 IE-IN
498.17 IE-OUT

PROPRIETARY BIOFILTRATION SYSTEM (BMP 5-A)
491.32 IE-OUT

PROPRIETARY BIOFILTRATION SYSTEM (BMP 2-A)
493.10 IE-IN, 491.77 IE-OUT

PROPRIETARY BIOFILTRATION SYSTEM (BMP 3-A)
527.44 IE-IN
526.11 IE-OUT

PROPRIETARY BIOFILTRATION SYSTEM (BMP 1-A)
532.20 IE-IN, 530.87 IE-OUT

UNDERGROUND DETENTION SYSTEM (BMP 4-B)
TOP=496.34
BOT=490.67

UNDERGROUND DETENTION SYSTEM (BMP 2-B)
TOP=492.16
BOT=486.49

UNDERGROUND DETENTION SYSTEM (BMP 3-B)
TOP=527.06
BDT=520.06

UNDERGROUND DETENTION SYSTEM (BMP 1-B)
TOP=531.77, BOT=526.60

PROP. WEIR BYPASS STRUCTURE
493.35 IE-IN,
493.15 IE-OUT

PROP. WEIR BYPASS STRUCTURE
526.53 IE-IN, ±(526.33) IE-OUT

PROP. BROW DITCH (TYPE A) PER SDRSD D-75

PROP. "GEOGRID ANCHORPLEX" RETAINING WALL

APPROX. LIMITS OF "ANCHORPLEX" CONCRETE BACKFILL

PROP. BROW DITCH (TYPE A) PER SDRSD D-75

EX. FENCING

REMOVE AND DISPOSE OF EX. ON-SITE INLET, MANHOLE & 18" RCP SD

REMOVE AND DISPOSE OF EX. ON-SITE 18" RCP SD AND CAP AT PROPERTY LINE.

PROP. MASONRY RETAINING WALL

PROTECT IN PLACE EX. BACKFLOW,WM & LATERAL

PROTECT IN PLACE EX. ELEC. METER

CONNECT TO EX. 18" RCP

ABANDON EX. IRRIGATION WATER SERVICE

EX. 18" RCP SD. EMRA TO BE PROVIDED

EX. 18" RCP SD PER COSM GP-2280

EX. 24" RCP SD PER COSM IP-4589

EX. 42" RCP SD PER COSM GP-2280

EX. 42" RCP SD PER COSM IP-4589

EX. 60" RCP SD PER COSM IP-4589

EX. 18" RCP SD PER COSM GP-2280

EX. 18" RCP SD

EX. 24" RCP PER COSM GP-2280

EX. 24" RCP SD PER COSM IP-4589

EX. 8" PVC S PER COV D-3804

EX. 8" PVC S PER COV D-3810

EX. 8" W PER D-2140

EX. 6" PVC W PER D-2140

EX. 10" PVC W PER D-2140

EX. 10" PVC W PER I-3007

EX. 6" PVC S PER GOV BWG: NG- 3804

EX. 10" PVC W PER D-2140

EX. 18" RCP SD PER COSM IP-4589

EX. CURB INLET

EX. SDMH

EX. SMH

EX. FH

VARIES PER DOC 2005-0887132 & 2005-0887133

10.00' BLDG STBK

2:1 MAX

3:1 MAX

NOTES

1. BOTTOM OF WALL (BW) ELEVATIONS ON THIS PLAN IDENTIFIES THE LOWER SURFACE GRADE ADJACENT TO THE RETAINING WALL.
2. RETAINING WALL HEIGHTS (HT) ON THIS PLAN IDENTIFY THE EXPOSED HEIGHT (ABOVE GRADE) OF THE PROPOSED RETAINING WALLS.
3. PARKING SIGNS TO BE INSTALLED TO GUIDE GUESTS AND RESIDENTS TO APPROPRIATE PARKING STALLS

SECTION D-D

SCALE: NTS

EX. R/W
PROP. BNDY
APN: 219-114-28
±(552.96) FG
EX. SIDEWALK
EX. CURB & GUTTER
EX. GRADE
PROP. BROW DITCH (TYPE A) PER SDRSD D-75
2:1 MAX
538.00 TW
536.00 BW
BUILDING 4 FF=536.00
PROP. GRADE
PROP. SD
TOP=531.72
PROP. UNDERGROUND DETENTION SYSTEM
BOT=526.60
PROP. SIDEWALK
PROP. MASONRY RETAINING WALL

0 20' 40' 60'
GRAPHIC SCALE: 1" = 20'

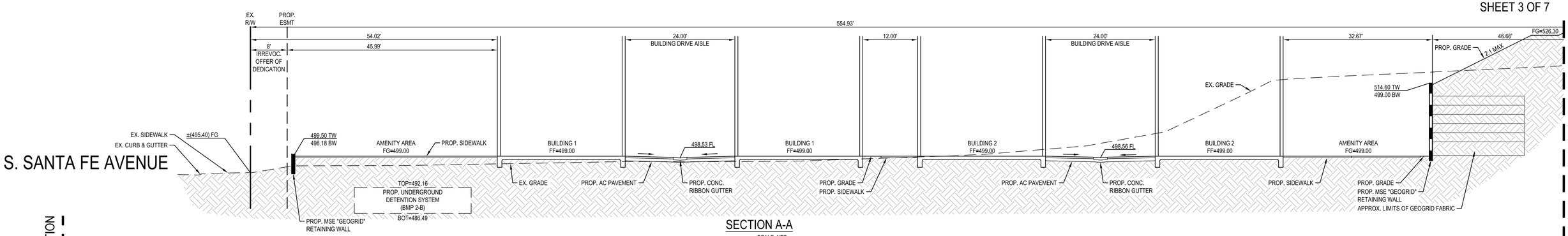
PLSA
PLSAENGINEERING.COM

CITY OF SAN MARCOS

SHEET: 2 OF 7	
GENERAL PLAN AMENDMENT NUMBER: GPA25-0001	
OWNER: SANTA FE FLORES LP	CONTACT: PAUL MAYER PHONE: 858-888-2488
ADDRESS: PO BOX 903, RANCHO SANTA FE, CA 92067	
ARCHITECT, ENGINEER, DESIGNER: PLSA	PHONE: 949-661-6695
ADDRESS: 34270 PACIFIC COAST HIGHWAY SUITE B, DANA POINT, CA 92629	
TYPE OF DEVELOPMENT: RESIDENTIAL, TOWNHOMES	
ZONE: MULTIFAMILY RESIDENTIAL (R-3-6)	APN(S): 217-161-17, -18, -19

SITE DATA			DWELLING UNITS		OPEN SPACE DATA	
AREA (SQ. FT.)		COVERAGE %	STUDIO	-	COMMON (SF)	PRIVATE (SF)
LOT:	113,209	100%	1 BDRM	-	14,795	21,810
BUILDING:	38,672	34%	2 BDRM	-		
PARKING/PVMT:	35,778	32%	3 BDRM	46		
LOADING:	0	0%	4 BDRM	-		
LANDSCAPING:	38,759	34%	TOTAL UNITS	46		

PARKING				DRIVEWAY (SIZE & SLOPE)	SETBACKS	
GARAGE	92	ORD. REQ.		ONE WAY: N/A	FRONT: 15'	REAR: 10'
GUEST	14	HANDICAP	1	TWO WAY: 24' MIN	L. SIDE: 10'	
OPEN	0	TOTAL	107	SLOPE: VARIES	R. SIDE: 10'	

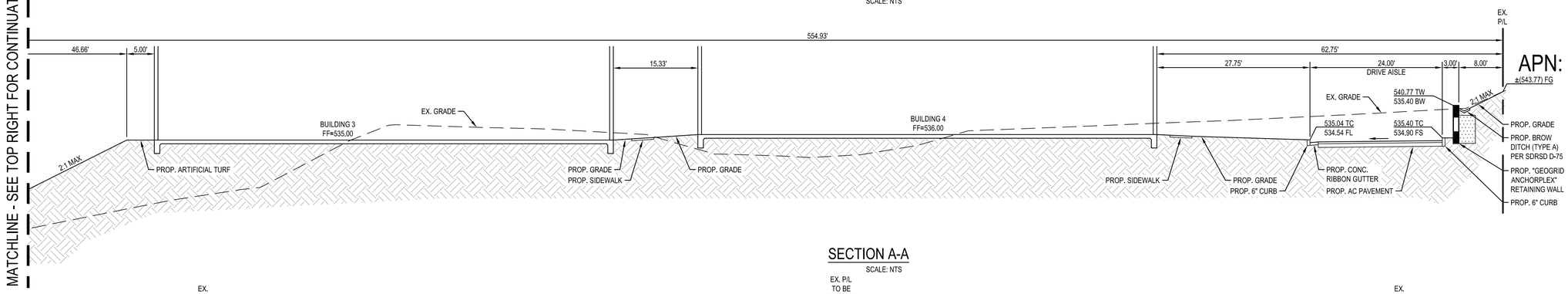


SECTION A-A

SCALE: NTS

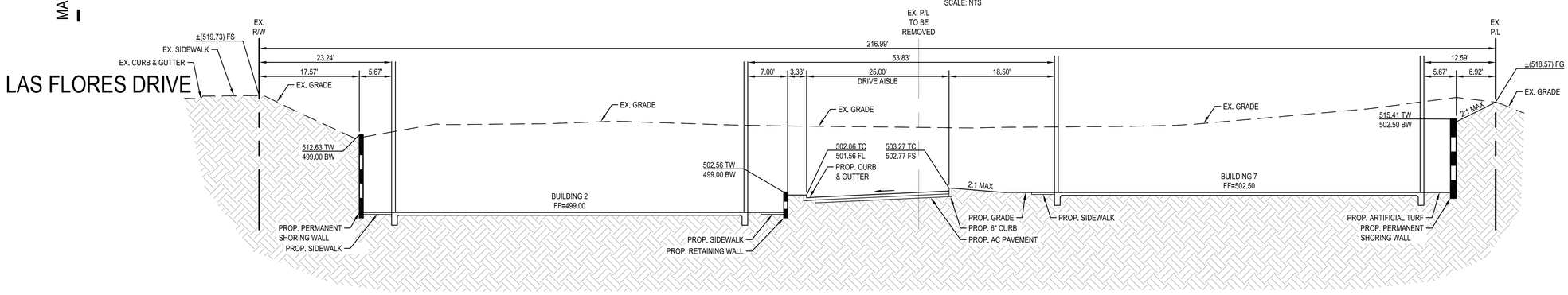
MATCHLINE - SEE TOP RIGHT FOR CONTINUATION

MATCHLINE - SEE BOTTOM LEFT FOR CONTINUATION



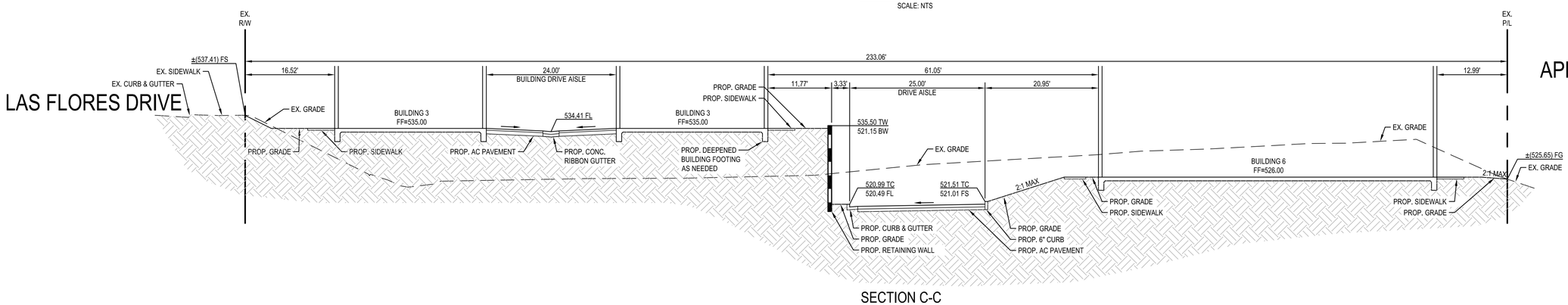
SECTION A-A

SCALE: NTS



SECTION B-B

SCALE: NTS



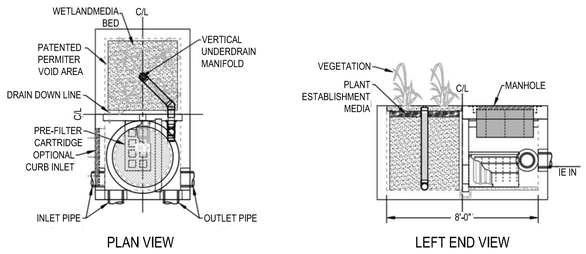
SECTION C-C

SCALE: NTS

PLSA

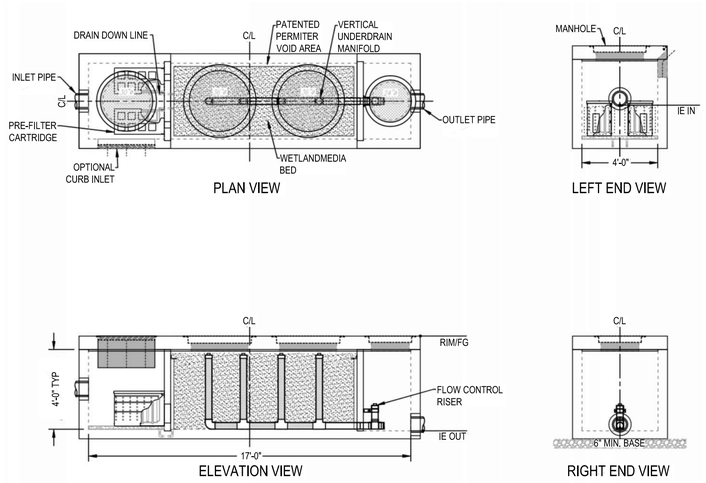
PLSAENGINEERING.COM

SHEET: 3 OF 7	CITY OF SAN MARCOS						
GENERAL PLAN AMENDMENT NUMBER: GPA25-0001							
OWNER: SANTA FE FLORES LP	CONTACT: PAUL MAYER			PHONE: 858-888-2488			
ADDRESS: PO BOX 903, RANCHO SANTA FE, CA 92067							
ARCHITECT, ENGINEER, DESIGNER: PLSA				PHONE: 949-661-6695			
ADDRESS: 34270 PACIFIC COAST HIGHWAY SUITE B, DANA POINT, CA 92629							
TYPE OF DEVELOPMENT: RESIDENTIAL, TOWNHOMES							
ZONE: MULTIFAMILY RESIDENTIAL (R-3-6)				APN(S): 217-161-17, -18, -19			
SITE DATA				DWELLING UNITS		OPEN SPACE DATA	
AREA (SQ. FT.)			COVERAGE %	STUDIO	-	COMMON (SF)	PRIVATE (SF)
LOT:	113,209		100%	1 BDRM	-	14,795	21,610
BUILDING:	38,672		34%	2 BDRM	-		
PARKING/PVMT:	35,778		32%	3 BDRM	46		
LOADING:	0		0%	4 BDRM	-		
LANDSCAPING:	38,759		34%	TOTAL UNITS	46		
PARKING		ORD. REQ.		DRIVEWAY (SIZE & SLOPE)	SETBACKS		
GARAGE	92	LOADING	0	ONE WAY: N/A	FRONT: 15'	REAR: 10'	
GUEST	14	HANDICAP	1	TWO WAY: 24' MIN	L. SIDE: 10'		
OPEN	0	TOTAL	107	SLOPE: VARIES	R. SIDE: 10'		



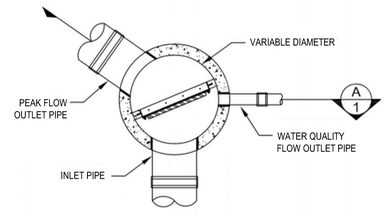
TYPICAL BIOFILTRATION SYSTEM (WITH INTERNAL BYPASS)

NOT TO SCALE

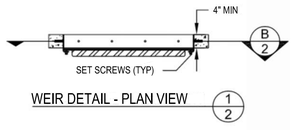


TYPICAL BIOFILTRATION SYSTEM (WITHOUT INTERNAL BYPASS)

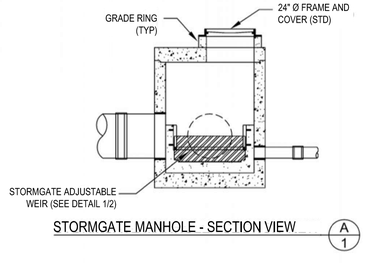
NOT TO SCALE



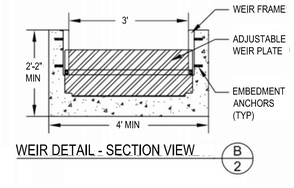
STORMGATE MANHOLE - PLAN VIEW 1/1



WEIR DETAIL - PLAN VIEW 1/2



STORMGATE MANHOLE - SECTION VIEW A/1



WEIR DETAIL - SECTION VIEW B/2

TYPICAL "STORMGATE" WEIR BYPASS DETAIL

NOT TO SCALE

PLSA
PLSAENGINEERING.COM

SHEET: 4 OF 7			CITY OF SAN MARCOS					
GENERAL PLAN AMENDMENT NUMBER: GPA25-0001								
OWNER: SANTA FE FLORES LP			CONTACT: PAUL MAYER			PHONE: 858-888-2488		
ADDRESS: PO BOX 903, RANCHO SANTA FE, CA 92067								
ARCHITECT, ENGINEER, DESIGNER: PLSA						PHONE: 949-661-6695		
ADDRESS: 34270 PACIFIC COAST HIGHWAY SUITE B, DANA POINT, CA 92629								
TYPE OF DEVELOPMENT: RESIDENTIAL, TOWNHOMES								
ZONE: MULTIFAMILY RESIDENTIAL (R-3-6)				APN(S): 217-161-17, -18, -19				
SITE DATA				DWELLING UNITS		OPEN SPACE DATA		
AREA (SQ. FT.)			COVERAGE %	STUDIO	-	COMMON (SF)	PRIVATE (SF)	
LOT:	113,209		100%	1 BDRM	-	14,795	21,610	
BUILDING:	38,672		34%	2 BDRM	-			
PARKING/PVMT:	35,778		32%	3 BDRM	46			
LOADING:	0		0%	4 BDRM	-			
LANDSCAPING:	38,759		34%	TOTAL UNITS	46			
PARKING		ORD. REQ.		DRIVEWAY (SIZE & SLOPE)	SETBACKS			
GARAGE	92	LOADING	0	ONE WAY: N/A	FRONT: 15'	REAR: 10'		
GUEST	14	HANDICAP	1	TWO WAY: 24' MIN	L. SIDE: 10'			
OPEN	0	TOTAL	107	SLOPE: VARIES	R. SIDE: 10'			

STRUCTURAL DESIGN LOADING CRITERIA

LIVE LOADING: AASHTO HS-20 HIGHWAY LOADING

GROUND WATER TABLE: BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE: 3000PSF
SOIL DENSITY: 120 PCF

EQUIVALENT UNSATURATED
LATERAL ACTIVE EARTH PRESSURE: 35 PSF / FT.

EQUIVALENT SATURATED
LATERAL ACTIVE EARTH PRESSURE: 80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES: ASTM C857
ACI-318

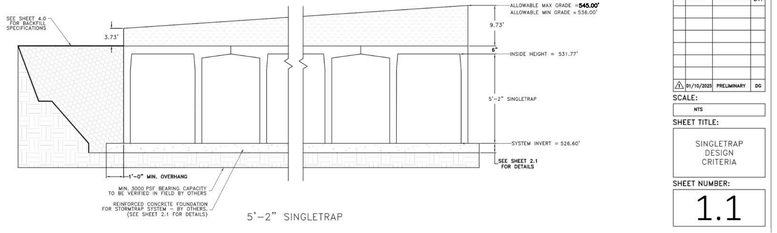
BACKFILL TYPE: SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION

UNIT HEADROOM: 5'-2" SINGLETRAP
TOTAL STORAGE PROV: 10,850.22 CUBIC FEET

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 3.73' MAX. 9.73' CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.
5. SYSTEM DESIGN MAY ALLOW FOR INCIDENTAL LEAKAGE AND WILL NOT BE SUBJECT TO LEAKAGE TESTING.



5'-2" SINGLETRAP

StormTrap
PATENTS LISTED AT [WWW.STORMTRAP.COM/PATENTS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5547

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes–BMP 1B
San Marcos, CA

CURRENT ISSUE DATE:
01/10/2025

ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	OWN BY:
1	01/10/2025	PRELIMINARY	DG

SCALE: NTS

SHEET TITLE: SINGLETRAP DESIGN CRITERIA

SHEET NUMBER: 1.1

STRUCTURAL DESIGN LOADING CRITERIA

LIVE LOADING: AASHTO HS-20 HIGHWAY LOADING

GROUND WATER TABLE: BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE: 3000PSF
SOIL DENSITY: 120 PCF

EQUIVALENT UNSATURATED
LATERAL ACTIVE EARTH PRESSURE: 35 PSF/FT.

EQUIVALENT SATURATED
LATERAL ACTIVE EARTH PRESSURE: 80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES: ASTM C857
ACI-318

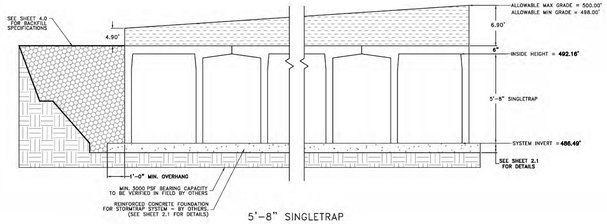
BACKFILL TYPE: SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION

UNIT HEADROOM: 5'-8" SINGLETRAP
TOTAL STORAGE PROV: 6,863.72 CUBIC FEET

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 4.90' MAX. 6.90' CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.
5. SYSTEM DESIGN MAY ALLOW FOR INCIDENTAL LEAKAGE AND WILL NOT BE SUBJECT TO LEAKAGE TESTING.



5'-8" SINGLETRAP

StormTrap
PATENTS LISTED AT [WWW.STORMTRAP.COM/PATENTS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5547

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes–BMP 2B
San Marcos, CA

CURRENT ISSUE DATE:
08/04/2025

ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	OWN BY:
2	08/04/2025	PRELIMINARY	SB
1	01/10/2025	PRELIMINARY	DG

SCALE: NTS

SHEET TITLE: SINGLETRAP DESIGN CRITERIA

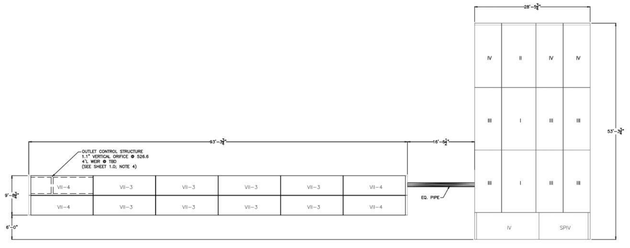
SHEET NUMBER: 1.1

BILL OF MATERIALS

QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
2	I	5'-8" SINGLETRAP	15595
1	II	5'-8" SINGLETRAP	18120
6	III	5'-8" SINGLETRAP	15622
4	IV	5'-8" SINGLETRAP	16885
0	VII	5'-8" SINGLETRAP	--
0	VII-1	5'-8" SINGLETRAP	--
0	VII-2	5'-8" SINGLETRAP	--
8	VII-3	5'-8" SINGLETRAP	13289
4	VII-4	5'-8" SINGLETRAP	14552
0	SPIII	5'-8" SINGLETRAP	VARIES
1	SPIV	5'-8" SINGLETRAP	VARIES
1	T2 PANEL 8" THICK PANEL		1577
5	T4 PANEL 8" THICK PANEL		2816
4	T7 PANEL 8" THICK PANEL		2054
6	JOINTWRAP 150' PER ROLL		
32	JOINTAPE 3-4.5" PER ROLL		
	TOTAL PIECES = 26		
	TOTAL PANELS = 10		
	HEAVIEST PICK WEIGHT = 18120		

DESIGN CRITERIA
ALLOWABLE MAX GRADE = 542.00'
ALLOWABLE MIN GRADE = 536.00'
INSIDE HEIGHT ELEVATION = 531.77'
SYSTEM INVERT = 526.60'

NOTES:
1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP – INDICATES A MODULE WITH MODIFICATIONS.
5. P – INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
7. IN ORDER FOR STORMTRAP TO GENERATE APPROVAL DRAWINGS, CIVIL ENGINEERING DRAWINGS MUST BE PROVIDED TO STORMTRAP AND SHALL INCLUDE ALL PIPE SIZES, PIPE MATERIAL, PIPE INVERT ELEVATIONS, ACCESS OPENING SIZE AND SHAPE. IN ADDITION, FINAL GRADING PLANS SHALL ALSO INCLUDE MINIMUM AND MAXIMUM GRADES OVER THE TOP OF THE STORMTRAP SYSTEM.



StormTrap
PATENTS LISTED AT [WWW.STORMTRAP.COM/PATENTS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5547

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes–BMP 1B
San Marcos, CA

CURRENT ISSUE DATE:
01/10/2025

ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	OWN BY:
1	01/10/2025	PRELIMINARY	DG

SCALE: NTS

SHEET TITLE: SINGLETRAP SYSTEM LAYOUT

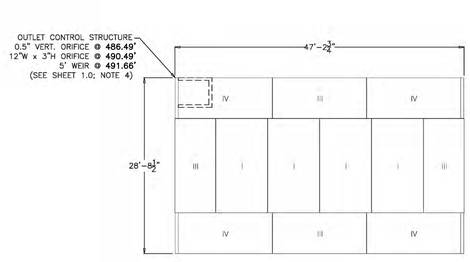
SHEET NUMBER: 2.0

BILL OF MATERIALS

QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
4	I	5'-8" SINGLETRAP	15900
0	II	5'-8" SINGLETRAP	--
4	III	5'-8" SINGLETRAP	16254
4	IV	5'-8" SINGLETRAP	17685
0	VII	5'-8" SINGLETRAP	--
0	VII-1	5'-8" SINGLETRAP	--
0	VII-2	5'-8" SINGLETRAP	--
0	VII-3	5'-8" SINGLETRAP	--
0	VII-4	5'-8" SINGLETRAP	--
0	SPIII	5'-8" SINGLETRAP	VARIES
0	SPIV	5'-8" SINGLETRAP	VARIES
0	T2 PANEL 8" THICK PANEL		--
4	T4 PANEL 8" THICK PANEL		3066
0	T7 PANEL 8" THICK PANEL		--
3	JOINTWRAP 150' PER ROLL		
16	JOINTAPE 3-4.5" PER ROLL		
	TOTAL PIECES = 12		
	TOTAL PANELS = 4		
	HEAVIEST PICK WEIGHT = 17685		

DESIGN CRITERIA
ALLOWABLE MAX GRADE = 500.00'
ALLOWABLE MIN GRADE = 488.00'
INSIDE HEIGHT ELEVATION = 492.60'
SYSTEM INVERT = 486.93'

NOTES:
1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP – INDICATES A MODULE WITH MODIFICATIONS.
5. P – INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
7. IN ORDER FOR STORMTRAP TO GENERATE APPROVAL DRAWINGS, CIVIL ENGINEERING DRAWINGS MUST BE PROVIDED TO STORMTRAP AND SHALL INCLUDE ALL PIPE SIZES, PIPE MATERIAL, PIPE INVERT ELEVATIONS, ACCESS OPENING SIZE AND SHAPE. IN ADDITION, FINAL GRADING PLANS SHALL ALSO INCLUDE MINIMUM AND MAXIMUM GRADES OVER THE TOP OF THE STORMTRAP SYSTEM.



StormTrap
PATENTS LISTED AT [WWW.STORMTRAP.COM/PATENTS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5547

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes–BMP 2B
San Marcos, CA

CURRENT ISSUE DATE:
08/04/2025

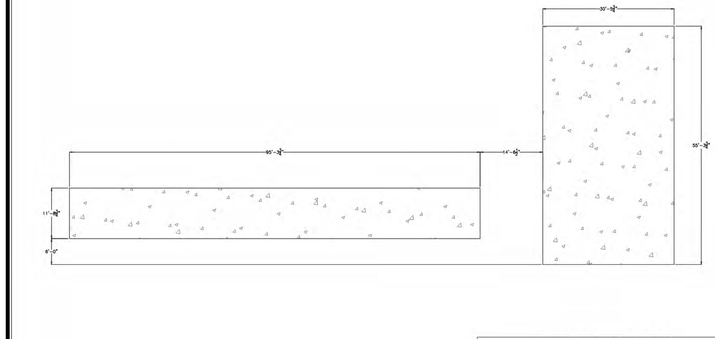
ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	OWN BY:
2	08/04/2025	PRELIMINARY	SB
1	01/10/2025	PRELIMINARY	DG

SCALE: NTS

SHEET TITLE: SINGLETRAP SYSTEM LAYOUT

SHEET NUMBER: 2.0



CONCRETE FOUNDATION NOTES:
1. CONCRETE FOUNDATION TO BE SUPPLIED AND INSTALLED BY OTHERS.
2. CONCRETE STRENGTH @ 28 DAYS, 5%-8% ENTRAINED AIR, 3"-5" MAX SLUMP.
3. NET ALLOWABLE SOIL PRESSURE AS INDICATED ON SHEET 1.1.
4. SOIL CONDITIONS TO BE VERIFIED ON SITE BY OTHERS.
5. REBAR: ASTM A615 GRADE 60, BLACK BAR.
6. DIMENSION OF FOUNDATION MUST HAVE 1'-0" OVERHANG BEYOND EXTERNAL FACE OF MODULE.
7. DIMENSION OF STORMTRAP SYSTEM ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
8. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
9. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.

STORMTRAP FOUNDATION DETAIL

MAXIMUM SYSTEM COVER	SLAB THICKNESS	CONCRETE STRENGTH	REINFORCEMENT (BOTH DIRECTIONS)	"A" CLEAR COVER
0'-6" – 1'-0"	8"	4000 PSI	#4 @ 18" O.C.	3.5"
1'-1" – 2'-0"	8"	4000 PSI	#4 @ 16" O.C.	3.5"
2'-1" – 3'-0"	8"	4000 PSI	#4 @ 12" O.C.	3.5"
3'-1" – 4'-0"	8"	4000 PSI	#4 @ 12" O.C.	3.5"
4'-1" – 5'-0"	8"	4000 PSI	#5 @ 18" O.C.	3.375"
5'-1" – 6'-0"	8"	4000 PSI	#5 @ 16" O.C.	3.375"
6'-1" – 7'-0"	8"	4000 PSI	#5 @ 12" O.C.	3.375"
7'-1" – 8'-0"	9"	4000 PSI	#5 @ 12" O.C.	3.875"
8'-1" – 9'-0"	9"	4000 PSI	#5 @ 12" O.C.	3.875"
9'-1" – 10'-0"	9"	4000 PSI	#5 @ 12" O.C.	3.875"

StormTrap
PATENTS LISTED AT [WWW.STORMTRAP.COM/PATENTS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5547

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes–BMP 1B
San Marcos, CA

CURRENT ISSUE DATE:
01/10/2025

ISSUED FOR:
PRELIMINARY

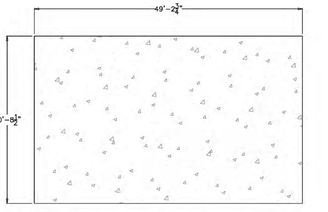
REV.	DATE:	ISSUED FOR:	OWN BY:
1	01/10/2025	PRELIMINARY	DG

SCALE: NTS

SHEET TITLE: SINGLETRAP FOUNDATION LAYOUT

SHEET NUMBER: 2.1

"STORMTRAP" DETENTION VAULT - BMP 1B



CONCRETE FOUNDATION NOTES:
1. CONCRETE FOUNDATION TO BE SUPPLIED AND INSTALLED BY OTHERS.
2. CONCRETE STRENGTH @ 28 DAYS, 5%-8% ENTRAINED AIR, 3"-5" MAX SLUMP.
3. NET ALLOWABLE SOIL PRESSURE AS INDICATED ON SHEET 1.1.
4. SOIL CONDITIONS TO BE VERIFIED ON SITE BY OTHERS.
5. REBAR: ASTM A615 GRADE 60, BLACK BAR.
6. DIMENSION OF FOUNDATION MUST HAVE 1'-0" OVERHANG BEYOND EXTERNAL FACE OF MODULE.
7. DIMENSION OF STORMTRAP SYSTEM ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
8. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
9. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.

STORMTRAP FOUNDATION DETAIL

MAXIMUM SYSTEM COVER	SLAB THICKNESS	CONCRETE STRENGTH	REINFORCEMENT (BOTH DIRECTIONS)	"A" CLEAR COVER
0'-6" – 1'-0"	8"	4000 PSI	#4 @ 18" O.C.	3.5"
1'-1" – 2'-0"	8"	4000 PSI	#4 @ 16" O.C.	3.5"
2'-1" – 3'-0"	8"	4000 PSI	#4 @ 12" O.C.	3.5"
3'-1" – 4'-0"	8"	4000 PSI	#4 @ 12" O.C.	3.5"
4'-1" – 5'-0"	8"	4000 PSI	#5 @ 18" O.C.	3.375"
5'-1" – 6'-0"	8"	4000 PSI	#5 @ 16" O.C.	3.375"
6'-1" – 7'-0"	8"	4000 PSI	#5 @ 12" O.C.	3.375"
7'-1" – 8'-0"	9"	4000 PSI	#5 @ 12" O.C.	3.875"
8'-1" – 9'-0"	9"	4000 PSI	#5 @ 12" O.C.	3.875"
9'-1" – 10'-0"	9"	4000 PSI	#5 @ 12" O.C.	3.875"

StormTrap
PATENTS LISTED AT [WWW.STORMTRAP.COM/PATENTS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5547

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes–BMP 2B
San Marcos, CA

CURRENT ISSUE DATE:
08/04/2025

ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	OWN BY:
2	08/04/2025	PRELIMINARY	SB
1	01/10/2025	PRELIMINARY	DG

SCALE: NTS

SHEET TITLE: SINGLETRAP FOUNDATION LAYOUT

SHEET NUMBER: 2.1

"STORMTRAP" DETENTION VAULT - BMP 2B

PLSA
PLSAENGINEERING.COM

SHEET: 5 OF 7 — CITY OF SAN MARCOS

GENERAL PLAN AMENDMENT NUMBER: GPA25-0001

OWNER: SANTA FE FLORES LP — CONTACT: PAUL MAYER — PHONE: 858-888-2488

ADDRESS: PO BOX 903, RANCHO SANTA FE, CA 92067

ARCHITECT, ENGINEER, DESIGNER: PLSA — PHONE: 949-661-6695

ADDRESS: 34270 PACIFIC COAST HIGHWAY SUITE B, DANA POINT, CA 92629

TYPE OF DEVELOPMENT: RESIDENTIAL, TOWNHOMES

ZONE: MULTIFAMILY RESIDENTIAL (R-3-6) — APN(S): 217-161-17, -18, -19

SITE DATA			DWELLING UNITS		OPEN SPACE DATA	
AREA (SQ. FT.)		COVERAGE %	STUDIO	-	COMMON (SF)	PRIVATE (SF)
LOT:	113,209	100%	1 BDRM	-	14,795	21,610
BUILDING:	38,672	34%	2 BDRM	-		
PARKING/PVMT:	35,778	32%	3 BDRM	46		
LOADING:	0	0%	4 BDRM	-		
LANDSCAPING:	38,759	34%	TOTAL UNITS	46		

PARKING		ORD. REQ.		DRIVEWAY (SIZE & SLOPE)	SETBACKS	
GARAGE	92	LOADING	0	ONE WAY: N/A	FRONT: 15'	REAR: 10'
GUEST	14	HANDICAP	1	TWO WAY: 24' MIN	L. SIDE: 10'	
OPEN	0	TOTAL	107	SLOPE: VARIES	R. SIDE: 10'	

STRUCTURAL DESIGN LOADING CRITERIA

LIVE LOADING: AASHTO HS-20 HIGHWAY LOADING

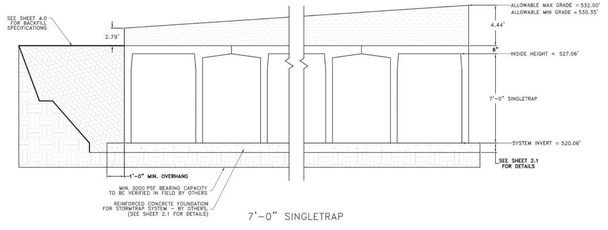
GROUND WATER TABLE: BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE: 3000PSF
SOIL DENSITY: 120 PCF
EQUIVALENT UNSATURATED
LATERAL ACTIVE EARTH PRESSURE: 35 PSF / FT.
EQUIVALENT SATURATED
LATERAL ACTIVE EARTH PRESSURE: 80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES: ASTM C857
ACI-318
BACKFILL TYPE: SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION

UNIT HEADROOM: 7'-0" SINGLETRAP
TOTAL STORAGE PROV.: 8,728.67 CUBIC FEET

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 2.79' MAX. 4.44'. CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.
5. SYSTEM DESIGN MAY ALLOW FOR INCIDENTAL LEAKAGE AND WILL NOT BE SUBJECT TO LEAKAGE TESTING.



7'-0" SINGLETRAP

StormTrap
PATENTS LISTED AT: [WWW.STORMTRAP.COM/PATENTS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5547

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes-BMP 3B

San Marcos, CA

CURRENT ISSUE DATE:
01/10/2025

ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	01/10/2025	PRELIMINARY	DG

SCALE:
NTS

SHEET TITLE:
SINGLETRAP DESIGN CRITERIA

SHEET NUMBER:
1.1

STRUCTURAL DESIGN LOADING CRITERIA

LIVE LOADING: AASHTO HS-20 HIGHWAY LOADING

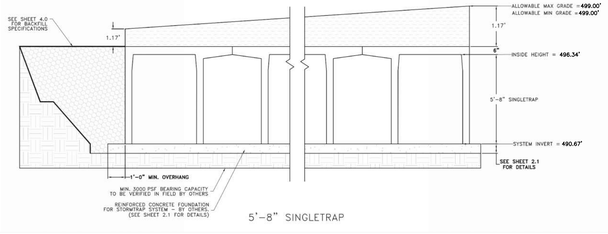
GROUND WATER TABLE: BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE: 3000PSF
SOIL DENSITY: 120 PCF
EQUIVALENT UNSATURATED
LATERAL ACTIVE EARTH PRESSURE: 35 PSF / FT.
EQUIVALENT SATURATED
LATERAL ACTIVE EARTH PRESSURE: 80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES: ASTM C857
ACI-318
BACKFILL TYPE: SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION

UNIT HEADROOM: 5'-8" SINGLETRAP
TOTAL STORAGE PROV.: 3,099.43 CUBIC FEET

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 1.17' MAX. 1.17'. CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.
5. SYSTEM DESIGN MAY ALLOW FOR INCIDENTAL LEAKAGE AND WILL NOT BE SUBJECT TO LEAKAGE TESTING.



5'-8" SINGLETRAP

StormTrap
PATENTS LISTED AT: [WWW.STORMTRAP.COM/PATENTS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5547

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes-BMP 4B

San Marcos, CA

CURRENT ISSUE DATE:
01/10/2025

ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	01/10/2025	PRELIMINARY	DG

SCALE:
NTS

SHEET TITLE:
SINGLETRAP DESIGN CRITERIA

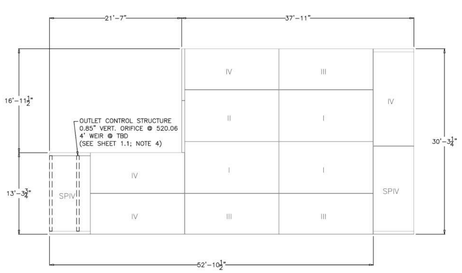
SHEET NUMBER:
1.1

BILL OF MATERIALS

QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
3	I	7'-0" SINGLETRAP	18690
1	II	7'-0" SINGLETRAP	22754
3	III	7'-0" SINGLETRAP	20234
4	IV	7'-0" SINGLETRAP	22267
0	VII	7'-0" SINGLETRAP	--
0	VII-1	7'-0" SINGLETRAP	--
0	VII-2	7'-0" SINGLETRAP	--
0	VII-3	7'-0" SINGLETRAP	--
0	VII-4	7'-0" SINGLETRAP	--
0	SPIII	7'-0" SINGLETRAP	--
2	SPIV	7'-0" SINGLETRAP	VARIES
2	T2 PANEL 8" THICK PANEL		4419
4	T4 PANEL 8" THICK PANEL		5478
0	T7 PANEL 8" THICK PANEL		--
4	JOINTWRAP 150' PER ROLL		
18	JOINTAPE 3"x3" PER ROLL		
	TOTAL PIECES = 13		
	TOTAL PANELS = 6		
	HEAVIEST PICK WEIGHT = 22754		

DESIGN CRITERIA
ALLOWABLE MAX GRADE = 532.00'
ALLOWABLE MIN GRADE = 530.35'
INSIDE HEIGHT ELEVATION = 527.06'
SYSTEM INVERT = 520.06'

NOTES:
1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP – INDICATES A MODULE WITH MODIFICATIONS.
5. P – INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
7. IN ORDER FOR STORMTRAP TO GENERATE APPROVAL DRAWINGS, CIVIL ENGINEERING DRAWINGS MUST BE PROVIDED TO STORMTRAP AND SHALL INCLUDE ALL PIPE SIZES, PIPE MATERIAL, PIPE INVERT ELEVATIONS, ACCESS OPENING SIZE AND SHAPE. IN ADDITION, FINAL GRADING PLANS SHALL ALSO INCLUDE MINIMUM AND MAXIMUM GRADES OVER THE TOP OF THE STORMTRAP SYSTEM.



StormTrap
PATENTS LISTED AT: [WWW.STORMTRAP.COM/PATENTS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5547

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes-BMP 3B

San Marcos, CA

CURRENT ISSUE DATE:
01/10/2025

ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	01/10/2025	PRELIMINARY	DG

SCALE:
NTS

SHEET TITLE:
SINGLETRAP SYSTEM LAYOUT

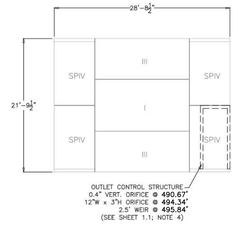
SHEET NUMBER:
2.0

BILL OF MATERIALS

QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
1	I	5'-8" SINGLETRAP	15900
0	II	5'-8" SINGLETRAP	--
2	III	5'-8" SINGLETRAP	16254
0	IV	5'-8" SINGLETRAP	--
0	VII	5'-8" SINGLETRAP	--
0	VII-1	5'-8" SINGLETRAP	--
0	VII-2	5'-8" SINGLETRAP	--
0	VII-3	5'-8" SINGLETRAP	--
0	VII-4	5'-8" SINGLETRAP	--
0	SPIII	5'-8" SINGLETRAP	VARIES
4	SPIV	5'-8" SINGLETRAP	VARIES
0	T2 PANEL 8" THICK PANEL		--
4	T4 PANEL 8" THICK PANEL		5064
0	T7 PANEL 8" THICK PANEL		--
2	JOINTWRAP 150' PER ROLL		
8	JOINTAPE 3"x3" PER ROLL		
	TOTAL PIECES = 7		
	TOTAL PANELS = 4		
	HEAVIEST PICK WEIGHT = 16254		

DESIGN CRITERIA
ALLOWABLE MAX GRADE = 500.00'
ALLOWABLE MIN GRADE = 498.33'
INSIDE HEIGHT ELEVATION = 498.33'
SYSTEM INVERT = 492.66'

NOTES:
1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP – INDICATES A MODULE WITH MODIFICATIONS.
5. P – INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
7. IN ORDER FOR STORMTRAP TO GENERATE APPROVAL DRAWINGS, CIVIL ENGINEERING DRAWINGS MUST BE PROVIDED TO STORMTRAP AND SHALL INCLUDE ALL PIPE SIZES, PIPE MATERIAL, PIPE INVERT ELEVATIONS, ACCESS OPENING SIZE AND SHAPE. IN ADDITION, FINAL GRADING PLANS SHALL ALSO INCLUDE MINIMUM AND MAXIMUM GRADES OVER THE TOP OF THE STORMTRAP SYSTEM.



StormTrap
PATENTS LISTED AT: [WWW.STORMTRAP.COM/PATENTS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5547

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes-BMP 4B

San Marcos, CA

CURRENT ISSUE DATE:
01/10/2025

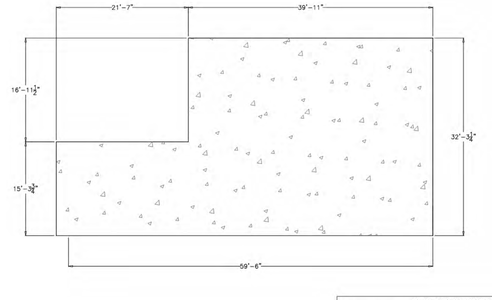
ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	01/10/2025	PRELIMINARY	DG

SCALE:
NTS

SHEET TITLE:
SINGLETRAP SYSTEM LAYOUT

SHEET NUMBER:
2.0



HS-20 & HS-25 LOADING – (ACI 318, ST3)

MAXIMUM SYSTEM COVER	SLAB THICKNESS	CONCRETE STRENGTH	REINFORCEMENT (BOTH DIRECTIONS)	'A' CLEAR COVER
0'-6" – 1'-0" (HS-20)	8"	4000 PSI	#4 @ 18" O.C.	3.5"
0'-6" – 1'-0" (HS-25)	8"	4000 PSI	#4 @ 16" O.C.	3.5"
1'-1" – 2'-0"	8"	4000 PSI	#4 @ 18" O.C.	3.5"
2'-1" – 3'-0"	8"	4000 PSI	#4 @ 12" O.C.	3.5"
3'-1" – 4'-0" (HS-20)	8"	4000 PSI	#4 @ 12" O.C.	3.5"
3'-1" – 4'-0" (HS-25)	8"	4000 PSI	#5 @ 16" O.C.	3.375"
4'-1" – 5'-0"	8"	4000 PSI	#5 @ 16" O.C.	3.375"
5'-1" – 6'-0"	8"	4000 PSI	#5 @ 12" O.C.	3.375"
6'-1" – 7'-0"	8"	4000 PSI	#5 @ 12" O.C.	3.375"
7'-1" – 8'-0"	9"	4000 PSI	#5 @ 12" O.C.	3.875"
8'-1" – 9'-0"	9"	4000 PSI	#5 @ 12" O.C.	3.875"
9'-1" – 10'-0"	9"	4000 PSI	#5 @ 12" O.C.	3.875"
10'-1" – 11'-0"	10"	4000 PSI	#5 @ 12" O.C.	4.375"
11'-1" – 12'-0"	10"	4000 PSI	#5 @ 12" O.C.	4.375"
12'-1" – 14'-0"	11"	4000 PSI	#5 @ 16" O.C. (T&B)	5.000"
14'-1" – 15'-0"	11"	4000 PSI	#5 @ 16" O.C. (T&B)	5.000"

CONCRETE FOUNDATION NOTES:
1. CONCRETE FOUNDATION TO BE SUPPLIED AND INSTALLED BY OTHERS.
2. CONCRETE STRENGTH @ 28 DAYS, 5%-8% ENTRAINED AIR, 3"-5" MAX SLUMP.
3. NET ALLOWABLE SOIL PRESSURE AS INDICATED ON SHEET 1.1.
4. SOIL CONDITIONS TO BE VERIFIED ON SITE BY OTHERS.
5. REBAR: ASTM A615 GRADE 60, BLACK BAR.
6. DIMENSION OF FOUNDATION MUST HAVE 1'-0" OVERHANG BEYOND EXTERNAL FACE OF MODULE.
7. DIMENSION OF STORMTRAP SYSTEM ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
8. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
9. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.

STORMTRAP FOUNDATION DETAIL

StormTrap
PATENTS LISTED AT: [WWW.STORMTRAP.COM/PATENTS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5547

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes-BMP 3B

San Marcos, CA

CURRENT ISSUE DATE:
01/10/2025

ISSUED FOR:
PRELIMINARY

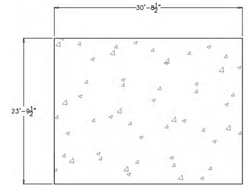
REV.	DATE:	ISSUED FOR:	DWN BY:
1	01/10/2025	PRELIMINARY	DG

SCALE:
NTS

SHEET TITLE:
SINGLETRAP FOUNDATION LAYOUT

SHEET NUMBER:
2.1

"STORMTRAP" DETENTION VAULT - BMP 3B



HS-20 & HS-25 LOADING – (ACI 318, ST2)

MAXIMUM SYSTEM COVER	SLAB THICKNESS	CONCRETE STRENGTH	REINFORCEMENT (BOTH DIRECTIONS)	'A' CLEAR COVER
0'-6" – 1'-0"	8"	4000 PSI	#4 @ 18" O.C.	3.5"
1'-1" – 2'-0"	8"	4000 PSI	#4 @ 16" O.C.	3.5"
2'-1" – 3'-0"	8"	4000 PSI	#4 @ 12" O.C.	3.5"
3'-1" – 4'-0"	8"	4000 PSI	#4 @ 12" O.C.	3.5"
4'-1" – 5'-0"	8"	4000 PSI	#5 @ 18" O.C.	3.375"
5'-1" – 6'-0"	8"	4000 PSI	#5 @ 16" O.C.	3.375"
6'-1" – 7'-0"	8"	4000 PSI	#5 @ 12" O.C.	3.375"
7'-1" – 8'-0"	9"	4000 PSI	#5 @ 12" O.C.	3.875"
8'-1" – 9'-0"	9"	4000 PSI	#5 @ 12" O.C.	3.875"
9'-1" – 10'-0"	9"	4000 PSI	#5 @ 12" O.C.	3.875"

CONCRETE FOUNDATION NOTES:
1. CONCRETE FOUNDATION TO BE SUPPLIED AND INSTALLED BY OTHERS.
2. CONCRETE STRENGTH @ 28 DAYS, 5%-8% ENTRAINED AIR, 3"-5" MAX SLUMP.
3. NET ALLOWABLE SOIL PRESSURE AS INDICATED ON SHEET 1.1.
4. SOIL CONDITIONS TO BE VERIFIED ON SITE BY OTHERS.
5. REBAR: ASTM A615 GRADE 60, BLACK BAR.
6. DIMENSION OF FOUNDATION MUST HAVE 1'-0" OVERHANG BEYOND EXTERNAL FACE OF MODULE.
7. DIMENSION OF STORMTRAP SYSTEM ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
8. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
9. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.

STORMTRAP FOUNDATION DETAIL

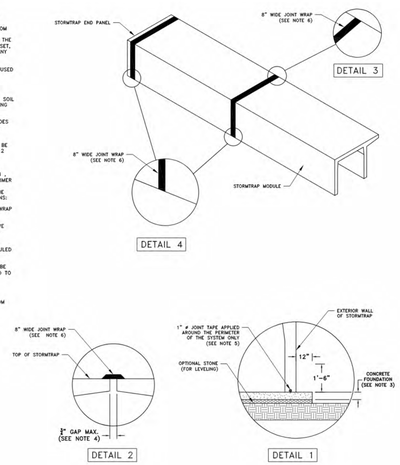
"STORMTRAP" DETENTION VAULT - BMP 4B

PLSA
PLSAENGINEERING.COM

SHEET: 6 OF 7	CITY OF SAN MARCOS						
GENERAL PLAN AMENDMENT NUMBER: GPA25-0001							
OWNER: SANTA FE FLORES LP	CONTACT: PAUL MAYER			PHONE: 858-888-2488			
ADDRESS: PO BOX 903, RANCHO SANTA FE, CA 92067							
ARCHITECT, ENGINEER, DESIGNER: PLSA				PHONE: 949-661-6695			
ADDRESS: 34270 PACIFIC COAST HIGHWAY SUITE B, DANA POINT, CA 92629							
TYPE OF DEVELOPMENT: RESIDENTIAL, TOWNHOMES							
ZONE: MULTIFAMILY RESIDENTIAL (R-3-6)				APN(S): 217-161-17, -18, -19			
SITE DATA				DWELLING UNITS		OPEN SPACE DATA	
AREA (SQ. FT.)			COVERAGE %	STUDIO	-	COMMON (SF)	PRIVATE (SF)
LOT:	113,209		100%	1 BDRM	-	14,795	21,610
BUILDING:	38,672		34%	2 BDRM	-		
PARKING/PVMT:	35,778		32%	3 BDRM	46		
LOADING:	0		0%	4 BDRM	-		
LANDSCAPING:	38,759		34%	TOTAL UNITS	46		
PARKING	ORD. REQ.			DRIVEWAY (SIZE & SLOPE)	SETBACKS		
GARAGE 92	LOADING	0		ONE WAY: N/A	FRONT: 15'	REAR: 10'	
GUEST 14	HANDICAP	1		TWO WAY: 24' MIN	L. SIDE: 10'		
OPEN 0	TOTAL	107		SLOPE: VARIES	R. SIDE: 10'		

STORMTRAP INSTALLATION SPECIFICATION

1. STORMTRAP SHALL BE INSTALLED IN ACCORDANCE WITH ASTM C891 (STANDARD PRACTICE FOR INSTALLATION OF UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES). THE FOLLOWING ADDITIONS AND/OR EXCEPTIONS ARE PROVIDED FOR EMPHASIS. THE MENTION OF THESE ITEMS DOES NOT PRECLUDE THE INSTALLING CONTRACTOR FROM THE NEED TO COMPLY WITH ALL ITEMS OF ASTM C891 AS WELL AS ALL LOCAL CODES. THE INSTALLING CONTRACTOR OWNS AND IS RESPONSIBLE FOR THE STORMTRAP SYSTEM UPON REMOVAL OF THE MODULES FROM THE DELIVERY TRUCK THROUGH "FINAL CONSTRUCTION". FINAL CONSTRUCTION IS ACHIEVED WHEN ALL MODULES ARE SET, FULLY BACKFILLED, AND WHEN FINAL FINISHED GRADES ARE REACHED. THE CONTRACTOR IS RESPONSIBLE FOR ANY COUNTERMEASURES NECESSARY TO RESIST UPLIFT/BUOYANCY BEFORE "FINAL CONSTRUCTION" IS ACHIEVED.
2. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT PROPER/ADEQUATE EQUIPMENT IS USED TO SET/INSTALL THE MODULES.
3. STORMTRAP MODULES SHALL BE PLACED ON A LEVEL CONCRETE FOUNDATION (SEE SHEET 2.1) WITH A 1"-0" OVERHANG ON ALL SIDES THAT SHALL BE POURED IN PLACE BY INSTALLING CONTRACTOR. A QUALIFIED GEOTECHNICAL ENGINEER WILL BE EMPLOYED, BY OWNER, TO PROVIDE ASSISTANCE IN EVALUATING THE EXISTING SOIL CONDITIONS AND TO VERIFY THAT THE SOIL BEARING PRESSURE MEETS OR EXCEEDS THE STRUCTURAL DESIGN LOADING CRITERIA AS SPECIFIED ON SHEET 1.1.
4. THE STORMTRAP MODULES SHALL BE PLACED SUCH THAT THE MAXIMUM SPACE BETWEEN ADJACENT MODULES DOES NOT EXCEED 1" (SEE DETAIL 2). IF THE SPACE EXCEEDS 1", THE MODULES SHALL BE RESET WITH APPROPRIATE ADJUSTMENT MADE TO LINE AND GRADE TO BRING THE SPACE INTO SPECIFICATION.
5. THE PERIMETER HORIZONTAL JOINT BETWEEN THE STORMTRAP MODULES AND THE CONCRETE FOUNDATION SHALL BE SEALED TO THE FOUNDATION WITH PRE-FORMED MASTIC JOINT SEALER ACCORDING TO ASTM C891, 8.8 AND 8.12 (SEE DETAIL 1). THE MASTIC JOINT TAPE DOES NOT PROVIDE A WATERTIGHT SEAL.
6. ALL EXTERIOR ROOF AND EXTERIOR VERTICAL WALL JOINTS BETWEEN ADJACENT STORMTRAP MODULES SHALL BE SEALED WITH 8" WIDE PRE-FORMED, COLD-APPLIED, SELF-ADHERING ELASTOMERIC RESIN, BONDED TO A WOVEN HIGHLY PUNCTURE RESISTANT POLYMER WRAP, CONFORMING TO ASTM C891 AND SHALL BE INTEGRATED WITH PRIMER SEALANT AS APPROVED BY STORMTRAP (SEE DETAILS 2, 3, & 4). THE JOINT WRAP DOES NOT PROVIDE A WATERTIGHT SEAL. THE SOLE PURPOSE OF THE JOINT WRAP IS TO PROVIDE A SLIT AND SOIL TIGHT SYSTEM. THE ADHESIVE EXTERIOR JOINT WRAP SHALL BE INSTALLED ACCORDING TO THE FOLLOWING INSTALLATION INSTRUCTIONS:
   - 6.1. USE A BRUSH OR WET CLOTH TO THOROUGHLY CLEAN THE OUTSIDE SURFACE AT THE POINT WHERE JOINT WRAP IS TO BE APPLIED.
   - 6.2. A RELEASE PAPER PROTECTS THE ADHESIVE SIDE OF THE JOINT WRAP. PLACE THE ADHESIVE TAPE (ADHESIVE SIDE DOWN) AROUND THE STRUCTURE. REMOVING THE RELEASE PAPER AS YOU GO. PRESS THE JOINT WRAP FIRMLY AGAINST THE STORMTRAP MODULE SURFACE WHEN APPLYING.
7. IF THE CONTRACTOR NEEDS TO CANCEL ANY SHIPMENTS, THEY MUST DO SO 48 HOURS PRIOR TO THEIR SCHEDULED ARRIVAL AT THE JOB SITE. IF CANCELED AFTER THAT TIME, PLEASE CONTACT THE PROJECT MANAGER.
8. IF THE STORMTRAP MODULE(S) IS DAMAGED IN ANY WAY PRIOR, DURING, OR AFTER INSTALL, STORMTRAP MUST BE CONTACTED IMMEDIATELY TO ASSESS THE DAMAGE AND DETERMINE WHETHER OR NOT THE MODULE(S) WILL NEED TO BE REPLACED. IF ANY MODULE ARRIVES AT THE JOBSITE DAMAGED DO NOT UNLOAD IT; CONTACT STORMTRAP IMMEDIATELY. ANY DAMAGE NOT REPORTED BEFORE THE TRUCK IS UNLOADED WILL BE THE CONTRACTOR'S RESPONSIBILITY.
9. STORMTRAP MODULES CANNOT BE ALTERED IN ANY WAY AFTER MANUFACTURING WITHOUT WRITTEN CONSENT FROM STORMTRAP.



StormTrap — PATENTS LISTED AT [WWW.STORMTRAP.COM/PATENTS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5547

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes–BMP 1B
San Marcos, CA

CURRENT ISSUE DATE:
01/10/2025

ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	01/10/2025	PRELIMINARY	DG

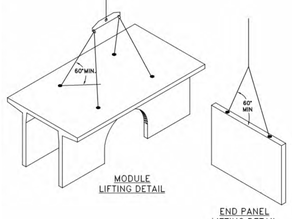
SCALE: NTS

SHEET TITLE: SINGLETRAP INSTALLATION SPECIFICATION

SHEET NUMBER: 3.0

STORMTRAP MODULE LIFTING SPECIFICATION

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL (4) CHAINS/CABLES ARE SECURED PROPERLY TO THE LIFTING ANCHORS AND IN EQUAL TENSION WHEN LIFTING THE STORMTRAP MODULE.
2. MINIMUM 7'-0" CHAIN/CABLE LENGTH TO BE USED TO LIFT STORMTRAP MODULES (SUPPLIED BY CONTRACTOR).
3. CONTRACTOR TO ENSURE MINIMUM LIFTING ANGLE IS 60° FROM TOP SURFACE OF STORMTRAP MODULE. SEE DETAIL.
4. IT IS UNDERSTOOD AND AGREED THAT AT ALL TIMES DURING WHICH HOISTING AND RIGGING EQUIPMENT IS BEING SUPPLIED TO THE PURCHASER, OPERATOR OF SUCH EQUIPMENT SHALL BE IN CHARGE OF HIS ENTIRE EQUIPMENT AND SHALL BE THE SOLE JUDGE AS TO THE SAFE AND PROPER USE OF THE SAME. IT IS FURTHER UNDERSTOOD THAT IN CONSIDERATION OF EMPLOYEES, PURCHASER AGREES TO SAVE, INDEMNIFY AND HOLD HARMLESS SELLER FROM ALL LOSS, CLAIMS, DEMANDS OR CAUSES OF ACTION, WHICH MAY ARISE FROM THE EXISTENCE OR OPERATION OF SAID EQUIPMENT.

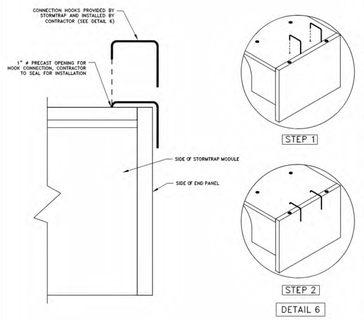


MODULE LIFTING DETAIL

END PANEL LIFTING DETAIL

END PANEL ERECTION/INSTALLATION SPECIFICATION

1. END PANELS WILL BE SUPPLIED TO CLOSE OFF OPEN ENDS OF ROWS.
2. PANELS SHALL BE INSTALLED IN A TILT UP FASHION DIRECTLY ADJACENT TO OPEN END OF MODULE (REFER TO SHEET 2.0 FOR END PANEL LOCATIONS).
3. CONNECTION HOOKS WILL BE SUPPLIED WITH END PANELS TO SECURELY CONNECT PANEL TO ADJACENT STORMTRAP MODULE (SEE PANEL CONNECTION ELEVATION VIEW).
4. ONCE CONNECTION HOOK IS ATTACHED, LIFTING CLUTCHES MAY BE REMOVED.
5. JOINT WRAP SHALL BE PLACED AROUND PERIMETER JOINT PANEL (SEE SHEET 3.0).



PANEL CONNECTION ELEVATION VIEW

DETAIL 6

StormTrap — PATENTS LISTED AT [WWW.STORMTRAP.COM/PATENTS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5547

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes–BMP 1B
San Marcos, CA

CURRENT ISSUE DATE:
01/10/2025

ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	01/10/2025	PRELIMINARY	DG

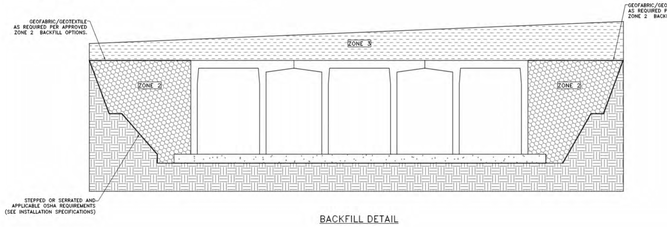
SCALE: NTS

SHEET TITLE: SINGLETRAP INSTALLATION SPECIFICATION

SHEET NUMBER: 3.1

ZONE CHART		
ZONES	ZONE DESCRIPTIONS	REMARKS
ZONE 2	BACKFILL	UNIFIED SOILS CLASSIFICATION (GW, GP, SW, SP) OR SEE BELOW FOR APPROVED BACKFILL OPTIONS
ZONE 3	FINAL COVER OVERTOP	MATERIALS NOT TO EXCEED 120 PCF

APPROVED ZONE 2 BACKFILL OPTIONS		
OPTION		REMARKS
1" STONE AGGREGATE		THE STONE AGGREGATE SHALL CONSIST OF CLEAN AND FREE DRAINING ANGULAR STONE WITH 100% PASSING THE 1-1/2" SIEVE WITH LESS THAN 10% PASSING THE #4 SIEVE OR 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL (ASTM SIZE #57) AS DETERMINED BY THE GEOTECHNICAL ENGINEER.
SAND		IMPORTED PURE SAND IS PERMITTED TO BE USED AS BACKFILL IF IT IS CLEAN AND FREE DRAINING. THE SAND USED FOR BACKFILLING SHALL HAVE LESS THAN 40% PASSING #40 SIEVE AND LESS THAN 5% PASSING #200 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE SAND BACKFILL.
CRUSHED CONCRETE AGGREGATE		CLEAN, FREE DRAINING CRUSHED CONCRETE AGGREGATE MATERIAL CAN BE USED AS BACKFILL FOR STORMTRAP SYSTEMS. THE CRUSHED CONCRETE MATERIAL SHALL HAVE 100% PASSING THE 2" SIEVE WITH 0% TO 5% PASSING THE #4 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL.
ROAD PACK		STONE AGGREGATE 100% PASSING THE 1-1/2" SIEVE WITH LESS THAN 12% PASSING THE #200 SIEVE (ASTM SIZE #467). GEOFABRIC AS PER GEOTECHNICAL ENGINEER RECOMMENDATION.



BACKFILL DETAIL

STORMTRAP ZONE INSTALLATION SPECIFICATION/PROCEDURE

1. THE FILL PLACED AROUND THE STORMTRAP MODULES MUST BE DEPOSITED ON BOTH SIDES AT THE SAME TIME AND TO APPROXIMATELY THE SAME ELEVATION. AT NO TIME SHALL THE FILL BEHIND ONE SIDE WALL BE MORE THAN 2'-0" HIGHER THAN THE FILL ON THE OPPOSITE SIDE. BACKFILL SHALL EITHER BE COMPACTED AND/OR VIBRATED TO ENSURE THAT BACKFILL AGGREGATE/STONE MATERIAL IS WELL SEATED AND PROPERLY INTER LOCKED. CARE SHALL BE TAKEN TO PREVENT ANY WEDGING ACTION AGAINST THE STRUCTURE, AND ALL SLOPES WITHIN THE AREA TO BE BACKFILLED MUST BE STEPPED OR SERRATED TO PREVENT WEDGING ACTION. CARE SHALL ALSO BE TAKEN AS NOT TO DISRUPT THE JOINT WRAP FROM THE JOINT DURING THE BACKFILL PROCESS. BACKFILL MUST BE FREE-DRAINING MATERIAL. SEE ZONE 2 BACKFILL OPTIONS. ANY MATERIAL OTHER THAN THOSE LISTED MUST BE APPROVED BY A GEOTECHNICAL ENGINEER, CONFIRM WITH GEOTECHNICAL ENGINEER AND PROVIDE PROTECTION AS REQUIRED (PROVIDED BY OTHERS). ALL MODULES MUST BE SET AND ALL SIDES MUST BE FULLY BACKFILLED BEFORE TRAVEL OVERTOP THE SYSTEM IS PERMITTED. SEE NOTE 2 FOR EXCEPTIONS AND LIMITATIONS.
2. THE FILL PLACED OVERTOP THE SYSTEM SHALL BE PLACED IN MINIMUM 6" LIFTS. AT NO TIME SHALL MACHINERY OR VEHICLES GREATER THAN THE DESIGN LIVE LOAD LISTED ON SHEET 1.0 TRAVEL OVERTOP THE SYSTEM. IF TRAVEL OVER THE SYSTEM IS REQUIRED BEFORE THE MINIMUM COVER IS REACHED, A TEMPORARY COVER OF 4' OF WELL GRADED ULTIMATE LOAD/DURESS OF THE OPERATING MACHINERY SO AS TO NOT EXCEED THE DESIGN CAPACITY OF THE SYSTEM VEHICLES AND MACHINERY USED TO PLACE FILL MATERIAL ON TOP OF THE SYSTEM SHALL TRAVEL PARALLEL TO THE LONGITUDINAL AXIS OF THE STORMTRAP MODULES WHENEVER POSSIBLE.
3. THE VIBRATORY FUNCTION OF ANY ROLLER, COMPACTOR, VEHICLE, ETC. SHALL NOT BE USED OVERTOP THE SYSTEM WITHOUT PRIOR APPROVAL FROM STORMTRAP. IN SOME CASES, HAND COMPACTION MAY BE NECESSARY TO ENSURE THAT THE ALLOWABLE DESIGN LOADING IS NOT EXCEEDED.

StormTrap — PATENTS LISTED AT [WWW.STORMTRAP.COM/PATENTS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5547

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes–BMP 1B
San Marcos, CA

CURRENT ISSUE DATE:
01/10/2025

ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	01/10/2025	PRELIMINARY	DG

SCALE: NTS

SHEET TITLE: SINGLETRAP BACKFILL SPECIFICATION

SHEET NUMBER: 4.0

ACCESS OPENING SPECIFICATION

1. A TYPICAL ACCESS OPENING FOR THE STORMTRAP SYSTEM ARE 2'-0" IN DIAMETER. ACCESS OPENINGS LARGER THAN 4'-0" IN DIAMETER NEED TO BE APPROVED BY STORMTRAP. ALL OPENINGS MUST RETAIN AT LEAST 2'-0" OF CLEARANCE FROM ACCESS OPENING OF STORMTRAP MODULE UNLESS NOTED. CLEARANCE FOR ACCESS OPENINGS ARE LOCATED ON THE CENTER OF MODULE UNLESS OTHERWISE SPECIFIED. SEE SHEET 2.0 FOR SIZES AND LOCATIONS.
2. UNLESS OTHERWISE SPECIFIED, PLASTIC COATED STEEL STEPS PROVIDED BY M.A. INDUSTRIES PART #PS3-PFC OR APPROVED EQUAL (SEE STEP DETAIL) ARE PROVIDED INSIDE ANY MODULE WHERE DEEMED NECESSARY. THE HIGHEST STEP IN MODULE IS TO BE PLACED A DISTANCE OF 1'-0" FROM THE INSIDE EDGE OF THE STORMTRAP MODULE. ALL ENSUING STEPS SHALL BE PLACED AT A DISTANCE BETWEEN 10" MIN AND 14" MAX BETWEEN THEM. STEPS MAY BE MOVED OR ALTERED TO AVOID OPENINGS OR OTHER IRREGULARITIES IN THE MODULE.
3. STORMTRAP LIFTING INSERTS MAY BE RELOCATED TO AVOID INTERFERENCE WITH ACCESS OPENINGS OR THE CENTER OF GRAVITY OF THE MODULE AS NEEDED.
4. STORMTRAP ACCESS OPENINGS MAY BE RELOCATED TO AVOID INTERFERENCE WITH INLET AND/OR OUTLET PIPE OPENINGS SO PLACEMENT OF STEPS IS ATTAINABLE.
5. ACCESS OPENINGS SHOULD BE LOCATED IN ORDER TO MEET THE APPROPRIATE MUNICIPAL REQUIREMENTS. STORMTRAP RECOMMENDS AT LEAST TWO ACCESS OPENINGS PER SYSTEM FOR ACCESS AND INSPECTION.
6. USE PRECAST ADJUSTING RINGS AS NEEDED TO MEET GRADE. STORMTRAP RECOMMENDS FOR COVER OVER 2' TO USE PRECAST BARREL OR CONE SECTIONS. (PROVIDED BY OTHERS)

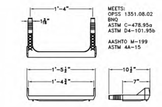
PIPE OPENING SPECIFICATION

1. MINIMUM EDGE DISTANCE FOR AN OPENING ON THE OUTSIDE WALL SHALL BE NO LESS THAN 1'-0".
2. CONNECTING PIPES MAY BE INSTALLED WITH A 1'-0" CONCRETE COLLAR AND AN AGGREGATE CRADLE (AS REQUIRED) FOR AT LEAST ONE PIPE LENGTH (SEE PIPE CONNECTION DETAIL). A STRUCTURAL GRADE CONCRETE OR HIGH STRENGTH, NON-SHRINK GROUT WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI MAY BE USED.
3. THE ANNULAR SPACE BETWEEN THE PIPE AND THE HOLE SHALL BE FILLED WITH HIGH STRENGTH NON-SHRINK GROUT.

PIPE INSTALLATION INSTRUCTIONS

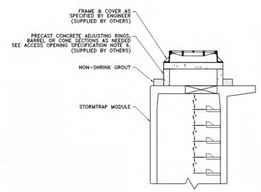
1. CLEAN AND LIGHTLY LUBRICATE ALL OF THE PIPE TO BE INSERTED INTO STORMTRAP.
2. IF PIPE IS CUT, CARE SHOULD BE TAKEN TO ALLOW NO SHARP EDGES. BEVEL AND LUBRICATE LEAD END OF PIPE.
3. ALIGN CENTER OF PIPE TO CORRECT ELEVATION AND INSERT INTO OPENING.

NOTE: ALL ANCILLARY PRODUCTS/SPECIFICATIONS RECOMMENDED AND SHOWN ON THIS SHEET INCLUDING BUT NOT LIMITED TO CONCRETE COLLARS, AGGREGATE CRADLES, GRADE RINGS, RISER SECTIONS, ETC., ARE RECOMMENDATIONS ONLY AND SUBJECT TO CHANGE PER THE INSTALLING CONTRACTOR AND/OR PER LOCAL MUNICIPAL CODE/REQUIREMENTS.

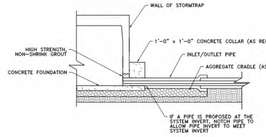


STEP DETAIL

*** NOTICE *** 03-25-2022
DUE TO CURRENT INCONSISTENCIES IN THE 16" STEP SUPPLY, STORMTRAP MAY SUBSTITUTE THE 16" STEP WITH THE CLOSEST ALTERNATIVE LENGTH STEP UNTIL THE SUPPLY CHAIN ISSUE IS RESOLVED.



RISER/STAIR DETAIL



NOTCHED PIPE CONNECTION DETAIL
WHEN PIPE INVERT IS AT
INVERT OF STORMTRAP SYSTEM

StormTrap — PATENTS LISTED AT [WWW.STORMTRAP.COM/PATENTS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5547

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes–BMP 1B
San Marcos, CA

CURRENT ISSUE DATE:
01/10/2025

ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	01/10/2025	PRELIMINARY	DG

SCALE: NTS

SHEET TITLE: PIPE / ACCESS OPENING SPECIFICATION

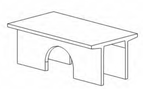
SHEET NUMBER: 5.0

TYPE I

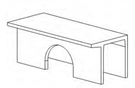
TYPE III

TYPE VII-3

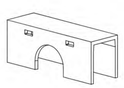
TYPE II END PANEL



TYPE II



TYPE IV



TYPE VII-4

TYPE IV END PANEL

NOTES:
1. OPENING LOCATIONS AND SHAPES MAY VARY.
2. SP – INDICATES A MODULE WITH MODIFICATIONS.
3. P – INDICATES A MODULE WITH A PANEL ATTACHMENT.
4. POCKET WINDOW OPENINGS ARE OPTIONAL.

StormTrap — PATENTS LISTED AT [WWW.STORMTRAP.COM/PATENTS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5547

ENGINEER INFORMATION:
Pasco Laret Suiter & Associates
34270 Pacific Coast Hwy #B
Dana Point, CA 92629
949-661-6695

PROJECT INFORMATION:
South Santa Fe Townhomes–BMP 1B
San Marcos, CA

CURRENT ISSUE DATE:
01/10/2025

ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	01/10/2025	PRELIMINARY	DG

SCALE: NTS

SHEET TITLE: SINGLETRAP MODULE TYPES

SHEET NUMBER: 6.0

"STORMTRAP" DETENTION VAULTS 1B, 2B, 3B, 4B - TYPICAL DETAILS

PLSA
PLSAENGINEERING.COM

SHEET: 7 OF 7 — CITY OF SAN MARCOS

GENERAL PLAN AMENDMENT NUMBER: GPA25-0001

OWNER: SANTA FE FLORES LP — CONTACT: PAUL MAYER — PHONE: 858-888-2488

ADDRESS: PO BOX 903, RANCHO SANTA FE, CA 92067

ARCHITECT, ENGINEER, DESIGNER: PLSA — PHONE: 949-661-6695

ADDRESS: 34270 PACIFIC COAST HIGHWAY SUITE B, DANA POINT, CA 92629

TYPE OF DEVELOPMENT: RESIDENTIAL, TOWNHOMES

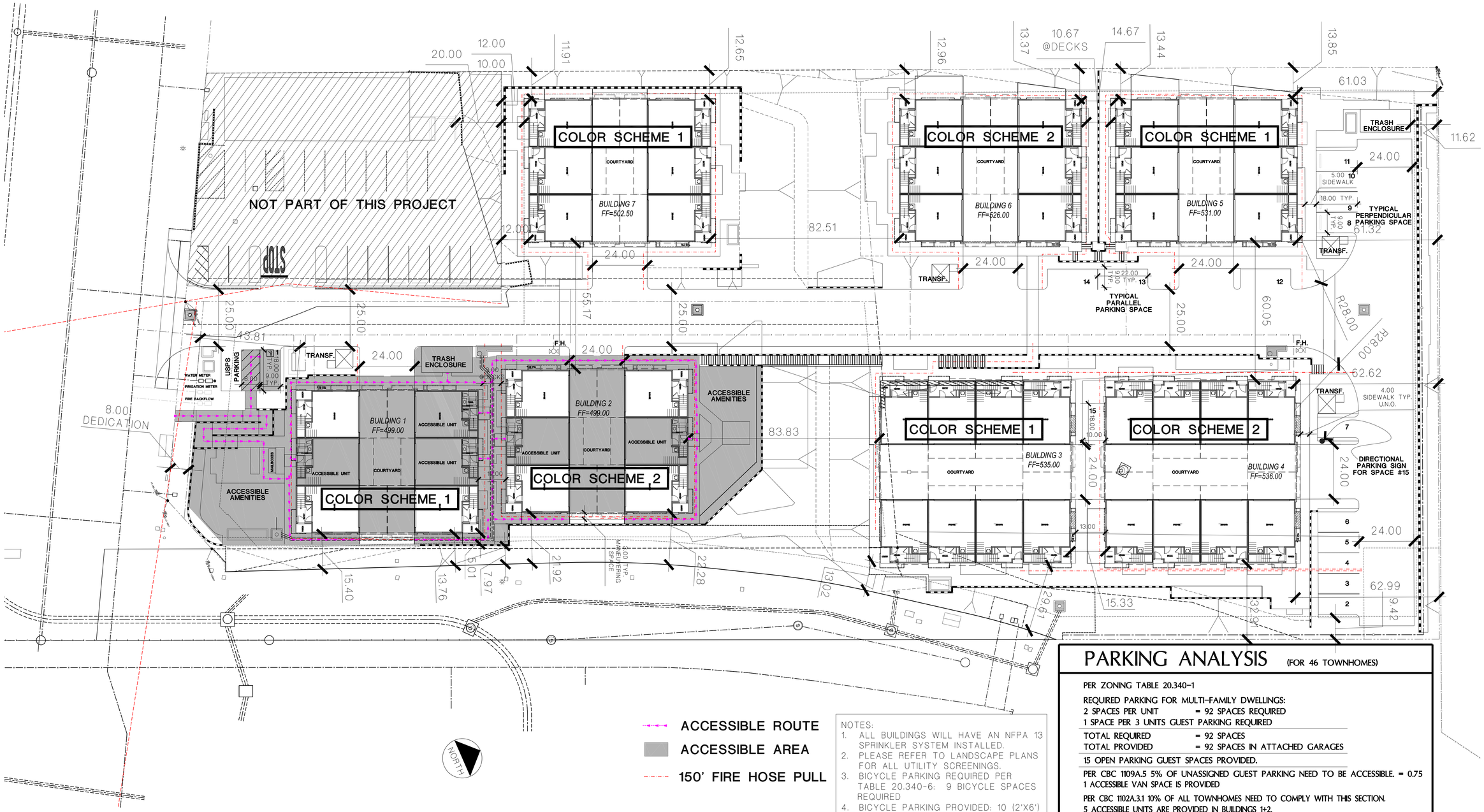
ZONE: MULTIFAMILY RESIDENTIAL (R-3-6) — APN(S): 217-161-17, -18, -19

SITE DATA			DWELLING UNITS		OPEN SPACE DATA	
AREA (SQ. FT.)		COVERAGE %	STUDIO	-	COMMON (SF)	PRIVATE (SF)
LOT:	113,209	100%	1 BDRM	-	14,795	21,610
BUILDING:	38,672	34%	2 BDRM	-		
PARKING/PVMT:	35,778	32%	3 BDRM	46		
LOADING:	0	0%	4 BDRM	-		
LANDSCAPING:	38,759	34%	TOTAL UNITS	46		

PARKING		ORD. REQ.		DRIVEWAY (SIZE & SLOPE)	SETBACKS	
GARAGE	92	LOADING	0	ONE WAY: N/A	FRONT: 15'	REAR: 10'
GUEST	14	HANDICAP	1	TWO WAY: 24' MIN	L. SIDE: 10'	
OPEN	0	TOTAL	107	SLOPE: VARIES	R. SIDE: 10'	

ATTACHMENT E2

PROJECT ARCHITECTURAL PLANS



ACCESSIBLE ROUTE

ACCESSIBLE AREA

150' FIRE HOSE PULL

NOTES:
1. ALL BUILDINGS WILL HAVE AN NFPA 13 SPRINKLER SYSTEM INSTALLED.
2. PLEASE REFER TO LANDSCAPE PLANS FOR ALL UTILITY SCREENINGS.
3. BICYCLE PARKING REQUIRED PER TABLE 20.340-6: 9 BICYCLE SPACES REQUIRED
4. BICYCLE PARKING PROVIDED: 10 (2'X6') BICYCLE PARKING SPACES PROVIDED AND DISTRIBUTED THROUGHOUT THE SITE. PLEASE REFER TO LANDSCAPE PLANS FOR LOCATIONS.
5. NO GUEST BICYCLE PARKING REQUIRED.

PARKING ANALYSIS (FOR 46 TOWNHOMES)

PER ZONING TABLE 20.340-1

REQUIRED PARKING FOR MULTI-FAMILY DWELLINGS:
2 SPACES PER UNIT = 92 SPACES REQUIRED
1 SPACE PER 3 UNITS GUEST PARKING REQUIRED

TOTAL REQUIRED = 92 SPACES
TOTAL PROVIDED = 92 SPACES IN ATTACHED GARAGES

15 OPEN PARKING GUEST SPACES PROVIDED.

PER CBC 1109A.5 5% OF UNASSIGNED GUEST PARKING NEED TO BE ACCESSIBLE. = 0.75
1 ACCESSIBLE VAN SPACE IS PROVIDED

PER CBC 1102A.3.1 10% OF ALL TOWNHOMES NEED TO COMPLY WITH THIS SECTION.
5 ACCESSIBLE UNITS ARE PROVIDED IN BUILDINGS 1+2.
THOSE 5 GARAGES COMPLY WITH CBC 1109A.2.1

PER CGBSC 4.106.4.1 ALL PRIVATE ATTACHED GARAGES WILL HAVE A DEDICATED RACEWAY FOR THE FUTURE INSTALLATION OF EV CHARGERS.
NO EV PROVISIONS FOR THE GUEST PARKING IS REQUIRED.

SOUTH SANTA FE TOWNHOMES

SAN MARCOS, CA

SANTA FE LOS FLORES LP

PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

ARCHITECTURAL SITE PLAN

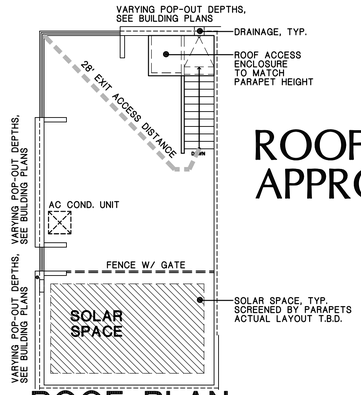
SCALE : 1"=20'-0"

11/19/25
24008

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

1.0

2064



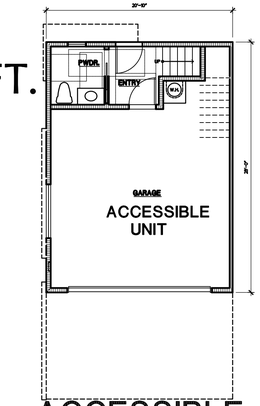
ROOF DECK
APPROX. 450 SQ. FT.

ROOF PLAN

SEE BUILDING PLANS FOR MORE INFORMATION

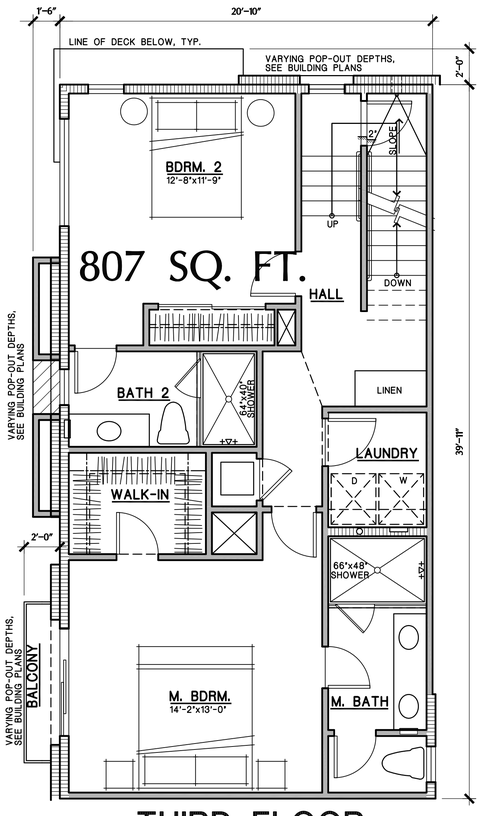
SCALE : 1/8"=1'-0"

132 SQ. FT.



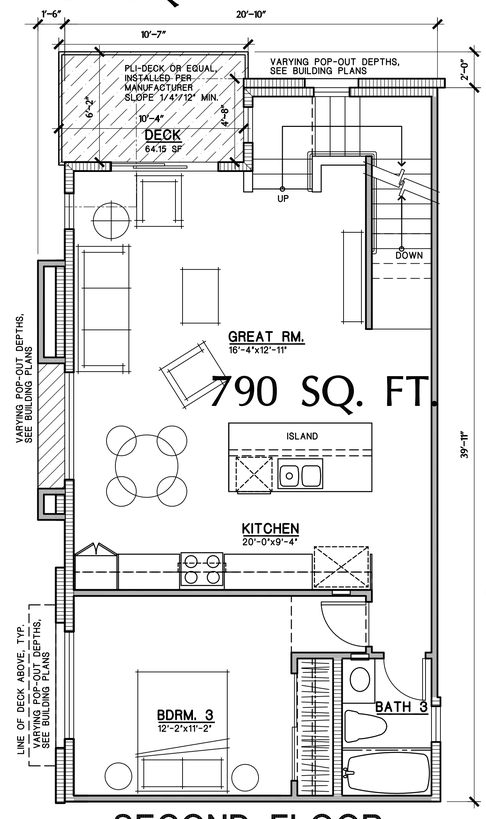
ACCESSIBLE UNIT

SCALE : 1/8"=1'-0"



THIRD FLOOR

DECK
64 SQ. FT.

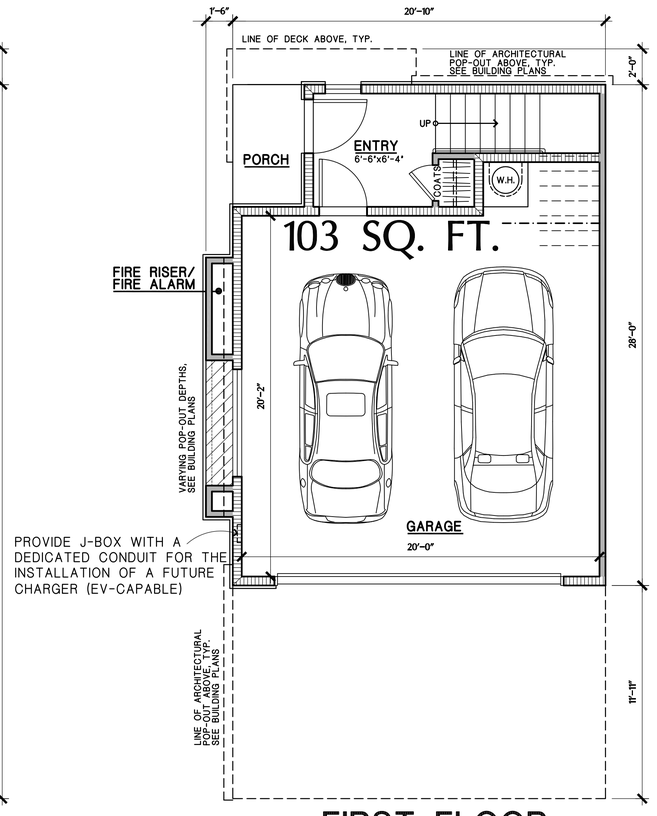


SECOND FLOOR

1700 SQ. FT.

UNIT PLAN 1

TYPICAL CORNER UNIT



FIRST FLOOR

SOUTH SANTA FE TOWNHOMES

SAN MARCOS, CA

SANTA FE LOS FLORES LP

PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

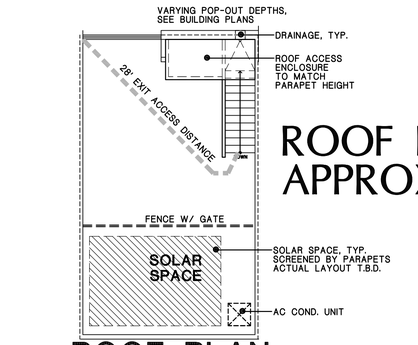
SCALE : 1/4"=1'-0"

08/04/25
24008

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

1.1

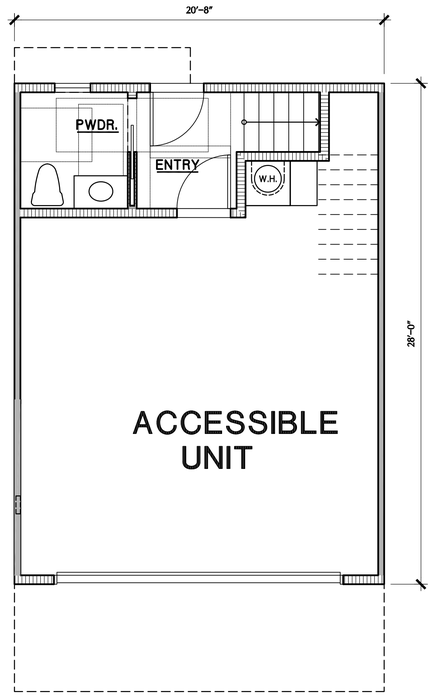
2065



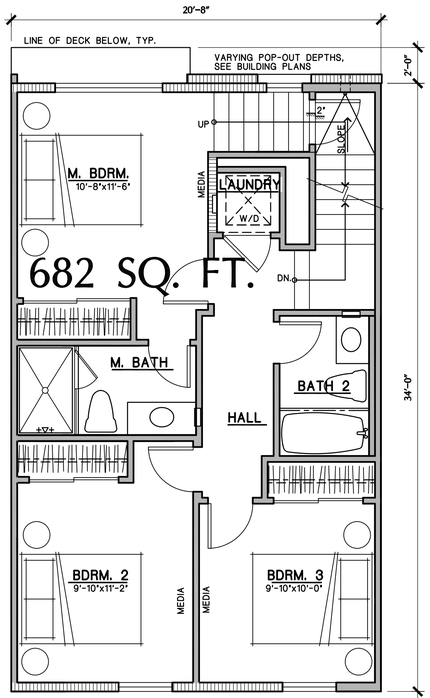
ROOF DECK
APPROX. 340 SQ. FT.

ROOF PLAN
SEE BUILDING PLANS FOR MORE INFORMATION
SCALE : 1/8"=1'-0"

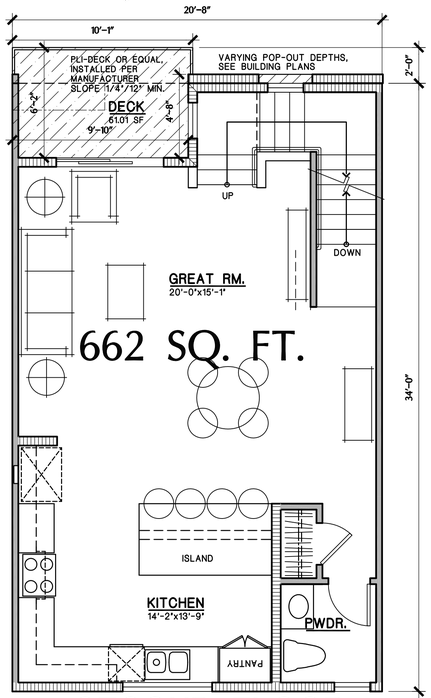
130 SQ. FT.



DECK
61 SQ. FT.



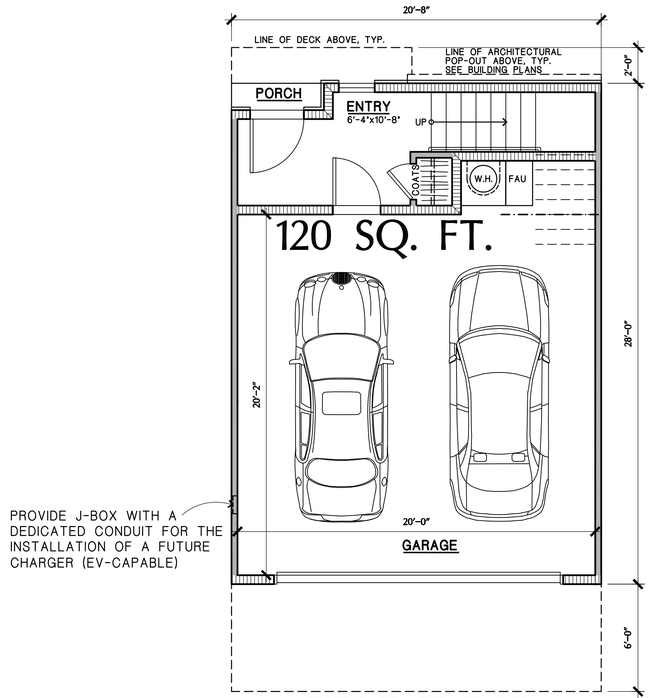
THIRD FLOOR



SECOND FLOOR

1464 SQ. FT.

UNIT PLAN 2
TYPICAL INNER UNIT



PROVIDE J-BOX WITH A DEDICATED CONDUIT FOR THE INSTALLATION OF A FUTURE CHARGER (EV-CAPABLE)

FIRST FLOOR

SOUTH SANTA FE TOWNHOMES

SAN MARCOS, CA

SANTA FE LOS FLORES LP

PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

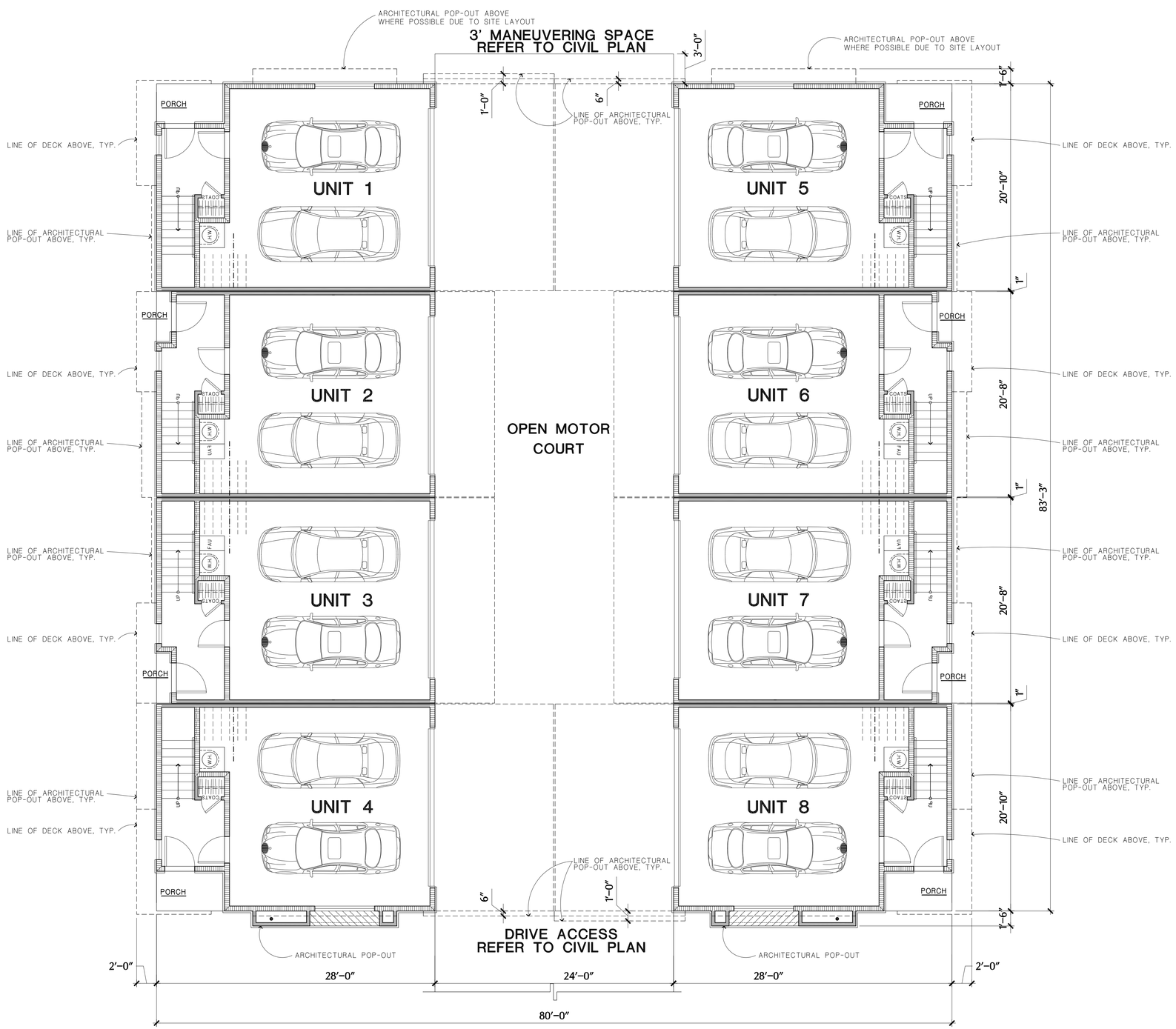
SCALE : 1/4"=1'-0"

08/04/25
24008

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

1.2

2066



BUILDING 3
FIRST FLOOR
TYPICAL BUILDING PLAN 8-PLEX

SOUTH SANTA FE TOWNHOMES
SAN MARCOS, CA

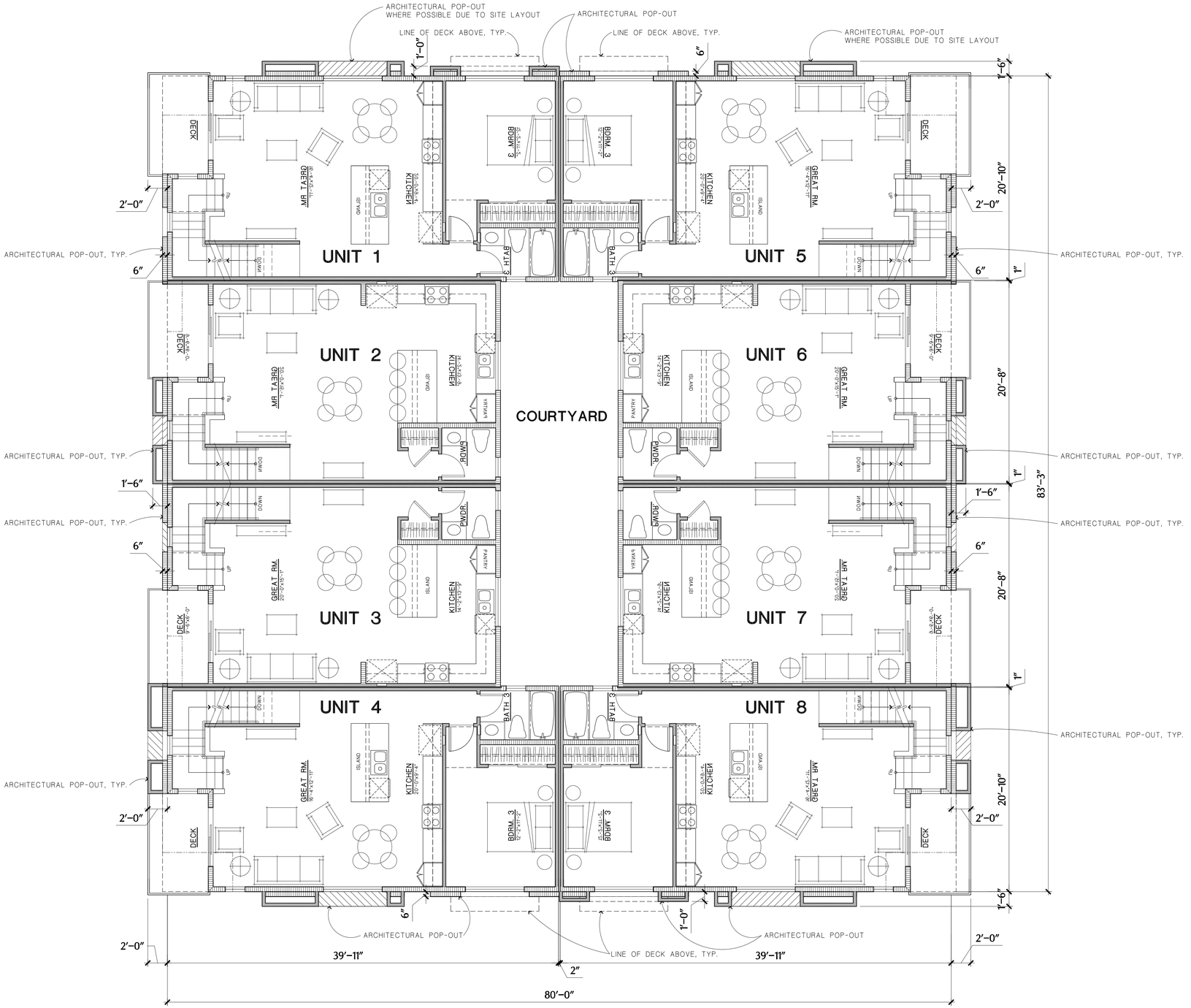
SCALE : 3/16"=1'-0"

05/16/25
24008

SANTA FE LOS FLORES LP
PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

2.1



BUILDING 3
SECOND FLOOR
TYPICAL BUILDING PLAN 8-PLEX

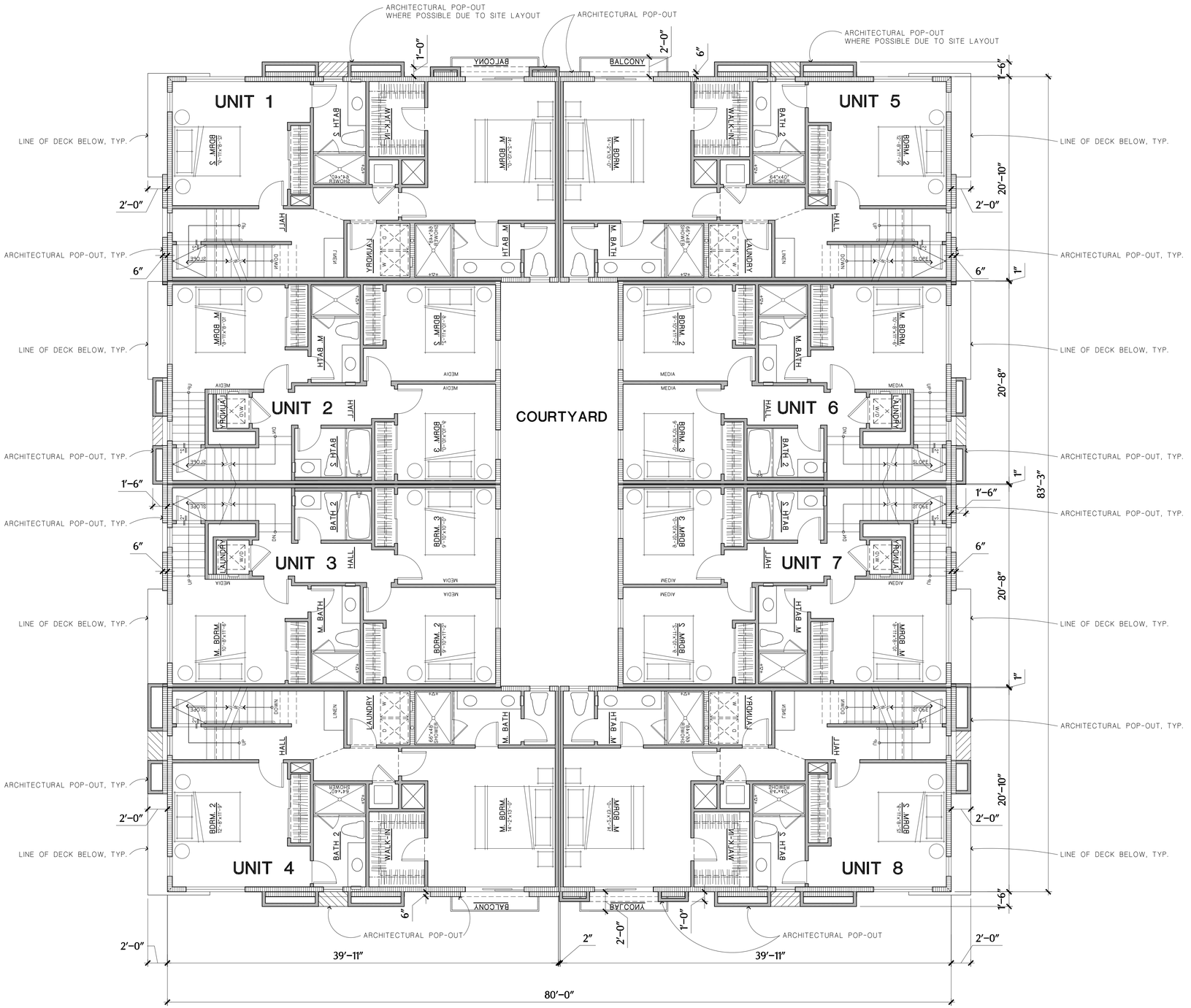
SOUTH SANTA FE TOWNHOMES
SAN MARCOS, CA

SCALE : 3/16"=1'-0"

05/16/25
24008

SANTA FE LOS FLORES LP
PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535



BUILDING 3
THIRD FLOOR
TYPICAL BUILDING PLAN 8-PLEX

SCALE : 3/16"=1'-0"

05/16/25
24008

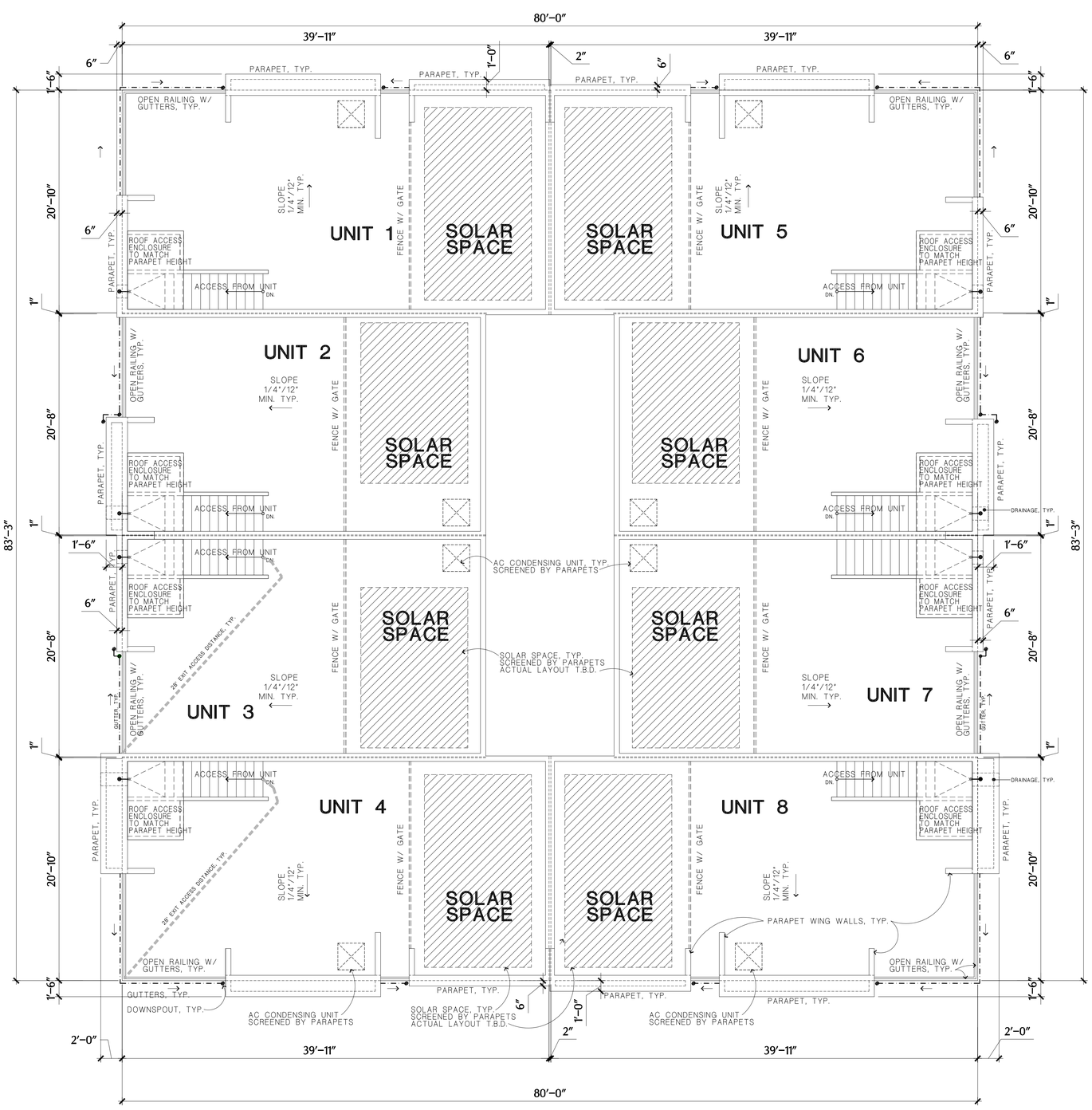
SOUTH SANTA FE TOWNHOMES
SAN MARCOS, CA

SANTA FE LOS FLORES LP
PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

2.3

2069



BUILDING 3
ROOF PLAN
TYPICAL BUILDING PLAN 8-PLEX

SCALE : 3/16"=1'-0"

05/16/25
24008

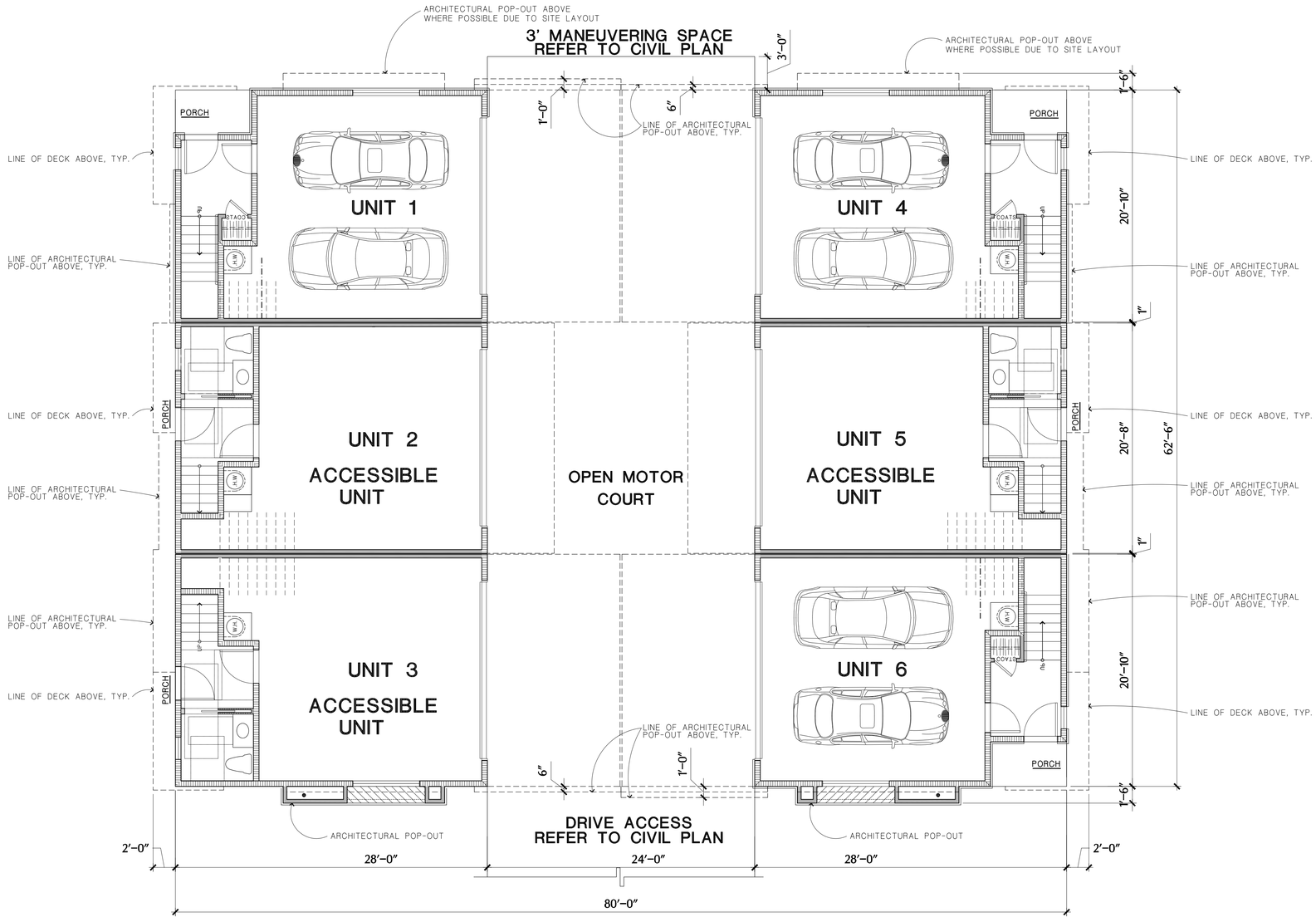
SOUTH SANTA FE TOWNHOMES
SAN MARCOS, CA

SANTA FE LOS FLORES LP
PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

2.4

2070



BUILDING 1
FIRST FLOOR
BUILDING PLAN 6-PLEX

SOUTH SANTA FE TOWNHOMES

SAN MARCOS, CA

SANTA FE LOS FLORES LP

PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

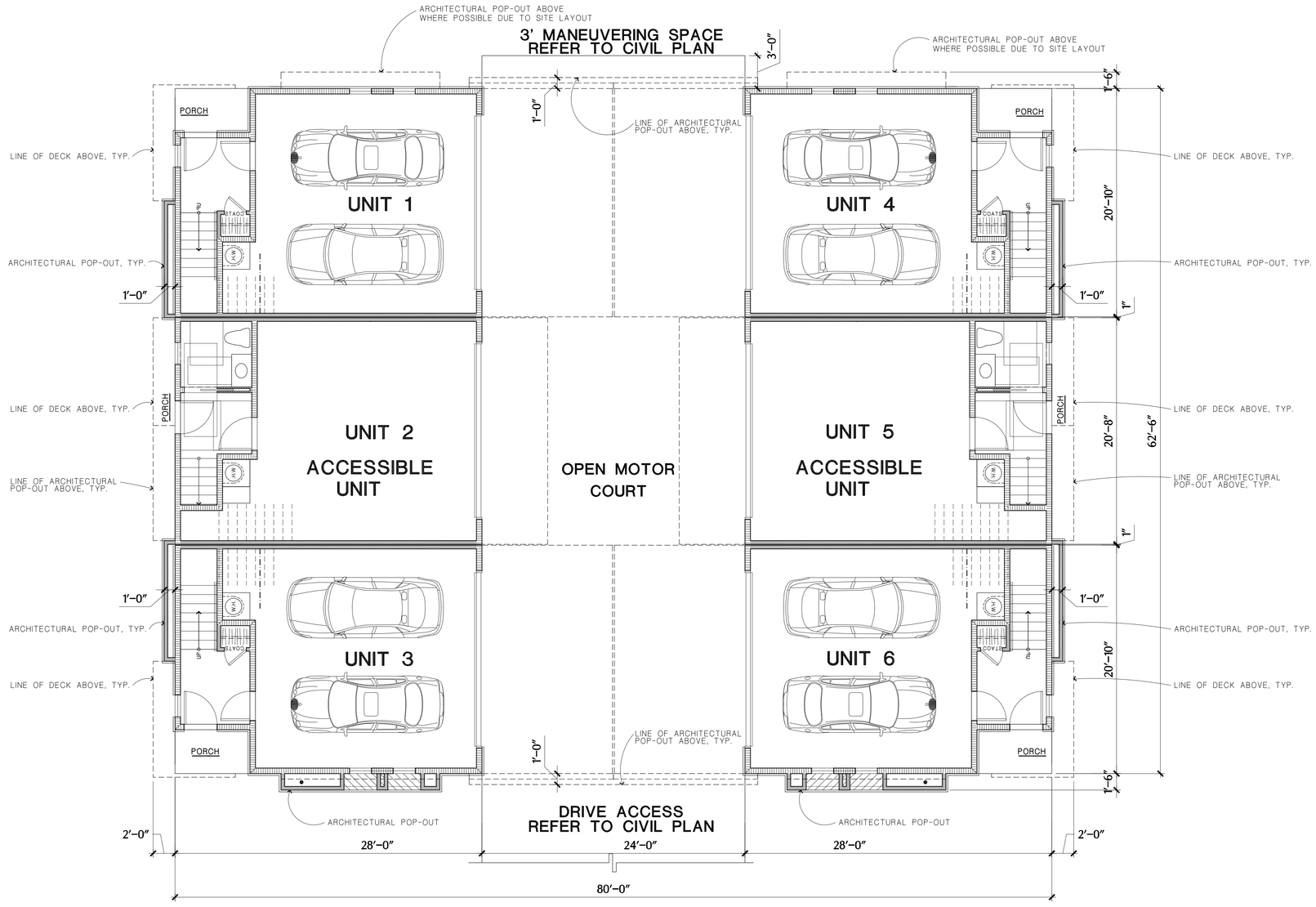
SCALE : 3/16"=1'-0"

05/16/25
24008

FLAIR ARCHITECTS

FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

3.1



BUILDING 2
FIRST FLOOR
BUILDING PLAN 6-PLEX

SOUTH SANTA FE TOWNHOMES

SAN MARCOS, CA

SCALE : 3/16"=1'-0"

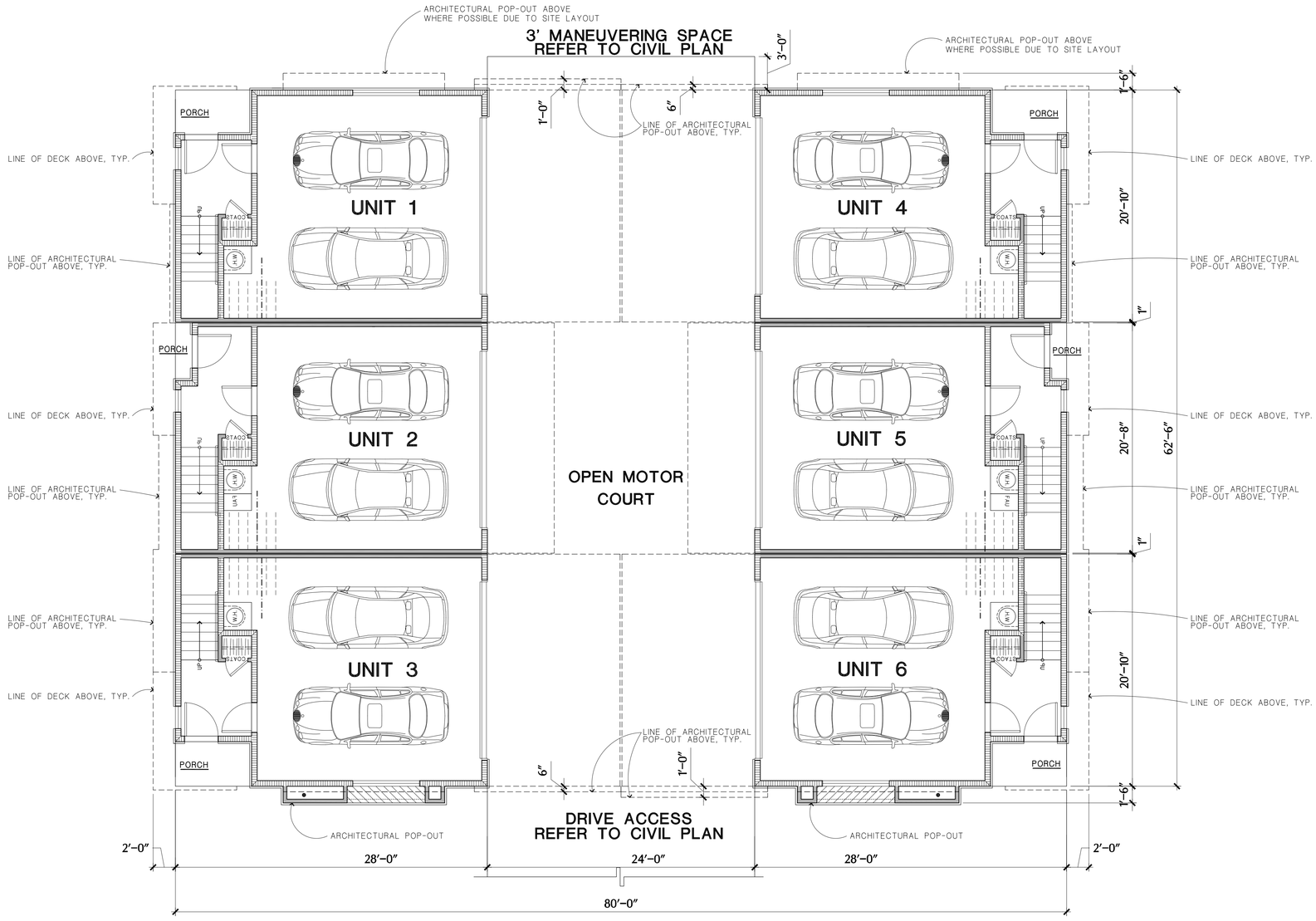
05/16/25
24008

SANTA FE LOS FLORES LP

PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

3.2



BUILDINGS 5+6+7
FIRST FLOOR
TYPICAL BUILDING PLAN 6-PLEX

SOUTH SANTA FE TOWNHOMES
SAN MARCOS, CA

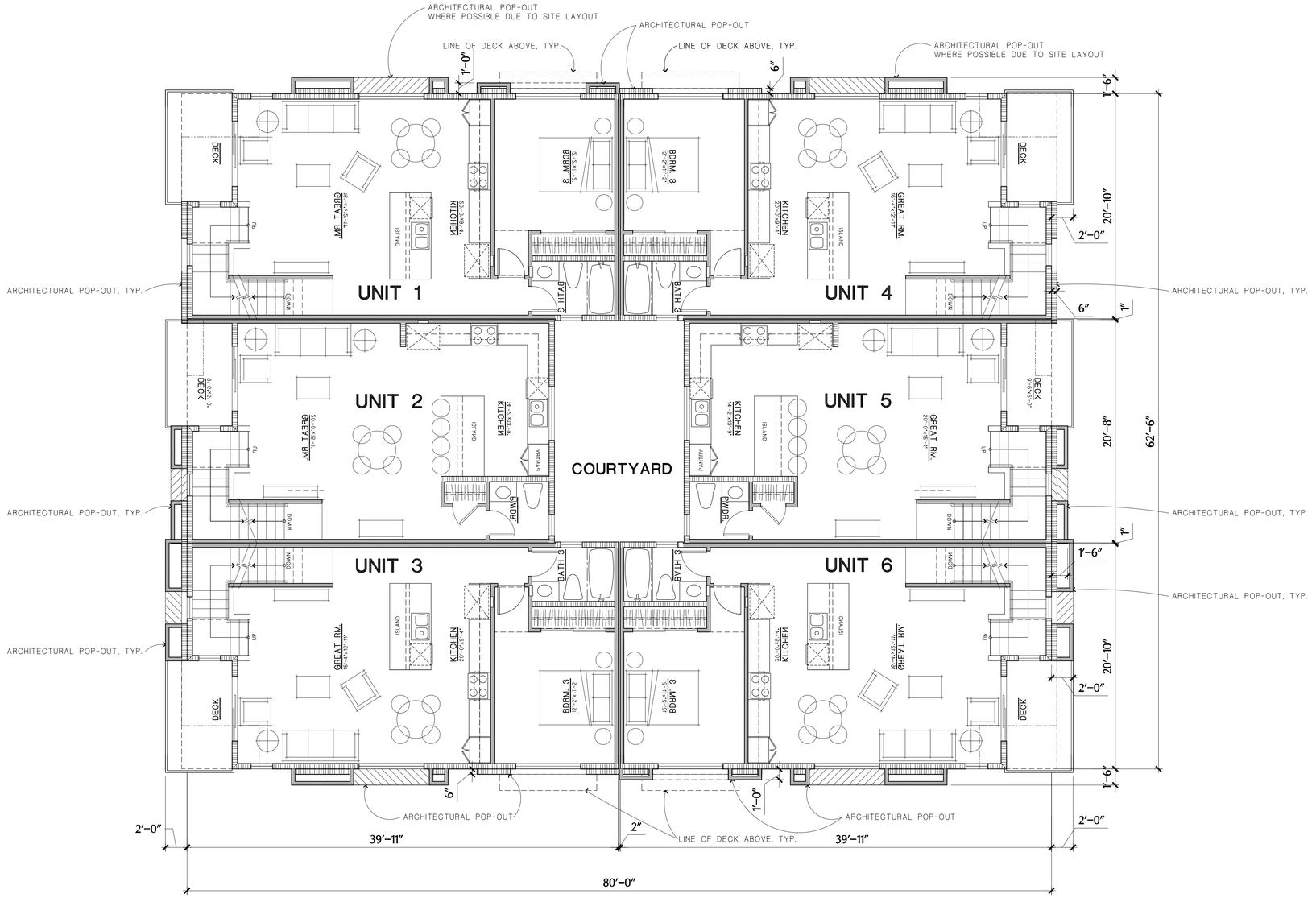
SCALE : 3/16"=1'-0"

05/16/25
24008

SANTA FE LOS FLORES LP
PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

3.3



BUILDING 1
SECOND FLOOR
TYPICAL BUILDING PLAN 6-PLEX

SCALE : 3/16"=1'-0"

05/16/25
24008

SOUTH SANTA FE TOWNHOMES

SAN MARCOS, CA

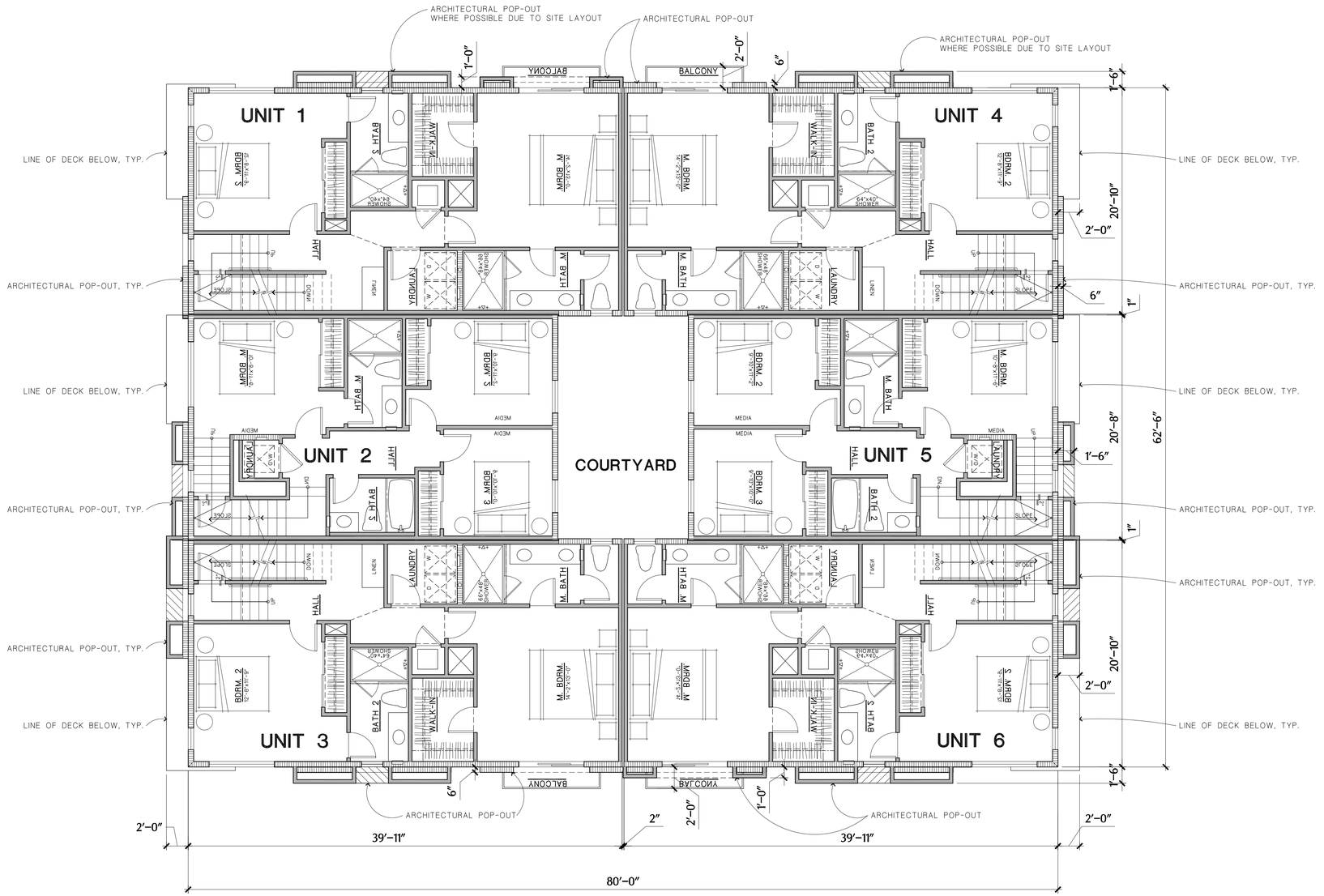
SANTA FE LOS FLORES LP

PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

3.4

2074



BUILDING 1
THIRD FLOOR
TYPICAL BUILDING PLAN 6-PLEX

SCALE : 3/16"=1'-0"

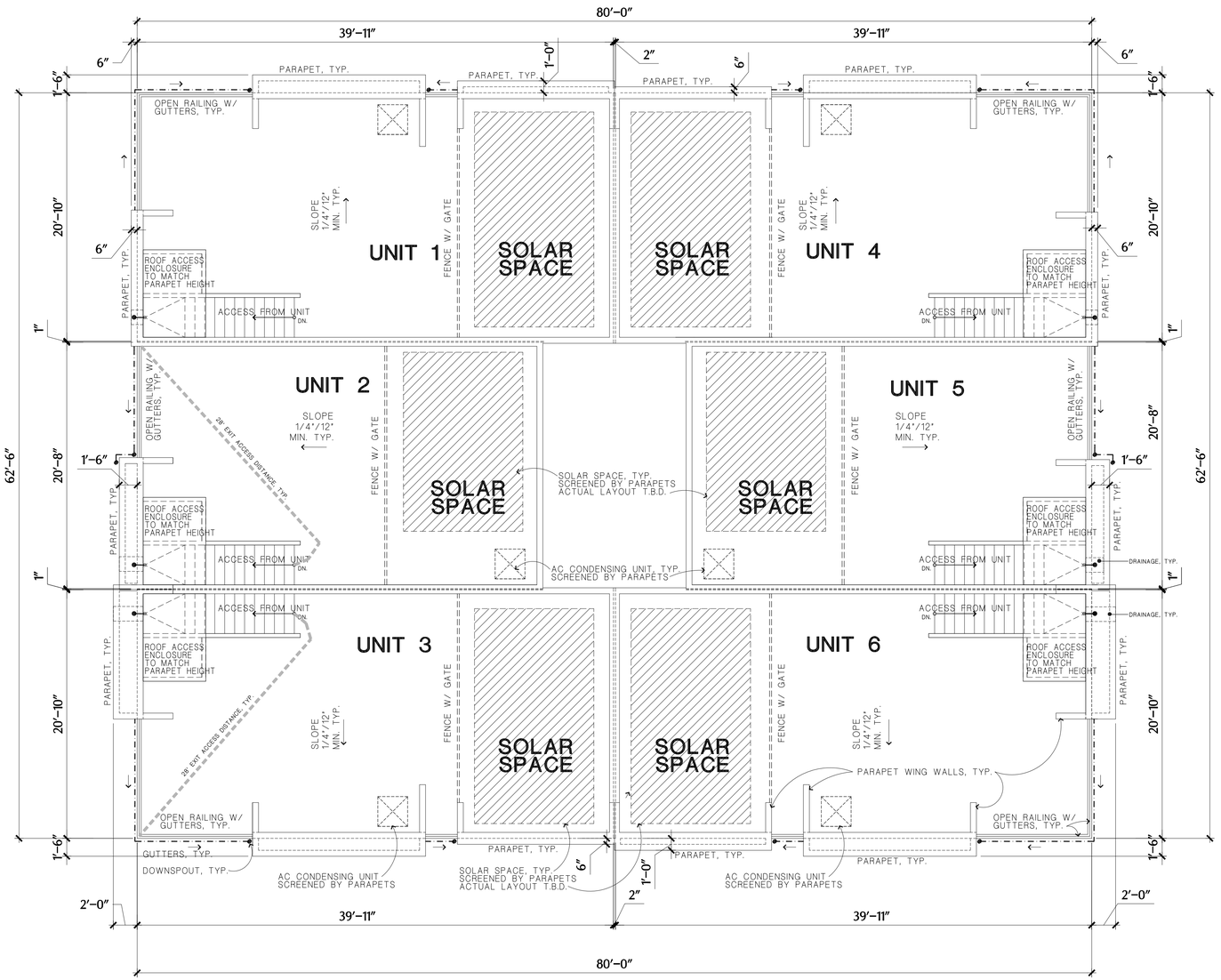
05/16/25
24008

SOUTH SANTA FE TOWNHOMES
SAN MARCOS, CA

SANTA FE LOS FLORES LP
PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

3.5



BUILDING 1
ROOF PLAN
TYPICAL BUILDING PLAN 6-PLEX

SOUTH SANTA FE TOWNHOMES

SAN MARCOS, CA

SANTA FE LOS FLORES LP

PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

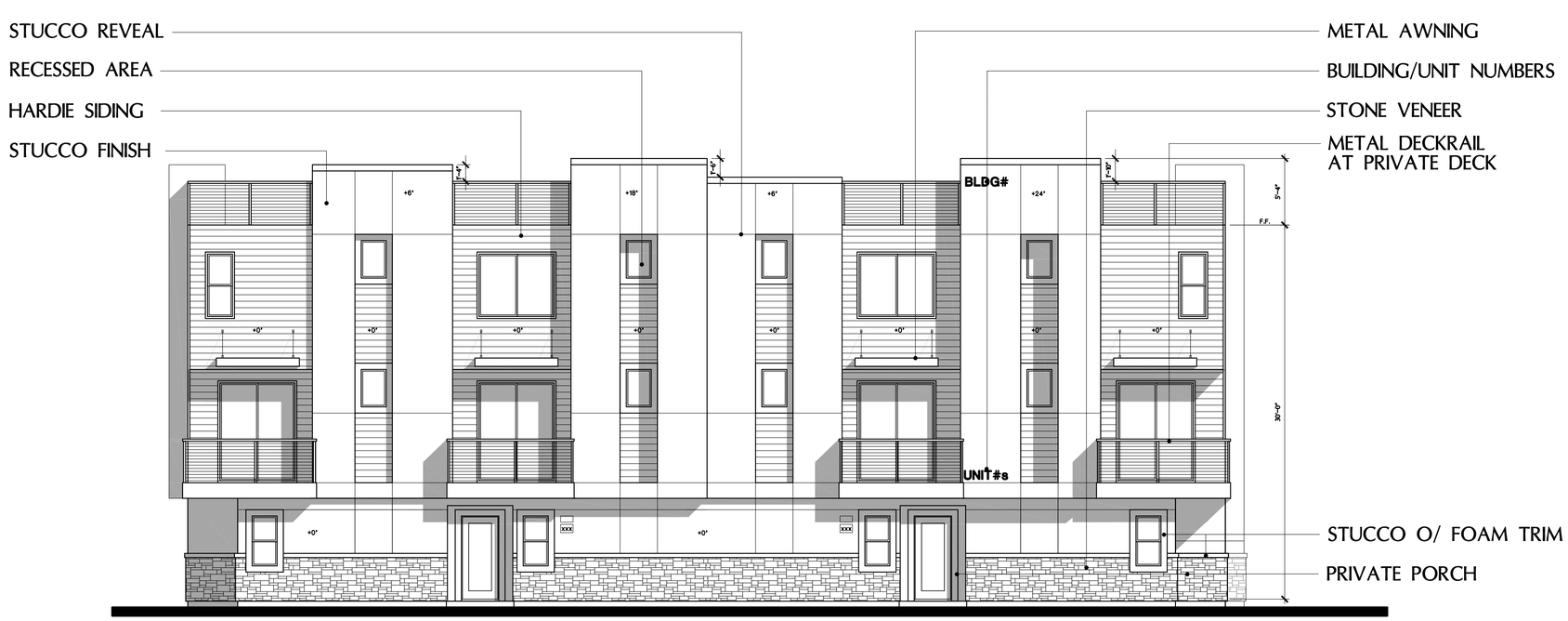
SCALE : 3/16"=1'-0"

05/16/25
24008

FLAIR ARCHITECTS

FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

3.6



BUILDING 3
EAST ELEVATION

BUILDING 3
NORTH ELEVATION

BUILDING 3
ELEVATION TYPE I
BUILDING ELEVATIONS 8-PLEX

SOUTH SANTA FE TOWNHOMES
SAN MARCOS, CA

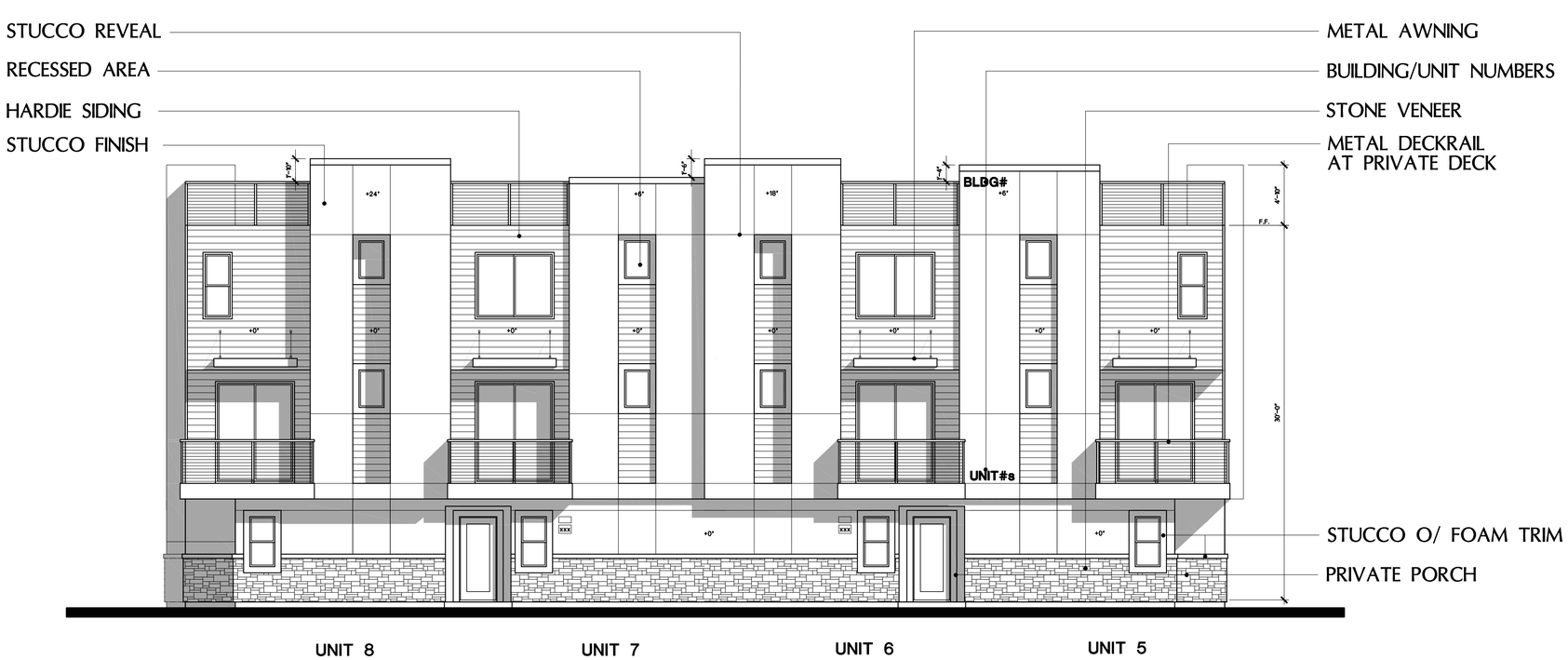
SANTA FE LOS FLORES LP
PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

SCALE : 3/16"=1'-0"
05/16/25
24008

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

4.1

2077



BUILDING 3
WEST ELEVATION

BUILDING 3
SOUTH ELEVATION

BUILDING 3
ELEVATION TYPE I
BUILDING ELEVATIONS 8-PLEX

SOUTH SANTA FE TOWNHOMES
SAN MARCOS, CA

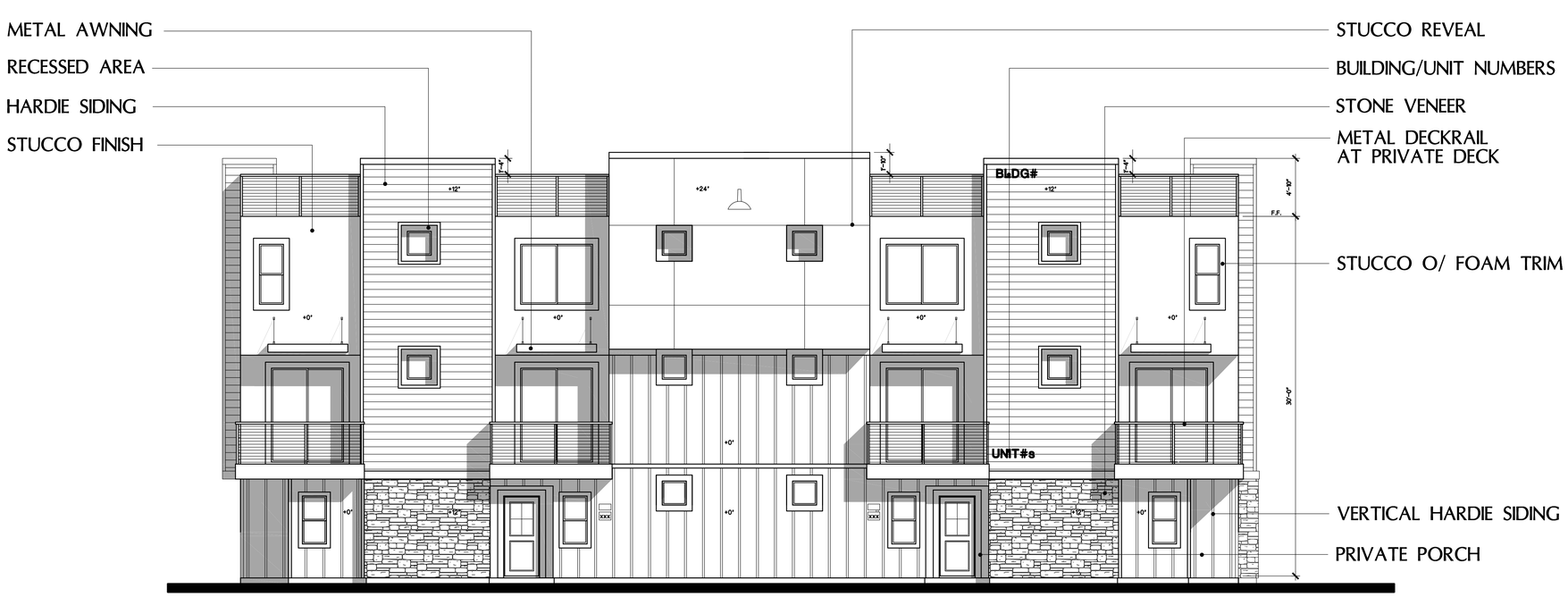
SANTA FE LOS FLORES LP
PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

SCALE : 3/16"=1'-0"
05/16/25
24008

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

4.2

2078



BUILDING 4
EAST ELEVATION

BUILDING 4
NORTH ELEVATION

BUILDING 4
ELEVATION TYPE II
BUILDING ELEVATIONS 8-PLEX

SOUTH SANTA FE TOWNHOMES
SAN MARCOS, CA

SANTA FE LOS FLORES LP
PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

SCALE : 3/16"=1'-0"
05/16/25
24008

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

4.3

2079

BUILDING 4
WEST ELEVATION

BUILDING 4
SOUTH ELEVATION

BUILDING 4
ELEVATION TYPE II
BUILDING ELEVATIONS 8-PLEX

SOUTH SANTA FE TOWNHOMES
SAN MARCOS, CA

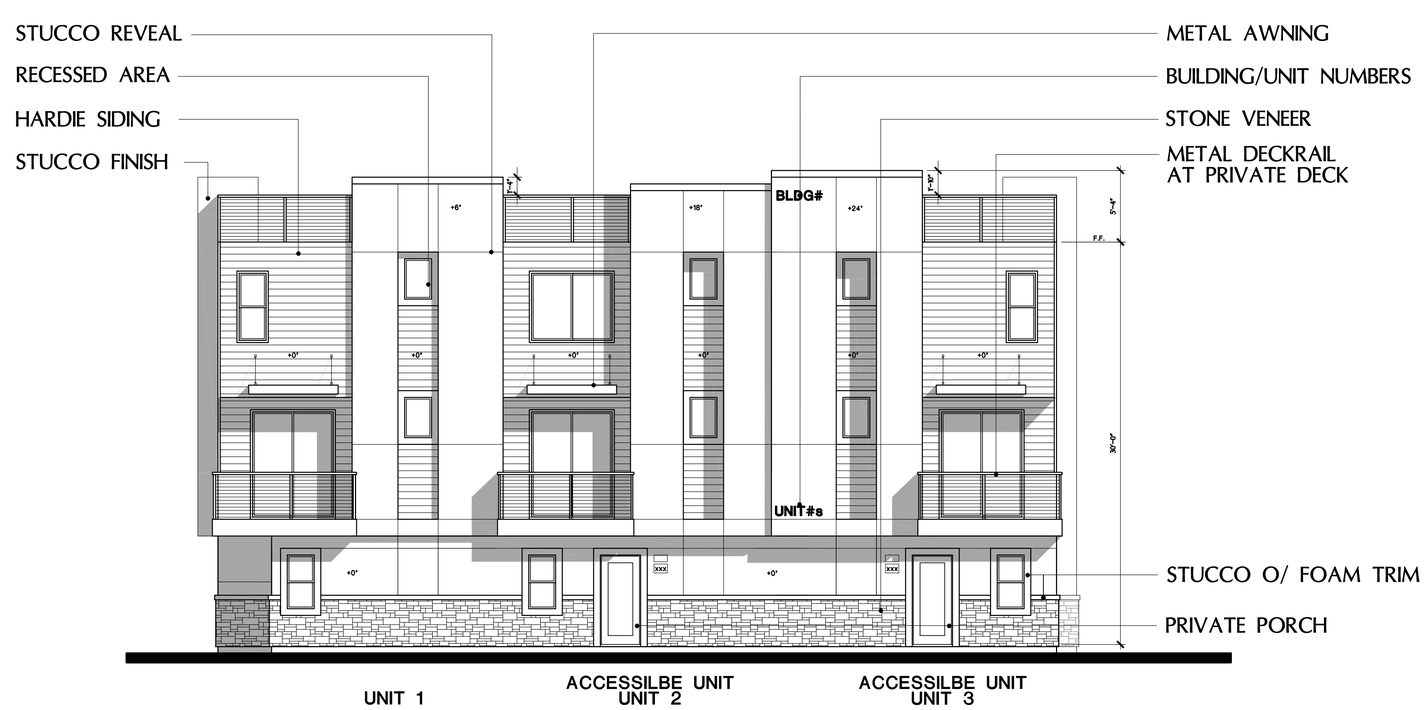
SANTA FE LOS FLORES LP
PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

SCALE : 3/16"=1'-0"
05/16/25
24008

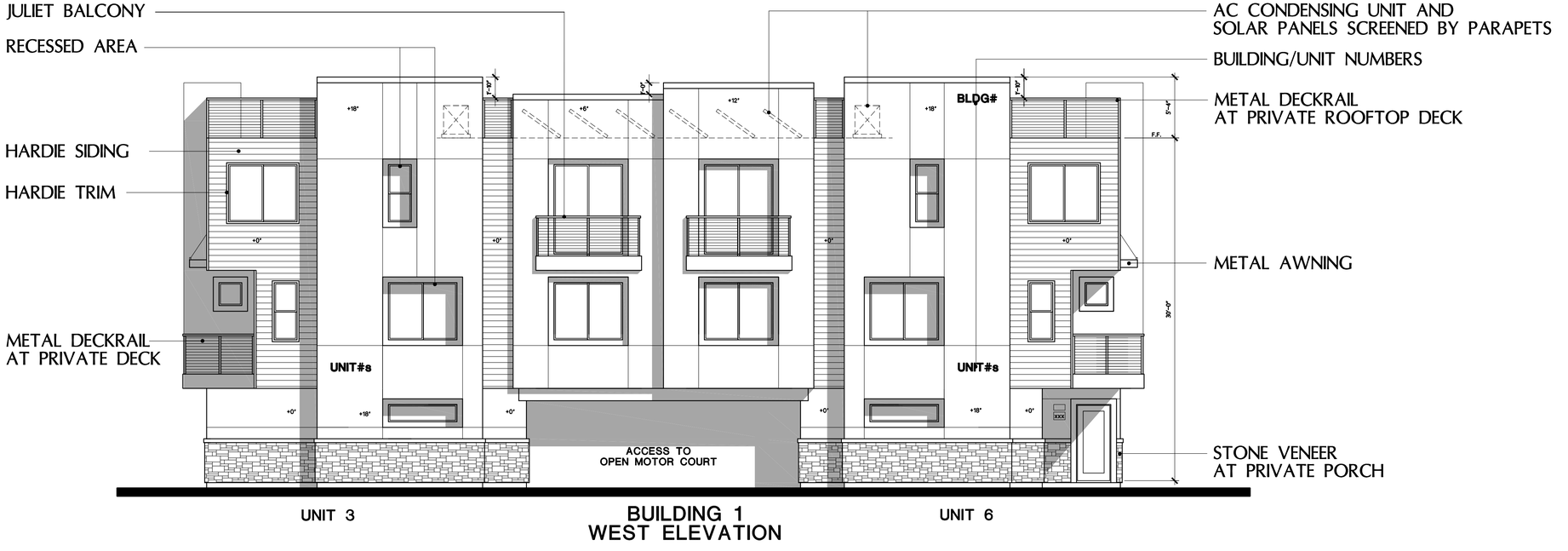
FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

4.4

2080



BUILDING 1
NORTH ELEVATION



BUILDING 1
WEST ELEVATION

BUILDING 1
ELEVATION TYPE I
BUILDING ELEVATIONS 6-PLEX

SOUTH SANTA FE TOWNHOMES
SAN MARCOS, CA

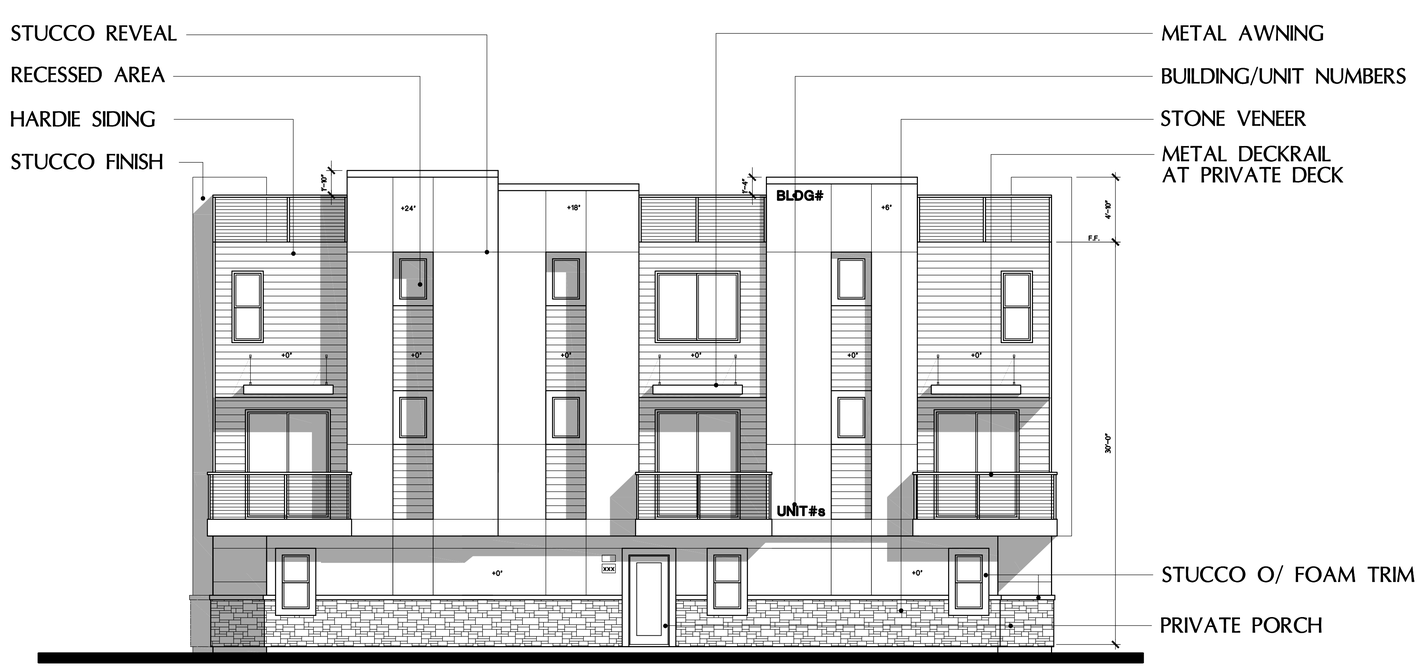
SANTA FE LOS FLORES LP
PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

SCALE : 3/16"=1'-0"
05/16/25
24008

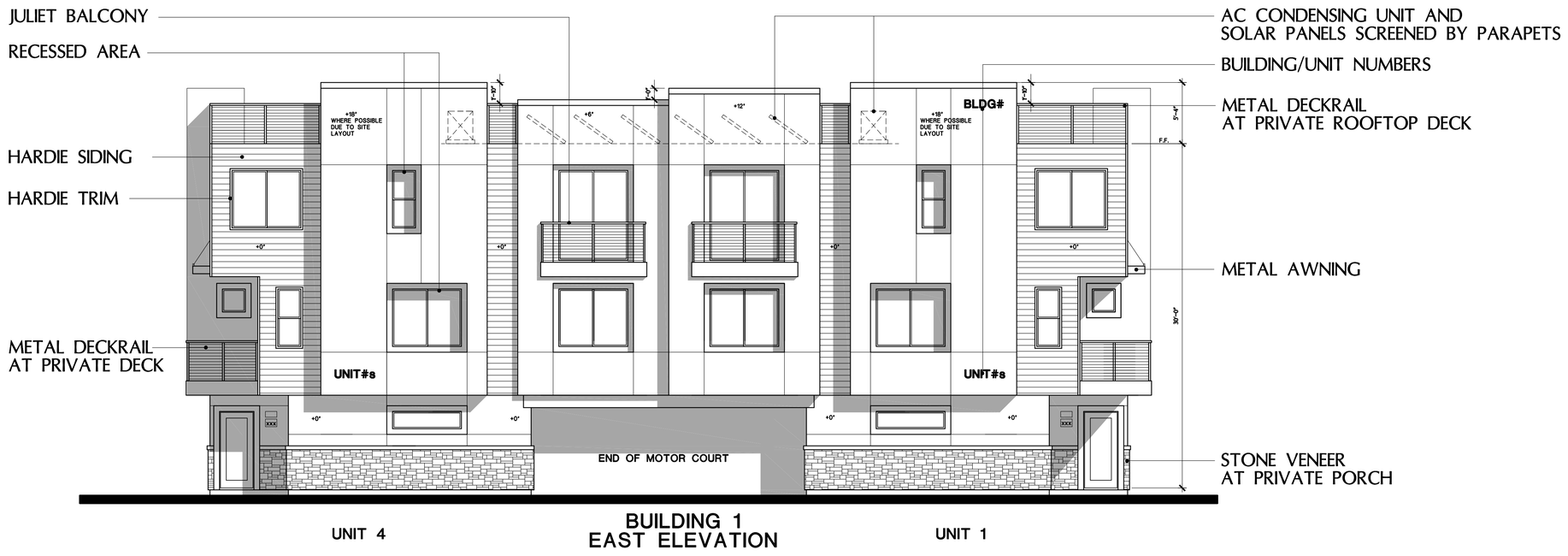
FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

4.5

2081



BUILDING 1
SOUTH ELEVATION



BUILDING 1
EAST ELEVATION

BUILDING 1
ELEVATION TYPE I
BUILDING ELEVATIONS 6-PLEX

SOUTH SANTA FE TOWNHOMES
SAN MARCOS, CA

SANTA FE LOS FLORES LP
PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

SCALE : 3/16"=1'-0"
05/16/25
24008

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

4.6

2082

BUILDING 6
SOUTH ELEVATION

BUILDING 6
EAST ELEVATION

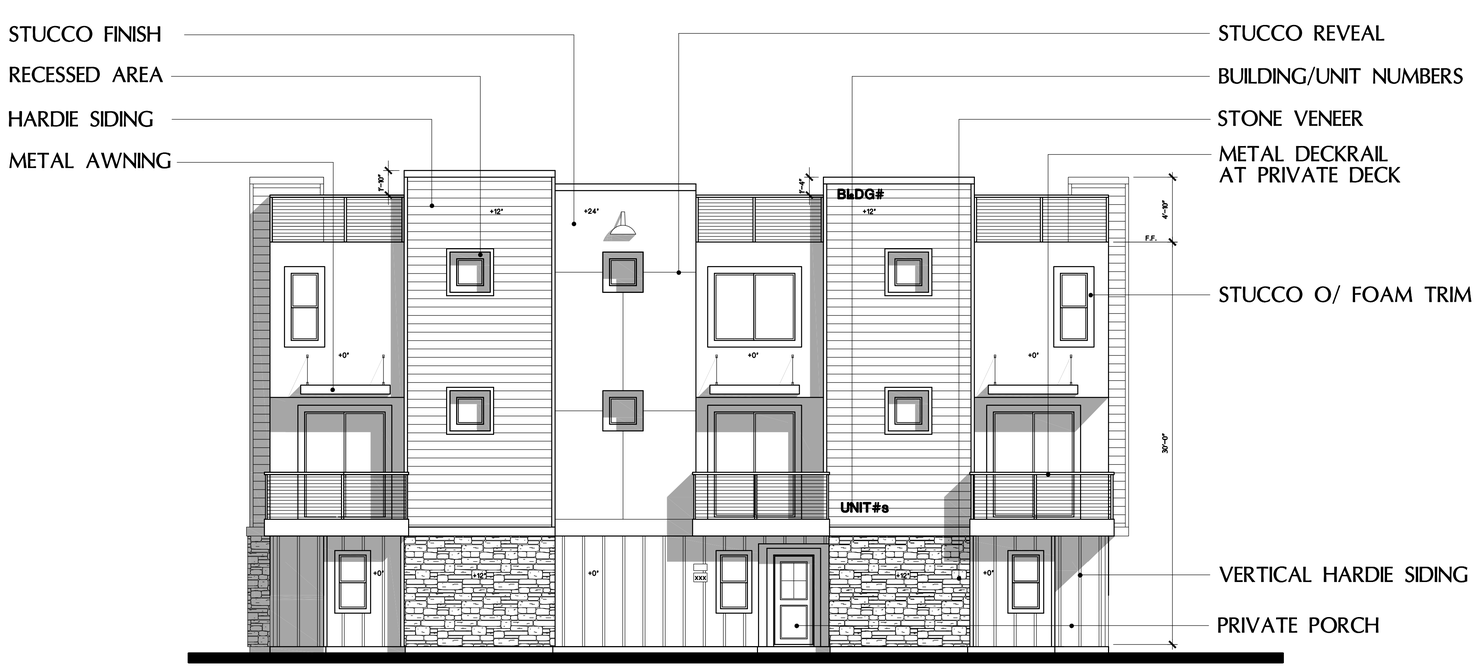
BUILDING 6
ELEVATION TYPE II
BUILDING ELEVATIONS 6-PLEX

SOUTH SANTA FE TOWNHOMES
SAN MARCOS, CA

SANTA FE LOS FLORES LP
PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

SCALE : 3/16"=1'-0"
05/16/25
24008

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535



BUILDING 6
NORTH ELEVATION

BUILDING 6
WEST ELEVATION

BUILDING 6
ELEVATION TYPE II
BUILDING ELEVATIONS 6-PLEX

SOUTH SANTA FE TOWNHOMES
SAN MARCOS, CA

SANTA FE LOS FLORES LP
PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

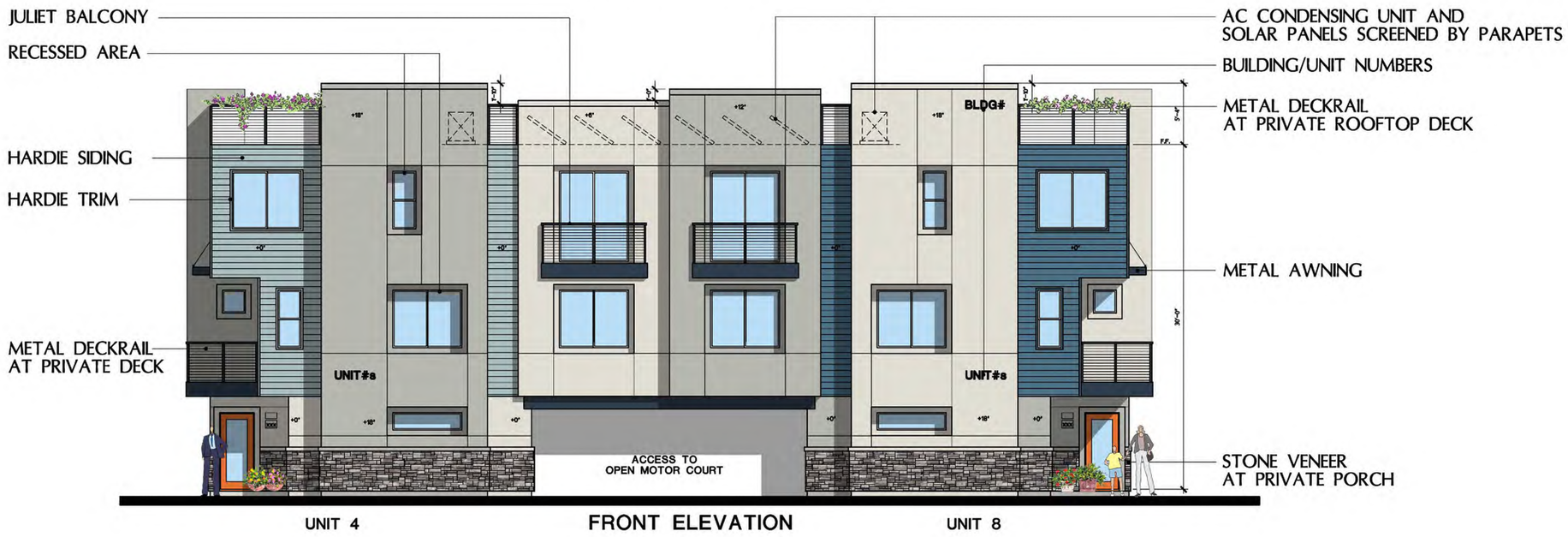
SCALE : 3/16"=1'-0"
05/16/25
24008

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

4.8

2084

LEFT ELEVATION



FRONT ELEVATION

SOUTH SANTA FE TOWNHOMES

SAN MARCOS, CA

SANTA FE LOS FLORES LP

PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

TYPICAL 8-PLEX BUILDING ELEVATIONS COLOR SCHEME 1

*COLOR SCHEMES ARE INTERCHANGEABLE WITH ALL BUILDING TYPES AND ELEVATION STYLES
*COLORS MAY BE SUBJECT TO CHANGE

SCALE : 3/16"=1'-0"

05/16/25
24008

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

5.1

RIGHT ELEVATION

REAR ELEVATION

SOUTH SANTA FE TOWNHOMES

SAN MARCOS, CA

SANTA FE LOS FLORES LP

PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

TYPICAL 8-PLEX BUILDING ELEVATIONS COLOR SCHEME 2

*COLOR SCHEMES ARE INTERCHANGEABLE WITH ALL BUILDING TYPES AND ELEVATION STYLES
*COLORS MAY BE SUBJECT TO CHANGE

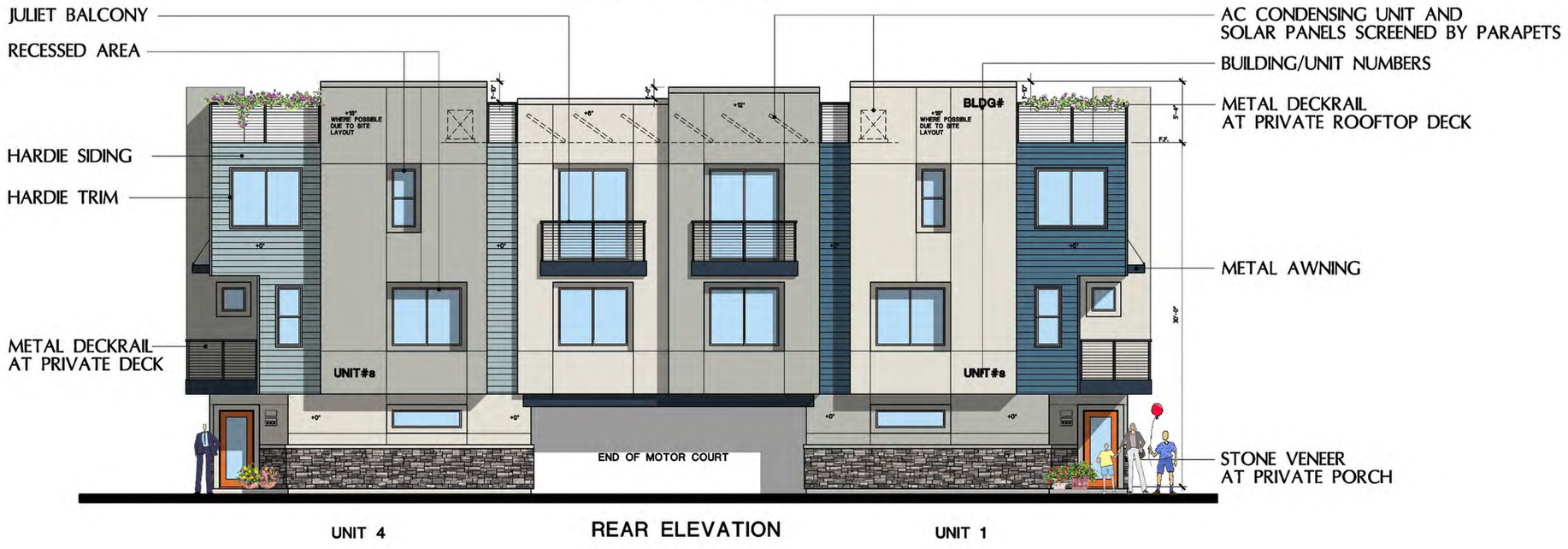
SCALE : 3/16"=1'-0"

05/16/25
24008

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

5.2

RIGHT ELEVATION



REAR ELEVATION

SOUTH SANTA FE TOWNHOMES

SAN MARCOS, CA

SANTA FE LOS FLORES LP

PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

TYPICAL 6-PLEX BUILDING ELEVATIONS COLOR SCHEME 1

*COLOR SCHEMES ARE INTERCHANGEABLE WITH ALL BUILDING TYPES AND ELEVATION STYLES
*COLORS MAY BE SUBJECT TO CHANGE

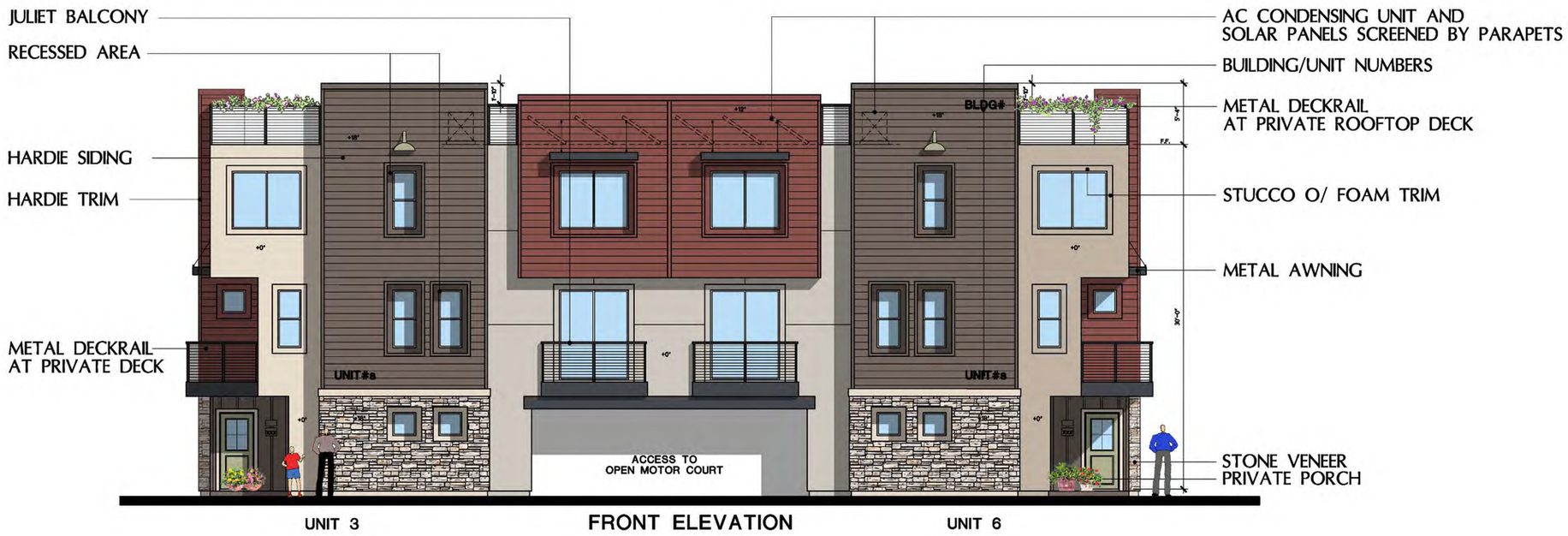
SCALE : 3/16"=1'-0"

05/16/25
24008

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

5.3

LEFT ELEVATION



FRONT ELEVATION

SOUTH SANTA FE TOWNHOMES

SAN MARCOS, CA

SANTA FE LOS FLORES LP

PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

TYPICAL 6-PLEX BUILDING ELEVATIONS COLOR SCHEME 2

*COLOR SCHEMES ARE INTERCHANGEABLE WITH ALL BUILDING TYPES AND ELEVATION STYLES
*COLORS MAY BE SUBJECT TO CHANGE

SCALE : 3/16"=1'-0"

05/16/25
24008

FLAIR ARCHITECTS
FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

SW 2850 CHELSEA GRAY

Color 1 SHERWIN WILLIAMS

SW 6219 RAIN

Color 4 SHERWIN WILLIAMS

SW 9166 DRIFT OF MIST

Color 2 SHERWIN WILLIAMS

SW 6244 NAVAL

Color 5 SHERWIN WILLIAMS

SW 9149 INKY BLUE

Color 3 SHERWIN WILLIAMS

SW 6886 INVIGORATE

Color 6 SHERWIN WILLIAMS

PRO-LEDGE HURON

Stone Veneer CORONADO STONE

Color Scheme 1

05/16/2025

S. SANTA FE TOWNHOMES

SAN MARCOS, CA

SANTA FE LOS FLORES LP

PO BOX 903
RANCHO SANTA FE, CA 92067

24008

FLAIR ARCHITECTS

FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

SW 7037 BALANCED BEIGE

Color 1 SHERWIN WILLIAMS

SW 6075 GARRET GRAY

Color 4 SHERWIN WILLIAMS

SW 7552 BAUHAUS BUFF

Color 2 SHERWIN WILLIAMS

SW 0006 TOILE RED

Color 5 SHERWIN WILLIAMS

SW 7015 REPOSE GRAY

Color 3 SHERWIN WILLIAMS

SW 7076 CYBERSPACE

Color 6 SHERWIN WILLIAMS

TEXAS RUBBLE TEXAS CREAM

Stone Veneer CORONADO STONE

SW 0013 MAJOLICA GREEN

Color 7 SHERWIN WILLIAMS

Color Scheme 2

05/16/2025

24008

S. SANTA FE TOWNHOMES

SAN MARCOS, CA

SANTA FE LOS FLORES LP

PO BOX 903
RANCHO SANTA FE, CA 92067

FLAIR ARCHITECTS

FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789-7535

SOUTH SANTA FE TOWNHOMES

SAN MARCOS, CA

SANTA FE LOS FLORES LP

PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

SITE SECTION – STREET SCENE
WITHOUT NOTES AND CALLOUTS

SCALE : 1/16"=1'–0"

09/29/25
24008

FLAIR ARCHITECTS

FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789–7535

6.0

SOUTH SANTA FE TOWNHOMES

SAN MARCOS, CA

SANTA FE LOS FLORES LP

PO BOX 903
RANCHO SANTA FE, CALIFORNIA 92067

SITE SECTION – STREET SCENE
WITH NOTES AND CALLOUTS

SCALE : 1/16"=1'–0"

09/29/25
24008

FLAIR ARCHITECTS

FLAIR ARCHITECTS, INC.
ARCHITECTURE • PLANNING • INTERIOR DESIGN
6 JENNER, STE 290, IRVINE, CALIFORNIA 92618
(949) 789–7535

6.1

2092

COMMUNICATIONS SYSTEM

X	VOICE OUTLET, WALL MOUNTED	X	DATA OUTLET, WALL MOUNTED
X	VOICE OUTLET, FLOOR MOUNTED	X	DATA OUTLET, FLOOR MOUNTED
X	VOICE OUTLET, CEILING MOUNTED	X	DATA OUTLET, CEILING MOUNTED
X	VOICE-DATA OUTLET, WALL MOUNTED	X	AUDIO/VISUAL OUTLET, WALL MOUNTED
X	VOICE-DATA OUTLET, FLOOR MOUNTED	X	AUDIO/VISUAL OUTLET, FLOOR MOUNTED
X	VOICE-DATA OUTLET, CEILING MOUNTED	X	AUDIO/VISUAL OUTLET, CEILING MOUNTED

NOTE:FOR ABOVE VOICE, DATA AND AUDIO/VISUAL DEVICES, SUBSCRIPT 'X' INDICATES:
C – ABOVE BACKSPLASH OF CABINET, OR COUNTERTOP
H – HORIZONTALLY MOUNTED
F – FURNITURE OR MILLWORK MOUNTED
W – WALL PHONE

X	SPEAKER WALL MOUNTED	X	SPEAKER CEILING MOUNTED
	CCTV CAMERA, WALL MOUNTED		CCTV CAMERA, CEILING MOUNTED
	PLYWOOD BACKBOARD		

RECEPTACLES

	DUPLEX RECEPTACLE, WALL MOUNTED		DOUBLE DUPLEX RECEPTACLE, WALL MOUNTED
	DUPLEX RECEPTACLE, ABOVE BACKSPLASH OF CABINET, COUNTERTOP OR SINK		DOUBLE DUPLEX RECEPTACLE, ABOVE BACKSPLASH OF CABINET, COUNTERTOP OR SINK
	DUPLEX RECEPTACLE, FLUSH MTD IN CEILING		DOUBLE DUPLEX RECEPTACLE, FLUSH MOUNTED IN CEILING
	HALF SWITCHED DUPLEX RECEPTACLE, WALL MOUNTED		SIMPLEX RECEPTACLE, WALL MOUNTED
TYPE	SPECIAL PURPOSE RECEPTACLE, WALL MOUNTED. NEMA CONFIGURATION AS NOTED ON PLANS	TYPE	SPECIAL PURPOSE RECEPTACLE, CEILING MOUNTED NEMA CONFIGURATION AS NOTED ON PLANS

X ← RECEPTACLE TYPE
12 ← NUMBER INDICATES BRANCH CIRCUIT NUMBER

NOTE: FOR ABOVE DEVICES, SUBSCRIPT 'X' INDICATES:

CK	CLOCK HANGER	D	DEDICATED CIRCUIT
EP	EXPLOSION PROOF	EQ	EQUIPMENT MOUNTED
EWC	ELECTRIC WATER COOLER	F	FURNITURE OR MILLWORK MOUNTED
GFI	GROUND FAULT INTERRUPTER	H	HORIZONTALLY MOUNTED
IG	ISOLATED GROUND	SS	SURGE SUPPRESSION
T	TAMPER PROOF	WP	WEATHER PROOF

MA-X	MULTI-OUTLET ASSEMBLY, "X" INDICATES TYPE		FURNITURE OUTLET, WALL MOUNTED

RECEPTACLE BRANCH CIRCUIT SHADING

* SEE RECEPTACLE TYPES ABOVE FOR CONFIGURATION

	SHADING REPRESENTS RECEPTACLE ON EMERGENCY/LIFE SAFETY BRANCH		SHADING REPRESENTS RECEPTACLE ON CRITICAL BRANCH
	SHADING REPRESENTS RECEPTACLE ON STANDBY/EQUIPMENT BRANCH		SHADING REPRESENTS RECEPTACLE ON UPS BRANCH

FLOOR OUTLETS

X	FLOOR BOX, DUPLEX RECEPTACLE	X	FLOOR BOX, DOUBLE DUPLEX RECPT
X	FLOOR BOX, COMBINATION POWER/COMMUNICATIONS OUTLET	X	FLOOR BOX, COMBINATION POWER/COMMUNICATIONS/AV OUTLET
X	POKE THRU, DUPLEX RECEPTACLE	X	POKE THRU, DOUBLE DUPLEX RECPT
X	POKE THRU, COMBINATION POWER/COMMUNICATIONS OUTLET	X	POKE THRU, COMBINATION POWER/COMMUNICATIONS/AV OUTLET
FB#	SPECIAL FLOORBOX, "#" INDICATES UNIQUE FLOOR BOX TYPE		

X ← TYPE
12 ← NUMBER INDICATES BRANCH CIRCUIT NUMBER

FLOOR BOX, CONFIGURATION AS INDICATED, FLUSH MOUNTED, UNLESS OTHERWISE NOTED.

NOTE: FOR ABOVE DEVICES, SUBSCRIPT 'X' INDICATES:
P– PEDESTAL MOUNTED

F	FURNITURE OUTLET, FLUSH MOUNTED IN FLOOR	F	FURNITURE OUTLET, MOUNTED IN A FLUSH POKE-THRU.
J	JUNCTION BOX, FLUSH MTD IN FLOOR		

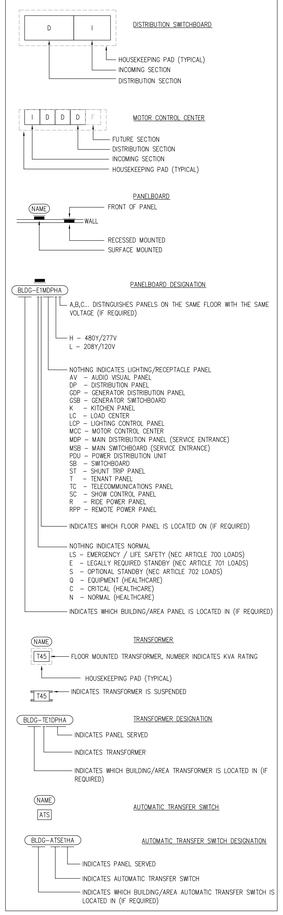
ABBREVIATIONS

A	AMPERES	IG	ISOLATED GROUND
AAC	ABOVE ACCESSIBLE CEILING	INC	INCANDESCENT
AC	ALTERNATING CURRENT	JB	JUNCTION BOX
ADA	AMERICANS WITH DISABILITIES ACT	KCMIL	THOUSAND CIRCULAR MILS
AF	AMPERE FRAME	KVA	KILOVOLT-AMPERES
AFCI	ARC FAULT CIRCUIT INTERRUPTOR	KVAR	KILOVOLT-AMPERES, REACTIVE
AFF	ABOVE FINISHED FLOOR	KW	KILOWATTS
AFG	ABOVE FINISHED GRADE	LCP	LIGHTING CONTROL PANEL
AFU	AMPERE FUSE	LPS	LOW PRESSURE SODIUM
AIC	AMPERES INTERRUPTING CAPACITY, SYMMETRICAL	LTG	LIGHTING
		MAX	MAXIMUM
AL	ALUMINUM	MCB	MAIN CIRCUIT BREAKER
ARCH	ARCHITECT	MCC	MOTOR CONTROL CENTER
AS	AMP SWITCH	MECH	MECHANICAL
AT	AMP TRIP	MFR	MANUFACTURER
ATS	AUTOMATIC TRANSFER SWITCH	MH	MANHOLE/METAL HALIDE
AWG	AMERICAN WIRE GAUGE	MIN	MINIMUM
BFG	BELOW FINISHED GRADE	MLO	MAIN LUGS ONLY
BKBD	BACKBOARD	MTD	MOUNTED
C	CONDUIT	MTG	MOUNTING
CAT	CATALOG	MVA	MEGAVOLT-AMPERES
CB	CIRCUIT BREAKER	N	NEUTRAL
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED	NA	NOT APPLICABLE
		NC	NORMALLY CLOSED
CKT	CIRCUIT	NEC	NATIONAL ELECTRICAL CODE
CLG	CEILING	NF	NON FUSED
CO	CONDUIT ONLY	NO	NORMALLY OPEN
CONC	CONCRETE	NTS	NOT TO SCALE
CONT	CONTINUATION	OC	ON CENTER
CU	COPPER	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
CT	CURRENT TRANSFORMER	OFOI	OWNER FURNISHED OWNER INSTALLED
Δ	DELTA	Φ, PH	PHASE
DIV	DIVISION	PC	PHOTOCELL
DIA	DIAMETER	PIR	PASSIVE INFRARED
DMM	DIGITAL MULTIMETER	POC	POINT OF CONNECTION
DWG	DRAWING	POS	POINT OF SALE
EA	EACH	PLBG	PLUMBING
EC	EMPTY CONDUIT	PT	POTENTIAL TRANSFORMER
ELEC	ELECTRICAL	PVC	POLYVINYL CHLORIDE
EM	EMERGENCY	PWR	POWER
EMT	ELECTRICAL METALLIC TUBING	QTY	QUANTITY
EP	EXPLOSION PROOF	REC	RECESSED
EPO	EMERGENCY POWER OFF	RECPT	RECEPTACLE
EQUIP	EQUIPMENT	REF	REFRIGERATOR
EWC	ELECTRIC WATER COOLER	RGS	RIGID GALVANIZED STEEL
EXIST	EXISTING	SPST	SINGLE POLE, SINGLE THROW
EXT	EXTERIOR	SPDT	SINGLE POLE, DOUBLE THROW
FA	FIRE ALARM	ST	SHUNT TRIP
FAA	FIRE ALARM ANNUNCIATOR PANEL	SURF	SURFACE
FIXT	FIXTURE	SWBD	SWITCHBOARD
FLUOR	FLUORESCENT	SWGR	SWITCHGEAR
FT	FEET OR FOOT	TBD	TO BE DETERMINED
FU	FUSE	TELECOM	TELECOMMUNICATIONS
G	GROUND	TYP	TYPICAL
GEN	GENERATOR	UG	UNDERGROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	UNO	UNLESS OTHERWISE NOTED
GFI	GROUND FAULT INTERRUPTER	V	VOLTS
GFP	GROUND FAULT PROTECTION	VFD	VARIABLE FREQUENCY DRIVE
HPRS	HORSEPOWER RATED SWITCH	W	WATTS
HOA	HAND OFF AUTOMATIC	WP	WEATHER PROOF
HP	HORSEPOWER	XFMR	TRANSFORMER
HPS	HIGH PRESSURE SODIUM	Y	WYE
HZ	HERTZ		

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH CALIFORNIA ELECTRICAL CODE, STATE OF CALIFORNIA ENERGY CONSERVATION STANDARDS AND ALL OTHER APPLICABLE CODES.
2. CONTRACTOR SHALL COORDINATE ALL EQUIPMENT LOCATIONS WITH ARCHITECTURAL, MECHANICAL, STRUCTURAL, PLUMBING AND ALL APPROPRIATE DISCIPLINES.
3. DO NOT SCALE DRAWINGS – ALL DIMENSIONS AND JOB SITE CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE JOB SITE PRIOR TO BID SUBMITTAL, START OF CONSTRUCTION AND / OR FABRICATION OF MATERIALS. IF DISCREPANCIES ARE ENCOUNTERED, CATERPILLAR REPRESENTATIVE SHALL BE NOTIFIED FOR CLARIFICATION.
4. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR, EQUIPMENT TRANSPORTATION AND SERVICES NECESSARY FOR COMPLETION OF THE WORK. ALL MATERIALS AND WORK SHALL BE IN COMPLIANCE WITH ALL APPLICABLE CODES AND GOVERNING REGULATIONS AND SHALL MEET WITH THE APPROVAL OF THE CITY AND STATE FIRE MARSHAL.
5. PROVIDE WEATHERPROOF JUNCTION BOXES, CONDUIT, FITTINGS AND ENCLOSURES AT ALL EXTERIOR LOCATIONS AND ALL WET OR DAMP INTERIOR LOCATIONS.
6. THE CONTRACTOR SHALL REVIEW EQUIPMENT MANUFACTURER'S REQUIREMENTS AND PROVIDE FUSE SIZES, CIRCUIT BREAKERS, RELAYS AS INDICATED. CONNECTIONS OR OTHER RELATED WORK TO COMPLETE THE ELECTRICAL SYSTEM.
7. ALL DEVICES AND EQUIPMENT SHALL BE INSTALLED IN COMPLIANCE WITH AMERICANS WITH DISABILITIES ACT REQUIREMENTS.
8. CONTRACTOR SHALL CONCEAL ALL CONDUIT FITTINGS AND DEVICES FROM PUBLIC VIEW WHERE REASONABLY POSSIBLE.
9. MINIMUM 3 WEEKS PRIOR TO STARTING ANY EXCAVATION WORK CONTRACTOR SHALL DO A FIELD SURVEY OF EXISTING UG UTILITIES, HIRE THE SERVICES OF AN INDEPENDENT ELECTRONIC LOCATOR SERVICE TO LOCATE EXISTING UG UTILITIES, SUBMIT THE SURVEY TO UCSD REPRESENTATIVE FOR REVIEW.
10. THERE SHALL BE NO PENETRATIONS THROUGH OR INTO ANY EXIT ENCLOSURE PER CBC SECTION 1005.3.3.5. THERE SHALL BE NO DEVICES, EQUIPMENT OR OBJECTS MOUNTED TO ANY PARTITION THAT IS PART OF THE TWO HOUR RATED EXIT ENCLOSURE.

DISTRIBUTION EQUIPMENT



SHEET INDEX

E001	ELECTRICAL LEAD SHEET
E002	ELECTRICAL LIGHTING CUT SHEETS AND CONTROL DETAILS
E101	ELECTRICAL SITE PLAN
E102	ELECTRICAL SITE PLAN LIGHTING CALCS
TE01	ELECTRICAL TITLE 24 FORMS
TE02	ELECTRICAL TITLE 24 FORMS

WORK SCOPE

PROVIDE SITE LIGHTING

SINGLE LINE SYMBOLS

###	CKT BREAKER, '###' INDICATES TRIP SETTING, '#' INDICATES NUMBER OF POLES
###	FUSED SWITCH, '###' INDICATES TRIP SETTING, '#' INDICATES NUMBER OF POLES
	ENCLOSED CIRCUIT BREAKER
	ENCLOSED NON-FUSED SWITCH
	ENCLOSED FUSED SWITCH
SS	SOLID STATE, ELECTRONIC ADJUSTABLE TRIP
ST	SHUNT TRIP
SPD	SURGE PROTECTIVE DEVICE
M	UTILITY METER
	TRANSFORMER
PANEL NAME	PANELBOARD
	PAD MOUNTED TRANSFORMER
	GROUND

POWER CONNECTIONS

	DISCONNECT SWITCH, REFER TO EQUIPMENT CONNECTION SCHEDULE FOR DISCONNECT TYPE, UON
	COMBINATION MOTOR STARTER DISCONNECT
	MOTOR STARTER
	VARIABLE FREQUENCY DRIVE
J	JUNCTION BOX, WALL MOUNTED
J	JUNCTION BOX, CEILING MOUNTED
X	MOTOR, SUBSCRIPT 'X' DENOTES MOTOR DESIGNATION, REFER TO EQUIPMENT CONNECTION SCHEDULE
	GROUND BUS BAR

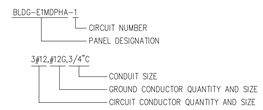
TAGS AND CALL OUT SYMBOLS

1 / E3.1	SECTION CALLOUT SECTION DESIGNATION SHEET NUMBER		POINT OF CONNECTION
A / E3.1	DETAIL CALLOUT DETAIL DESIGNATION SHEET NUMBER		POINT OF DEMARCATION
#	REVISION CALLOUT		
1	KEYNOTE CALLOUT		

DEMOLITION

< R >	EXISTING TO BE REMOVED		DEMOLITION CONDUIT
< RL >	EXISTING TO BE RELOCATED		DEMOLITION EQUIPMENT
< X >	EXISTING TO REMAIN		
< NL >	EXISTING – NEW LOCATION		

CIRCUITING



GOVERNING CODES

ALL ELECTRICAL INSTALLATIONS SHALL COMPLY WITH THE FOLLOWING CODES:

2022 CALIFORNIA BUILDING STANDARD CODE
2022 CALIFORNIA ELECTRICAL CODE
2022 CALIFORNIA BUILDING CODE
2020 NATIONAL ELECTRICAL CODE
2022 CALIFORNIA FIRE CODE
2022 CALIFORNIA ADMINISTRATIVE CODE (CAC)

Santa Fe Homes

address

EngCore Consulting
1855 1st Ave., Suite 100
San Diego, CA 92101

REGISTERED PROFESSIONAL ENGINEER
LANDYN KYNOCH
E 27079
EXPIRES 06-30-25
STATE OF CALIFORNIA

SANTA FE HOMES

Project Title

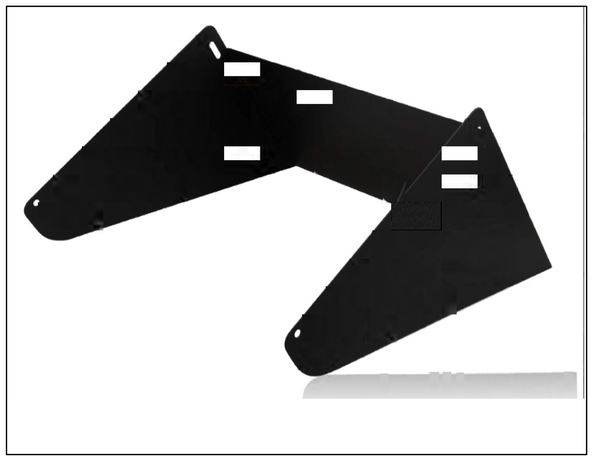
Submittal: Date:	Description:

Job Number: 2025051 | Designer: FB

Date: | Drafter:

ELECTRICAL LEAD SHEET

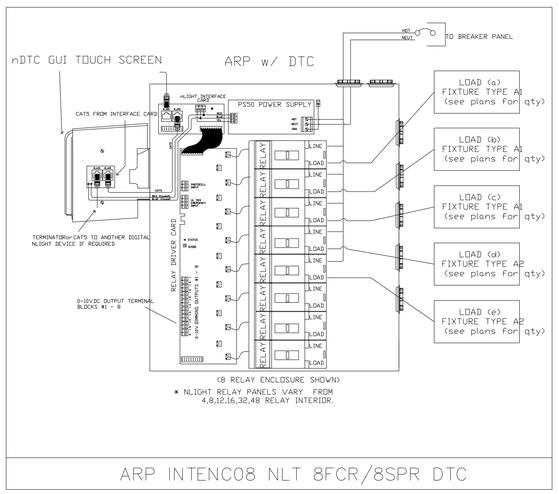
E001



LIGHT FIXTURE SHIELDING TYP

SCALE NONE | 4

CONTACT ANDREW DURHAM, SAN DIEGO LIGHTING ASSOCIATES, FOR ALL LIGHTING CONTROLS QUESTIONS AND COMPLETE nLIGHT BOM: ADURHAM@SDLTG.COM



ARP INTENC08 NLT 8FCR/8SPR DTC

LIGHTING CONTROL PANEL (RELAYS AND ASTRONOMICAL TIMER)

SCALE NONE | 3

Project		Catalog #		Type	F1
Prepared by		Notes		Date	2025 08 20

GVcGraw-Edison
VC Galleon Wall
I Mount Luminaire

Product Features

Light Ahrchitect™ · BAA · BABA · FADC

Interactive Menu
- Ordering Information page 2
- Product Specifications page 2
- Optical Configurations page 3
- Energy and Performance Data page 4
- Control Options page 4

Product Certifications

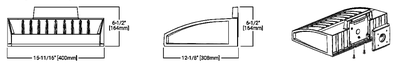
DLC LISTED · DLC PREMIUM · ISTI · cULus · FC · IP66 · SYEAR

Quick Facts
- Choice of thirteen high-efficiency, patented AccuLED Optics
- Downward and inverted wall mounting configurations
- Eight lumen packages from 3,215 up to 17,056
- Efficacies up to 154 lumens per watt

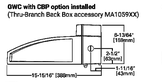
Connected Systems
- WaveLinx PRO Wireless
- WaveLinx LITE Wireless

Dimensional Details

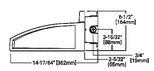
Net Weight: 17.0 lbs (7.7 kgs)



GWC with CBP option installed
(Thru-Branch Back Box accessory MA1059XX)



GWC with accessory BB/GWCXX Back Box Installed



NOTES:
1. Visit https://www.dlcdev.lib.com/pw/pw01 to confirm qualifications. Not all product variations are DLC qualified.
2. DLC Certified for 5000K CCT and warmer only.

FIXTURE F1 AREA LUMINARIES OR APPROVED EQUAL

SCALE NONE | 1

Ordering Information

SAMPLE NUMBER: **GWC-SA2C-740-U-T4FT-GM**

Product Family*	Light Engine: Configuration	Light Engine: Drive Current	Color Temperature	Voltage	Distribution	Finish
GWC-Galleon Wall **SAA-GWC-**Galleon Wall, Buy American Act Compliant [1] **TAA-GWC-**Galleon Wall, Trade Agreements Act Compliant [1] **BABA-GWC-**Galleon Wall, Buy America Build America [1]	8A1= Square **8A2=5 Square=1**	**A=530mA** **B=700mA** **C=1000mA** **D=1200mA** **Z=Configure=1**	720=70CRI, 2000K 727=70CRI, 2700K 730=70CRI, 3000K 735=70CRI, 3500K **740=70CRI, 4000K=1** 750=70CRI, 5000K 760=70CRI, 6000K 827=80CRI, 2700K 830=80CRI, 3000K 835=80CRI, 3500K 840=80CRI, 4000K **AMB=Amber, 590nm [2]**	**MVOLT=277V** **U=120V** **2=208V** **3=240V** **4=277V** **5=347V** **6=480V** **SVOLT=347V Dusk/Dawn Drivers [3,4]**	**T2=Type II** **T3=Type III** **T4FT=Type IV Forward Throw** **T4W=Type IV Wide** **SL2=Type II w/Spill Control** **SL3=Type III w/Spill Control** **SL4=Type IV w/Spill Control** **SLL=90° Spill Light Eliminator Left** **SLR=90° Spill Light Eliminator Right** **SWQ=Type V Square Narrow** **SMQ=Type V Square Medium** **SWQ=Type V Square Wide**	**AP=Grey** **BZ=Bronze** **BK=Black** **DP=Dark Platinum** **GM=Graphite Metallic** **WH=White**

Options (Add as Suffix)	Controls and Systems Options (Add as Suffix)	Accessories (Order Separately) [5]
P=Single Fused (120, 277 or 347V. Must Specify Voltage) FF=Double Fused (208, 240 or 480V. Must Specify Voltage) 10K=10kV Surge Module 20K=Series 20kV UL 1449 Surge Protective Device 2L=Two-Circuit Light Engine [6] DIM=External 0-10V Dimming Leads [6,7] CSP=Battery Pack with Back Box, Cold Weather Rated [6,7,8,9] CBP=CBC=Battery Pack with Back Box, Cold Weather Rated, Programmable [6,7,8,9] BB=Shipped with Back Box Accessory [6] L90=Optics Rotated 90° Left R90=Optics Rotated 90° Right HSS=Factory Installed House Side Shield [6] GBSBK=Factory Installed Glare Shield, Black [6,10] GBSWH=Factory Installed Glare Shield, White [6,10] GPL=Uplight Housing [6] HA=32°F High Ambient [6] LCP=Light Square Trim Plate Painted to Match Housing [6] MT=Factory Installed Mast Top CC=Coastal Construction Finish [6] DE=CE Marking and Small Terminal Block [6] AWD10=After Hours Dim, 1 Hours [6] AWD50=After Hours Dim, 5 Hours [6] AWD80=After Hours Dim, 8 Hours [6] AWD350=After Hours Dim, 8 Hours [6] SALU=SALU Driver [6]	SPD=Button Type Photocontrol (120, 208, 240 or 277V. Must Specify Voltage) YGTR=Yoke PR=NEMA 3 Pin Twistlock Photocontrol Receptacle [6] PR7=NEMA 7 Pin Twistlock Photocontrol Receptacle [6] FADC=Field Adjustable Dimming Controller [6] SPS1=Dimming Occupancy Sensor with Bluetooth Interface, <8' Mounting [6,9] SPS2=Dimming Occupancy Sensor with Bluetooth Interface, 8' - 20' Mounting [6,9] SPS3=Dimming Occupancy Sensor with Bluetooth Interface, 21' - 40' Mounting [6,9] SPS4=Dimming Occupancy Sensor with Bluetooth Interface, 7' - 15' Mounting [6,9] MS/DIM-LXE=Motion Sensor for On/Off Operation [6,9,11] MS/DIM-LXE=Motion Sensor for Dimming Operation [6,9,11] WPS2XX=WaveLinx Pro, SR Driver, Dimming Motion and Daylight, WAC Programmable, 7' - 15' Mounting [6,9,12] WPS4XX=WaveLinx Pro, SR Driver, Dimming Motion and Daylight, WAC Programmable, 15' - 40' Mounting [6,9,12] WLLEXX=WaveLinx Lite, SR Driver, Dimming Motion and Daylight, Bluetooth Programmable, 7' - 15' Mounting [6,9,12] WLL4XX=WaveLinx Lite, SR Driver, Dimming Motion and Daylight, Bluetooth Programmable, 15' - 40' Mounting [6,9,12]	GA/RA1613=Photocontrol Shorting Cap GA/RA1810=NEMA Photocontrol - Multi-Tap 105-285V GA/RA1835=NEMA Photocontrol - 347V GA/RA1847=NEMA Photocontrol - 480V MA1835=7-Pin Circuit Module Replacement MA1850XX=Thru-branch Back Box (Must Specify Color) BB/GWCXX=Back Box (Must Specify Color) HSS/GWC=House Side Shield, Black [6,10] LSHIELDSW-DP=Glare Shield, Dark Platinum [6,10] LSHIELDSW-BZ=Glare Shield, Bronze [6,10] LSHIELDSW-BK=Glare Shield, Black [6,10] LSHIELDSW-WH=Glare Shield, White [6,10] LSHIELDSW-GM=Glare Shield, Graphite Metallic [6,10] LSHIELDSW-DP=Glare Shield, Dark Platinum [6,10] LSHIELDSW-GM=Glare Shield, Graphite Metallic [6,10] LSHIELDSW-WH=Glare Shield, White [6,10] LSHIELDSW-BZ=Glare Shield, Bronze [6,10] LSHIELDSW-BK=Glare Shield, Black [6,10] LSPWP=Perimeter Shield, Black [6] FSDU-100=Wireless Configurator Tool for Occupancy Sensor [6] WGLC-TP-16A=WaveLinx Outdoor Control Module (7-pin) [6,13]

NOTES
1. Deploy light Connect® Qualified. Refer to www.designlights.org, Qualified Products List, under Family Models, for details.
2. Not available in 1000mA, driver used with SW or HA options, only available with single light square.
3. Factory-tuned 590nm +/- 5nm for wildlife and conservation use. Choose drive current A, supplied at 350mA drive current with L90/L80/L70 lumenare wattage available in 8A1 fitter. Available with SWQ, SMQ, SLL, SLR and SLA distributions. Can be used with HSS option. Not available with CBP.
4. Coastal construction finish salt spray tested to over 1,000 hours per ASTM B117, with a scribe rating of 7 per ASTM D1654.
5. Requires the use of a step-down transformer. Not available in combinations with sensor options or 1000mA.
6. Not available with SCL, SLA, SLL, SLR, CBP, PR or PR7 options.
7. Dusk/dawn sensor features added protection from power quality issues such as loss of neutral, transients and voltage fluctuations. Visit www.acuity.com/support for more information.
8. Not available with 1000mA, SW, HA or TAA options.
9. Low voltage control leads included 18" if not factory connected.
10. Not available in 1000mA, driver used with SBP or HA options, only available with single light square.
11. Not available with SCL, SLA, SLL, SLR, CBP, PR or PR7 options.
12. Not available with SCL, SLA, SLL, SLR, CBP, PR or PR7 options.
13. Operates a single light square only. Operates at -20°C to +40°C. Backbox is non-HP rated.
14. Not available with 1000mA, driver used with SBP or HA options, only available with single light square.
15. Requires the use of BPC (photocontrol) or the PR7 or PR (photocontrol) receptacle with photocontrol accessory. See After Hours Dim supplemental guide for additional information.
16. Not available with 1000mA, driver used with SBP or HA options, only available with single light square.
17. Cannot be used with PR7 or other motion response control options.
18. Not available with SCL, SLA, SLL, SLR, CBP, PR or PR7 options.
19. Requires the use of BPC (photocontrol) or the PR7 or PR (photocontrol) receptacle with photocontrol accessory. See After Hours Dim supplemental guide for additional information.
20. Not available with 1000mA, driver used with SBP or HA options, only available with single light square.
21. Not available with SCL, SLA, SLL, SLR, CBP, PR or PR7 options.
22. Not available with SCL, SLA, SLL, SLR, CBP, PR or PR7 options.
23. Not available with 1000mA, driver used with SBP or HA options, only available with single light square.
24. Not available with SCL, SLA, SLL, SLR, CBP, PR or PR7 options.
25. Not available with SCL, SLA, SLL, SLR, CBP, PR or PR7 options.
26. Not available with SCL, SLA, SLL, SLR, CBP, PR or PR7 options.
27. Not available with SCL, SLA, SLL, SLR, CBP, PR or PR7 options.
28. Not available with SCL, SLA, SLL, SLR, CBP, PR or PR7 options.
29. Not available with SCL, SLA, SLL, SLR, CBP, PR or PR7 options.
30. Not available with SCL, SLA, SLL, SLR, CBP, PR or PR7 options.
31. Not available with SCL, SLA, SLL, SLR, CBP, PR or PR7 options.
32. Not available with SCL, SLA, SLL, SLR, CBP, PR or PR7 options.
33. Only product configurations with these designated prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or the Buy America Build America Act (BABA). BABA is the minimum Government compliance requirement for the Buy America Build America standards which is part of the Infrastructure and Investment Jobs Act (IIJA). Individual Government Agencies may have more stringent compliance standards. Please refer to the DOMESTIC PREFERENCES website or consult the CLS Domestic Preferences team for more information. Components shipped separately may be separately analyzed under domestic preference requirements.
34. For SCA or TAA requirements, luminaires sold separately will be separately analyzed under domestic preference requirements.
35. Not available in 1 square configuration at 350mA or below. Not available with any control option except DTL.
36. Not available with PR, PR7 or other motion response control options.
37. Cannot be used with PR7 or other motion response control options.
38. Not available with CBP or CBP-CC options.
39. Cannot be used with PR7 or other motion response control options.
40. Not available with 1000mA, driver used with SBP or HA options, only available with single light square.
41. Controls system is not available with photocontrol receptacles (PR, PR7) or other controls systems (FADC, SPD1), SPD2, SPD3, SPD4, MS/DIM-LXE, WPS2XX, WPS4XX, WLLEXX, WLL4XX, SPS1, SPS2, SPS3, SPS4, WGLC-TP-16A).
42. Build America Buy America Act (BABA). BABA is the minimum Government compliance requirement for the Build America Buy America standards which is part of the Infrastructure and Investment Jobs Act (IIJA). Individual Government Agencies may have more stringent compliance standards. Please refer to the DOMESTIC PREFERENCES website or consult the CLS Domestic Preferences team for more information. Components shipped separately may be separately analyzed under domestic preference requirements.

Product Specifications

Construction
- Driver enclosure thermally isolated from optics for optimal thermal performance
- Die-cast aluminum heat sinks
- IP66 rated housing
- 1.5G vibration rated

Optics
- Patented, high-efficiency injection-molded AccuLED Optics technology
- 13 optical distributions

Electrical
- LED driver assembly mounted for ease of maintenance
- Standard with 0-10V dimming
- Optional 10kV or 20kV surge module
- Suitable for operation in -40°C to 40°C ambient environments; Optional 50°C high ambient (HA) configuration
- Luminaire available with the field adjustable dimming controller (FADC) to manually adjust wattage and reduce the total lumen output and light levels. Comes pre-set to the highest position at the lumen output selected

Mounting
- Gasketed and zinc plated rigid steel mounting attachment
- "Hook-N-Lock" mechanism for easy installation

Finish
- Housing finished in super durable TGIC polyester powder coat paint, 2.5 mil nominal thickness
- Heat sink is powder coated black
- RAL and custom color matches available
- Coastal Construction (CC) option available

Compliance
- IDA Certified for 3000K CCT and warmer only.
- PWMA and FTA agencies are utilizing their BAA rules for BABA compliance. Only product configurations with these prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or the Buy America Build America Act (BABA). BABA is the minimum Government compliance requirement for the Buy America Build America standards which is part of the Infrastructure and Investment Jobs Act (IIJA). Individual Government Agencies may have more stringent compliance standards.
- Please refer to the DOMESTIC PREFERENCES website or consult the CLS Domestic Preferences team for more information. Components shipped separately may be separately analyzed under domestic preference requirements

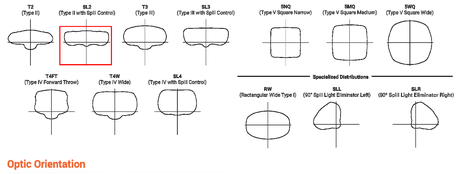
Typical Applications
- Exterior Wall, Walkway

Warranty
- Five year limited warranty, consult website for details. www.cooperlighting.com/legal

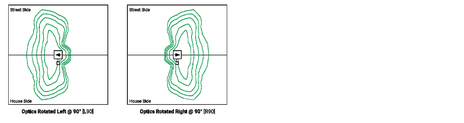
FIXTURE F2 FLOOD LUMINARIES OR APPROVED EQUAL

SCALE NONE | 2

Optical Distributions



Optic Orientation



Energy and Performance Data

Lumen Multiplier

Ambient Temperature	Lumen Multiplier
0ºC	1.02
10ºC	1.01
25ºC	1.00
40ºC	0.99
50ºC	0.97

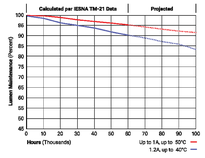
FADC Settings

FADC Position	Lumen Multiplier
1	25%
2	46%
3	55%
4	62%
5	72%
6	77%
7	82%
8	85%
9	90%
10	100%

Note: +/-3% typical value

Lumen Maintenance

Drive Current	Ambient Temperature	TM-21 Lumen Maintenance (60,000 Hours)	Projected L70 (Hours)
Up to 1A	Up to 50°C	> 93%	> 416,000
1.2A	Up to 40°C	> 90%	> 205,000



Santa Fe Homes

address

EngCore Consulting
1855 1st Ave., Suite 100
San Diego, CA 92101

REGISTERED PROFESSIONAL ENGINEER — ANDREW BENDER — E-27079 — EXPIRES 06-30-25 — STATE OF CALIFORNIA

SANTA FE HOMES

Project Title

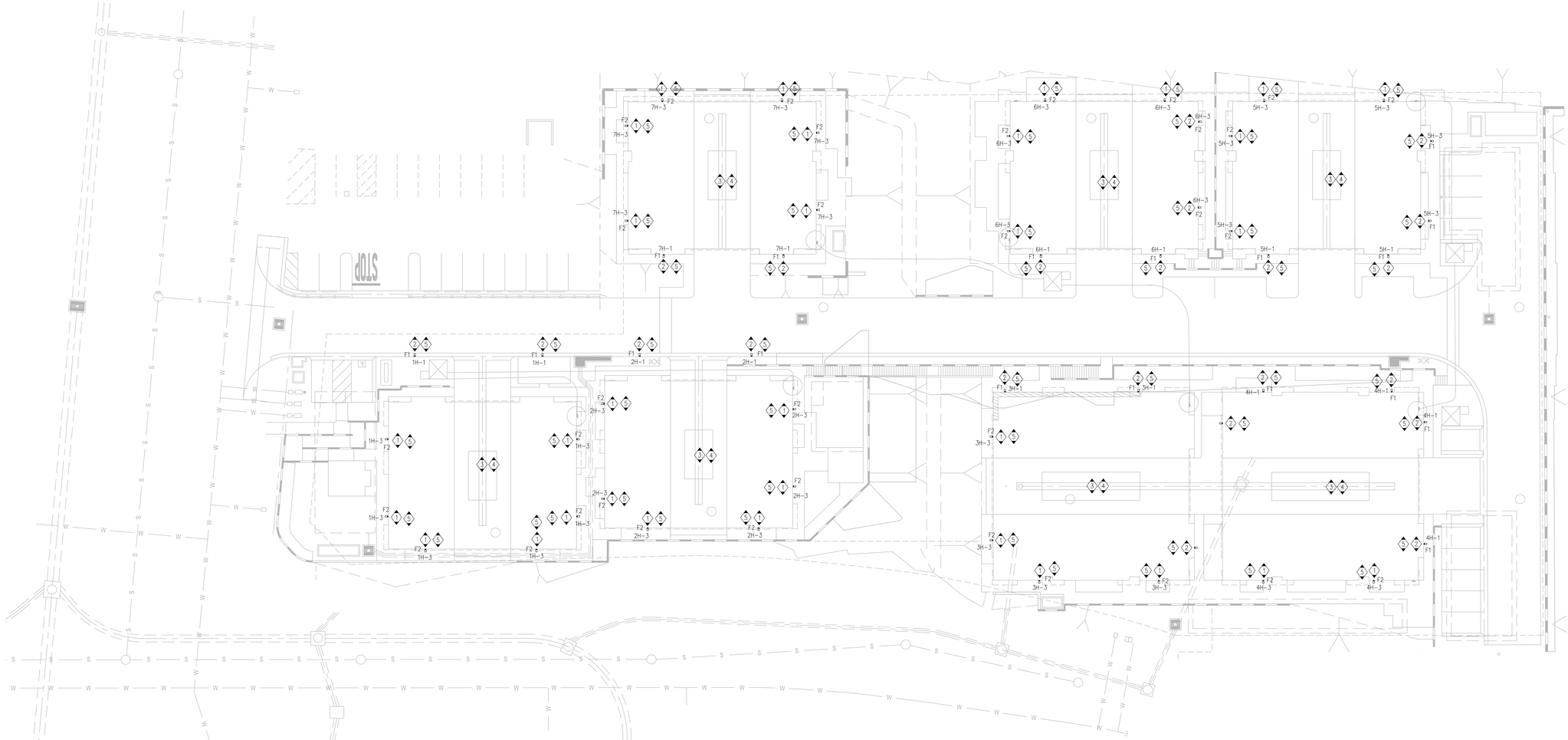
Submittal:	Description:
Date:	

Job Number: 2025051	Designer: FB
Date:	Drafter:

ELECTRICAL CUT SHEETS & DETAILS

E002

2094



KEY NOTES:

1. PROVIDE WALL MOUNTED FLOODLIGHT LUMINARIES WITH WIDE FLOOD OPTICS, MOUNTED AT 15 FEET ABOVE FINISH FLOOR. PROVIDE OCCUPANT SENSING DEVICE IN COMBINATION WITH ASTRONOMICAL TIME SWITCH FOR CONTROLS
2. PROVIDE WALL MOUNTED AREA LUMINARIES TYPE II OPTICS MOUNTED AT 25 FEET ABOVE FINISH FLOOR.
3. ALL EXTERIOR LIGHTING FIXTURES, INCLUDING THOSE DESIGNATED FOR SITE ILLUMINATION, SHALL BE CONNECTED TO THE BUILDING'S HOUSE ELECTRICAL PANEL.
4. PROVIDE ASTRONOMICAL TIME CONTROLS TO ENSURE LUMINAIRES OPERATE ONLY DURING REQUIRED NIGHT TIME HOURS.
5. PROVIDE BACK-PLATES SHIELDING TO BLOCK LIGHT FROM ESCAPING BACKWARDS

GENERAL NOTES:

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), LOCAL ELECTRICAL CODES, THE AUTHORITY HAVING JURISDICTION (AHJ), AND THE UTILITY COMPANY SERVING THE PROJECT.
2. LIGHTING LEVELS, FIXTURE TYPES, AND CONTROLS SHALL COMPLY WITH APPLICABLE ENERGY CODES (E.G., CALIFORNIA TITLE 24 OR IECC, AS REQUIRED).
3. CONTRACTOR SHALL COORDINATE EXACT POLE, FIXTURE, AND CONDUIT LOCATIONS WITH CIVIL, STRUCTURAL, LANDSCAPING, AND ARCHITECTURAL DRAWINGS PRIOR TO INSTALLATION.
4. ANY CONFLICTS BETWEEN TRADES SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION BEFORE PROCEEDING.
5. VERIFY ALL UNDERGROUND UTILITIES BEFORE TRENCHING OR EXCAVATION (CALL 811).
6. ALL LIGHTING FIXTURES, POLES, AND EQUIPMENT SHALL BE NEW, UL LISTED, AND APPROVED FOR OUTDOOR USE.
7. POLE BASES SHALL BE INSTALLED PER MANUFACTURER'S REQUIREMENTS AND STRUCTURAL DRAWINGS.
8. CONDUITS SHALL BE PVC SCHEDULE 40 UNDERGROUND (MINIMUM 24" COVER) OR GALVANIZED RIGID STEEL WHERE EXPOSED ABOVE GRADE, UNLESS OTHERWISE NOTED.
9. ALL CONDUCTORS SHALL BE COPPER, THWN/THHN RATED FOR WET LOCATIONS. MINIMUM CONDUCTOR SIZE: #12 AWG UNLESS NOTED OTHERWISE.
10. PROVIDE SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN ALL RACEWAYS.
11. INSTALL LIGHTING POLES PLUMB AND SECURE WITH APPROPRIATE ANCHOR BOLTS, LEVELING NUTS, AND GROUT AS DETAILED.
12. PROVIDE ACCESSIBLE JUNCTION BOXES AT BASE OF EACH POLE FOR WIRING CONNECTIONS.
13. SPLICES SHALL BE MADE WITH WATERPROOF, LISTED CONNECTORS SUITABLE FOR DIRECT BURIAL.
14. PARKING LOT/SITE LIGHTING SHALL BE CONTROLLED BY A TIME SWITCH, PHOTOCELL, ASTRONOMICAL TIME SWITCH OR BUILDING AUTOMATION SYSTEM AS SPECIFIED.
15. EMERGENCY OR SECURITY LIGHTING SHALL BE PROVIDED AS REQUIRED BY CODE.
16. VERIFY CORRECT OPERATION OF ALL FIXTURES, CONTROLS, AND CIRCUITS IN PRESENCE OF OWNER/ENGINEER.
17. CONTRACTOR SHALL RESTORE ALL DISTURBED PAVING, LANDSCAPING, AND SURFACES TO ORIGINAL CONDITION OR BETTER.
18. ALL RESTORATION SHALL MATCH ADJACENT FINISHES AND COMPLY WITH JURISDICTIONAL REQUIREMENTS.
19. CONTRACTOR SHALL MAINTAIN AND SUBMIT ACCURATE AS-BUILT DRAWINGS SHOWING FINAL CONDUIT ROUTING, PULL BOX LOCATIONS, AND CIRCUITING.
20. ALL EXTERIOR SITE AND PARKING LIGHTING SHALL COMPLY WITH THE 2002 CALIFORNIA BUILDING CODE AND THE 2001 CALIFORNIA ENERGY CODE (TITLE 24, PART 6). LIGHTING CONTROLS SHALL INCLUDE AUTOMATIC SHUTOFF DEVICES, CONSISTING OF A PHOTOELECTRIC SENSOR AND/OR AN ASTRONOMICAL TIME SWITCH TO ENSURE LUMINAIRES OPERATE ONLY DURING REQUIRED NIGHTTIME HOURS

ELECTRICAL SITE PLAN

SCALE 1"=20'-0" 1

Santa Fe Homes

address

EngCore Consulting
1855 1st Ave., Suite 100
San Diego, CA 92101

SANTA FE HOMES

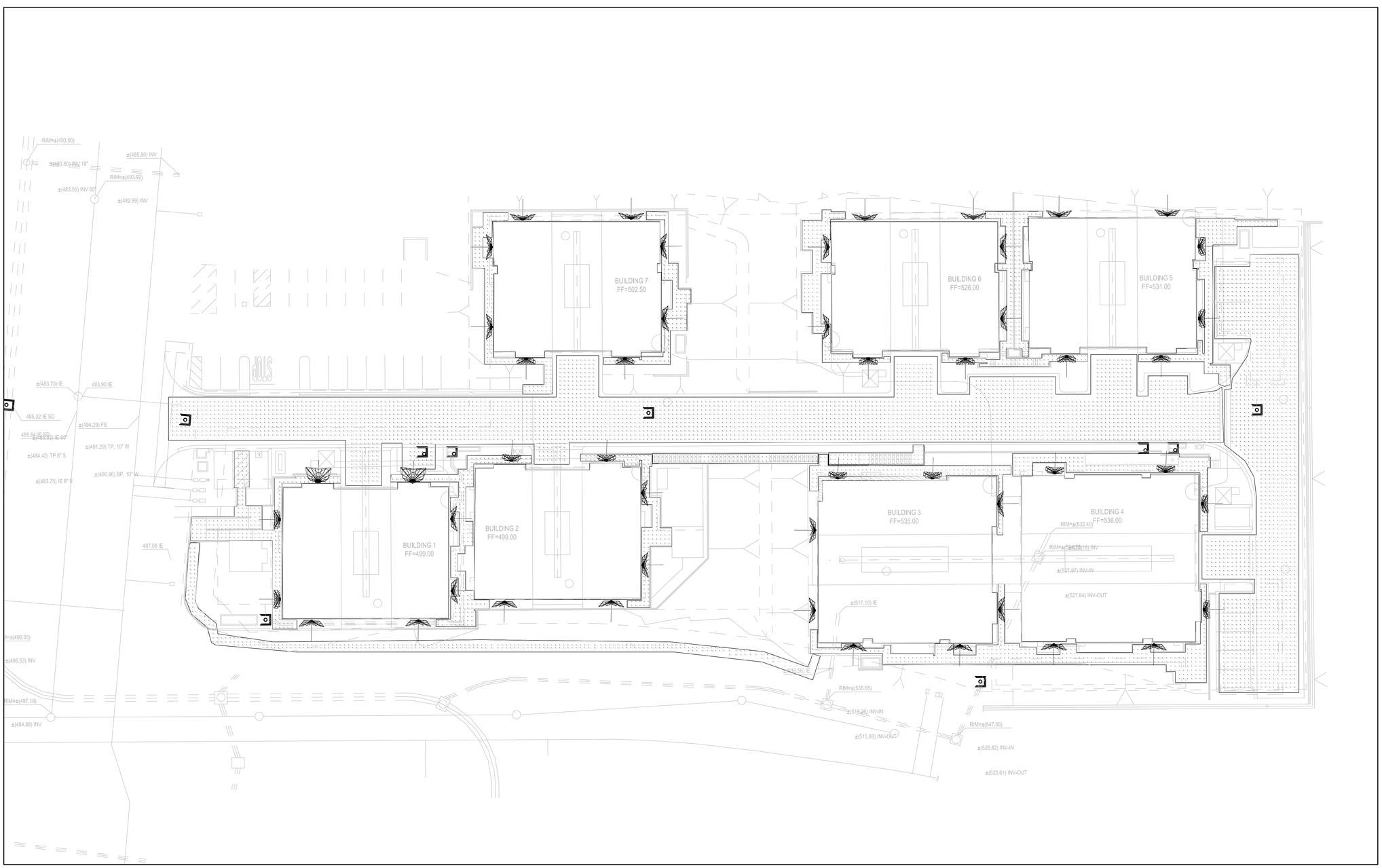
Project Title

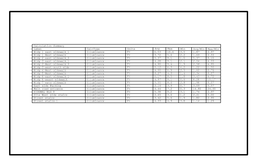
Submittal Date:	Description:

Job Number: 2025051	Designer: FB
Date:	Drafter:

ELECTRICAL SITE PLAN

E101





ELECTRICAL SITE PLAN LIGHTING CALCS

SCALE 1"=20'-0" | 1

Santa Fe Homes

address

EngCore Consulting
1855 1st Ave., Suite 100
San Diego, CA 92101

SANTA FE HOMES

Project Title

Submittal Date:	Description:

Job Number: 2025051 | Designer: FB

Date: | Drafter:

ELECTRICAL SITE PLAN LIGHTING CALCS

E102

2096

STATE OF CALIFORNIA
Outdoor Lighting CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name:	Santa Fe Homes	(Page 1 of 10)
Project Address:	San Marcos 92069, CA	Date Prepared: 8/25/2025

This document is used to demonstrate compliance with requirements in 110.9, 130.0, 130.2, 140.7, and 141.0(b)2L for outdoor lighting scopes using the prescriptive path for nonresidential and hotel/motel occupancies. It is also used to document compliance with requirements in 160.5, 170.2(e)6, 180.1(a) and 180.2(b)4Bv for outdoor lighting scopes using the prescriptive path for multifamily and mixed-use occupancies. Multifamily includes dormitory and senior living facilities.

A. GENERAL INFORMATION

01	Project Location (city)		04	Total Illuminated Hardscape Area (ft²)	47020
02	Climate Zone	10			
03	Outdoor Lighting Zone per Title 24 Part 1 10.114 or as designated by Authority Having Jurisdiction (AHJ):				
☐	LZ-0: Very Low - Undeveloped Parkland	☒ LZ-2: Moderate - Urban Clusters	☐ LZ-4: High - Must be reviewed by CA Energy Commission for Approval		
☐	LZ-1: Low - Rural Areas	☐ LZ-3: Moderately High - Urban Areas			
05	Occupancy Types within Project				
•	All Other Occupancies				

B. PROJECT SCOPE

This table includes outdoor lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.7 / 170.2(e)6 or 141.0(b)2L / 180.2(b)4Bv for alterations.

My Project Consists of:

01	02		
☒	New Lighting System	Must Comply with Allowances from 140.7 / 170.2(e)6	
☐	Altered Lighting System	Is your alteration increasing the connected lighting load (Watts)?	○ Yes ○ No

03	04	05
% of Existing Luminaires Being Altered[1]	Sum Total of Luminaires Being Added or Altered	Calculation Method
☐ < 10% ☐ >= 10% and < 50% ☐ >= 50%		

Please proceed to Table F. Outdoor Lighting Fixture Schedule to define the project's luminaires.

[1] FOOTNOTES: % of Existing Luminaires Being Altered = (Sum Total of Luminaires Being Added or Altered / Existing Luminaires within the Scope of the Permit Application) x 100.

STATE OF CALIFORNIA
Outdoor Lighting CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name:	Santa Fe Homes	(Page 2 of 10)
	San Marcos 92069, CA	Date Prepared: 8/25/2025

C. COMPLIANCE RESULTS

Results in this table are automatically calculated from data input and calculations in Tables F through N. Note: If any cell on this table says "COMPLIES with Exceptional Conditions" refer to Table D. Exceptional Conditions for guidance or see applicable Table referenced below.

Calculations of Total Allowed Lighting Power (Watts) 140.7 / 170.2(e)6 or 141.0(b)2L / 180.2(b)4Bv												Compliance Results		
01		02		03		04		05		06		07	08	09
General Hardscape Allowance 140.7(d)1 / 170.2(e)6 (See Table I)	+	Per Application 140.7(d)2 / 170.2(e)6 (See Table J)	+	Sales Frontage 140.7(d)2 (See Table K)	+	Ornamental 140.7(d)2 / 170.2(e)6 (See Table L)	+	Per Specific Area 140.7(d)2 / 170.2(e)6 (See Table M)	OR	Existing Power Allowance 141.0(b)2L / 180.2(b)4Bv (See Table N)	=	**Total Allowed** (Watts)	≥	**Total Actual** (Watts)	**07 must be >= 08**
1,968	+	---	+	---	+	---	+	---	OR	---	=	1,968	≥	1,462	COMPLIES
Shielding Compliance (See Table G for Details)															COMPLIES
Controls Compliance (See Table H for Details)															COMPLIES

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

Generated Date/Time: Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Schema Version: rev 20220101 Compliance ID: EnergyPro-7517-0825-5186 Report Generated: 2025-08-25 21:35:51

STATE OF CALIFORNIA
Outdoor Lighting CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name:	Santa Fe Homes	(Page 3 of 10)
	San Marcos 92069, CA	Date Prepared: 8/25/2025

F. OUTDOOR LIGHTING FIXTURE SCHEDULE

For new or altered lighting systems demonstrating compliance with 140.7 / 170.2(e)6 all new luminaires being installed and any existing luminaires remaining or being moved within the spaces covered by the permit application are included in the Table below. For altered lighting systems using the Existing Power method per 141.0(b)2L only new luminaires being installed and replacement luminaires being installed as part of the project scope are included (ie, existing luminaires remaining or existing luminaires being moved are not included). Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H. and are not included here. All other multifamily outdoor lighting is included here.

Designed Wattage:

01	02		03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description		Watts per luminaire[1, 2]	How is Wattage determined	Total Number Luminaires[2]	Luminaire Status[3]	Excluded per 140.7(a) / 170.2(e)6A	Design Watts	Cutoff Req. > 6,200 initial lumen output 130.2(b) / 160.5(c)1[4]	Field Inspector	
										Pass	Fail
F1	F2 Wall mtd LED fixture	☐ Linear	34	Mfr. Spec	15	New	☐	510	Provided	☐	☐
F2	F2 Wall mtd LED fixture	☐ Linear	34	Mfr. Spec	28	New	☐	952	Provided	☐	☐
							Total Design Watts:	1462			

** NOTES: Selections with a * require a note in the space below explaining how compliance is achieved.*
EX: Luminaire is lighting a statue; EXCEPTION 2 to 130.2(b)

[1] FOOTNOTES: Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per 130.0(c) / 160.5(b)
[2] For linear luminaires, wattage should be indicated as W/lf instead of Watts/luminaire. Total linear feet should be indicated in column 05 instead of number of luminaires.
[3] Select "New" for new luminaires in a new outdoor lighting project, or for added luminaires in an alteration. Select "Altered" for replacement luminaires in an alteration. Select "Existing to Remain" for existing luminaires within the project scope that are not being altered and are remaining. Select "Existing Reinstalled" for existing luminaires which are being removed and reinstalled as part of the project scope.
[4] Compliance with mandatory shielding requirements is required for luminaires with initial lumen output >= 6,200 unless exempted by 130.2(b)/ 160.5(c)

Generated Date/Time: Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Schema Version: rev 20220101 Compliance ID: EnergyPro-7517-0825-5186 Report Generated: 2025-08-25 21:35:51

STATE OF CALIFORNIA
Outdoor Lighting CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name:	Santa Fe Homes	(Page 4 of 10)
	San Marcos 92069, CA	Date Prepared: 8/25/2025

G. SHIELDING REQUIREMENTS (BUG)

This table includes fixtures of >=6,200 initial lumens indicated on Table F as needing to comply with Shielding Requirements. Maximum lumens can be found in Title 24, Part 11, Section 5.106.8.

01	02	03	04	05	06	07	08	09	10	11	12
Name or Item Tag	Complete Luminaire Description	Backlight Rating[2]			Uplight Rating[2]			Glare Rating (Lumens)[2]			Field Inspector
		Mounting Height[1]	Max Allowable Backlight Rating[3]	Backlight Rating Per Design	Lighting type	Max Allowable Uplight Rating[3]	Uplight Rating Per Design	Mounting Height[1]	Max Allowable Glare Rating[3]	Glare Rating Per Design	Pass / Fail
F1	F2 Wall mtd LED fixture	2 MH from property line	No Limit	B1	All other outdoor lighting, including decorative	U2	U0	> 2 MH from property line	G2	G2	☐ ☐

Generated Date/Time: Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Schema Version: rev 20220101 Compliance ID: EnergyPro-7517-0825-5186 Report Generated: 2025-08-25 21:35:51

STATE OF CALIFORNIA
Outdoor Lighting CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name:	Santa Fe Homes	(Page 5 of 10)
	San Marcos 92069, CA	Date Prepared: 8/25/2025

G. SHIELDING REQUIREMENTS (BUG)

This table includes fixtures of >=6,200 initial lumens indicated on Table F as needing to comply with Shielding Requirements. Maximum lumens can be found in Title 24, Part 11, Section 5.106.8.

01	02	03	04	05	06	07	08	09	10	11	12
Name or Item Tag	Complete Luminaire Description	Backlight Rating[2]			Uplight Rating[2]			Glare Rating (Lumens)[2]			Field Inspector
		Mounting Height[1]	Max Allowable Backlight Rating[3]	Backlight Rating Per Design	Lighting type	Max Allowable Uplight Rating[3]	Uplight Rating Per Design	Mounting Height[1]	Max Allowable Glare Rating[3]	Glare Rating Per Design	Pass / Fail
F2	F2 Wall mtd LED fixture	2 MH from property line	No Limit	B1	All other outdoor lighting, including decorative	U2	U0	> 2 MH from property line	G2	G2	☐ ☐
F2	F2 Wall mtd LED fixture	2 MH from property line	No Limit	B1	All other outdoor lighting, including decorative	U2	U0	> 2 MH from property line	G2	G2	☐ ☐
F2	F2 Wall mtd LED fixture	2 MH from property line	No Limit	B1	All other outdoor lighting, including decorative	U2	U0	> 2 MH from property line	G2	G2	☐ ☐
F2	F2 Wall mtd LED fixture	2 MH from property line	No Limit	B1	All other outdoor lighting, including decorative	U2	U0	> 2 MH from property line	G2	G2	☐ ☐
F2	F2 Wall mtd LED fixture	2 MH from property line	No Limit	B1	All other outdoor lighting, including decorative	U2	U0	> 2 MH from property line	G2	G2	☐ ☐
F2	F2 Wall mtd LED fixture	2 MH from property line	No Limit	B1	All other outdoor lighting, including decorative	U2	U0	> 2 MH from property line	G2	G2	☐ ☐
F2	F2 Wall mtd LED fixture	2 MH from property line	No Limit	B1	All other outdoor lighting, including decorative	U2	U0	> 2 MH from property line	G2	G2	☐ ☐

[1] FOOTNOTES: Mounting Height is labeled MH in this table.

Generated Date/Time: Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Schema Version: rev 20220101 Compliance ID: EnergyPro-7517-0825-5186 Report Generated: 2025-08-25 21:35:51

STATE OF CALIFORNIA
Outdoor Lighting CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name:	Santa Fe Homes	(Page 6 of 10)
	San Marcos 92069, CA	Date Prepared: 8/25/2025

G. SHIELDING REQUIREMENTS (BUG)

This table includes fixtures of >=6,200 initial lumens indicated on Table F as needing to comply with Shielding Requirements. Maximum lumens can be found in Title 24, Part 11, Section 5.106.8.

01	02	03	04	05	06	07	08	09	10	11	12
Name or Item Tag	Complete Luminaire Description	Backlight Rating[2]			Uplight Rating[2]			Glare Rating (Lumens)[2]			Field Inspector
		Mounting Height[1]	Max Allowable Backlight Rating[3]	Backlight Rating Per Design	Lighting type	Max Allowable Uplight Rating[3]	Uplight Rating Per Design	Mounting Height[1]	Max Allowable Glare Rating[3]	Glare Rating Per Design	Pass / Fail

[2] Authority Having Jurisdiction may ask for Luminaire cut sheets or other documentation to confirm luminaire type, uplight ratings and glare ratings used for compliance per 130.2(b)/ 160.5(c)
[3] BUG ratings with a lower number than the 'Max Allowable' are compliant. Ex. If Max Allowable is Bug Rating B4, then B0, B1, B2 and B3 are all compliant.

H. OUTDOOR LIGHTING CONTROLS

This table demonstrates compliance with controls requirements for all new or altered luminaires installed as part of the permit application. For alteration projects, luminaires which are existing to remain (ie untouched) and luminaires which are removed and reinstalled (wiring only) do not need to be included in this table even if they are within the spaces covered by the permit application.
Outdoor lighting for nonresidential buildings, parking garages and common service areas in multifamily buildings must be documented separately from outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit

Mandatory Controls for Nonresidential Occupancies, Parking Garages & Common Areas in Multifamily Buildings

01	02	03	04	05	
Area Description	Shut-Off 130.2(c)1 / 160.5(c)	Auto-Schedule 130.2(c)2 / 160.5(c)	Motion Sensor 130.2(c)3 / 160.5(c)	Field Inspector	
				Pass	Fail
Entrance Road and Parking areas	Photocontrol	Provided	Provided	☐	☐
Pestrian hardscape walkways	Photocontrol	Provided	Provided	☐	☐

[1] FOOTNOTE: Text has been abbreviated, please refer to Table 160.5-A to confirm compliance with the specific light source technologies listed.
[2] Authority having jurisdiction may ask for cutsheets or other documentation to confirm compliance of light source.
[3] Recessed luminaires marked for use in fire-rated installations, and recessed luminaires installed in non-insulated ceilings are excepted from ii and iii.

Generated Date/Time: Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Schema Version: rev 20220101 Compliance ID: EnergyPro-7517-0825-5186 Report Generated: 2025-08-25 21:35:51

Santa Fe Homes
address
EngCore Consulting
1855 1st Ave., Suite 100
San Diego, CA 92101
REGISTERED PROFESSIONAL ENGINEER F. MATTOO EXP. 06-30-25 STATE OF CA
SANTA FE HOMES

Project Title

Submittal Date:	Description:

Job Number: 2025051	Designer: FB
Date:	Drafter:

ELECTRICAL
TITLE -24

TE01

STATE OF CALIFORNIA
Outdoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: Santa Fe Homes	**Report Page:**	**(Page 7 of 10)**
San Marcos 92069, CA	**Date Prepared:**	8/25/2025

I. LIGHTING POWER ALLOWANCE (per 140.7 / 170.2(e))

This table includes areas using allowance calculations per 140.7 / 170.2(e). General Hardscape Allowance is per Table 140.7-A/Table 170.2-R while "Use it or lose it" Allowances are per Table 140.7-B /Table 170.2-S. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance. Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H. and are not included here. All other multifamily outdoor lighting is included here.

	01				
	"Use it or lose it" Allowance (select all that apply) (select all that apply)				
	☒ General Hardscape Allowance Table I (below)	☐ Per Application Table J	☐ Sales Frontage Table K	☐ Ornamental Table L	☐ Per Specific Area Table M

Calculated General Hardscape Lighting Power Allowance per Table 140.7-A for Nonresidential & Hotel/Motel

02	03	04	05	06	07	08	09
Area Description	Area Wattage Allowance (AWA)			Linear Wattage Allowance (LWA)			Total General AWA + LWA (Watts)
	Illuminated Area (ft^2)	Allowed Density (W/ft^2)	Area Allowance (Watts)	Perimeter Length (lf)	Allowed Density (W/lf)	Linear Allowance (Watts)	
Main road and parking	26200	0.019	497.8	710	0.2	106.5	604
Building 7 walkways	4660	0.019	88.5	844	0.2	126.6	215
plineBuilding 6 walkways	4400	0.019	83.6	744	0.2	111.6	195
Building 5 walkways	1400	0.019	26.6	644	0.2	96.6	123
Building 1 walkways	2500	0.019	47.5	744	0.2	111.6	159
Building 2 walkways	1800	0.019	34.2	756	0.2	113.4	148
Building 3 walkways	4660	0.019	88.5	744	0.2	111.6	200
listBuilding 4 walkways	1400	0.019	26.6	644	0.2	96.6	123
						Initial Wattage Allowance for Entire Site (Watts):	200
						Instances of Initial Wattage Allowance (LZ 0 only)[1]	
						Total General Hardscape Allowance (Watts):	1968

J. LIGHTING ALLOWANCE: PER APPLICATION

This section does not apply to this project.

STATE OF CALIFORNIA
Outdoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: Santa Fe Homes	**Report Page:**	**(Page 8 of 10)**
San Marcos 92069, CA	**Date Prepared:**	8/25/2025

K. LIGHTING ALLOWANCE: SALES FRONTAGE

This section does not apply to this project.

L. LIGHTING ALLOWANCE: ORNAMENTAL

This section does not apply to this project.

M. LIGHTING ALLOWANCE: PER SPECIFIC AREA

This section does not apply to this project.

N. EXISTING CONDITIONS POWER ALLOWANCE (alterations only)

This section does not apply to this project.

O. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection has been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online

Form/Title
NRCI-LTO-E - Must be submitted for all buildings

STATE OF CALIFORNIA
Outdoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: Santa Fe Homes	**Report Page:**	**(Page 9 of 10)**
San Marcos 92069, CA	**Date Prepared:**	8/25/2025

P. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selection has been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/attcp/providers.html

Form/Title	Systems/Spaces To Be Field Verified
NRCA-LTO-02-A - Must be submitted for all outdoor lighting controls except for alterations where controls are added to <= 20 luminaires.	Entrance Road and Parking areas; Pestrian hardscape walkways;

STATE OF CALIFORNIA
Outdoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: Santa Fe Homes	**Report Page:**	**(Page 10 of 10)**
Project Address: San Marcos 92069, CA	**Date Prepared:**	8/25/2025

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Fernando Bendeck	Documentation Author Signature: Fernando Bendeck
Company: EngCore Consulting inc	Signature Date:
Address: 1855 First Ave Ste 100	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: San Diego, CA 92101	Phone:

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Fernando Bendeck	Responsible Designer Signature: Fernando Bendeck
Company: EngCore Consulting inc	Date Signed: 2025-08-25
Address: 1855 First Ave Ste 100	License: E-17019
City/State/Zip: San Diego, CA 92101	Phone:

Santa Fe Homes
address

EngCore Consulting
1855 1st Ave., Suite 100
San Diego, CA 92101

REGISTERED PROFESSIONAL ENGINEER
FERNANDO BENDECK
E 17019
EXPIRES 09-30-25
STATE OF CALIFORNIA

SANTA FE HOMES

Project Title

Submittal Date:	Description:

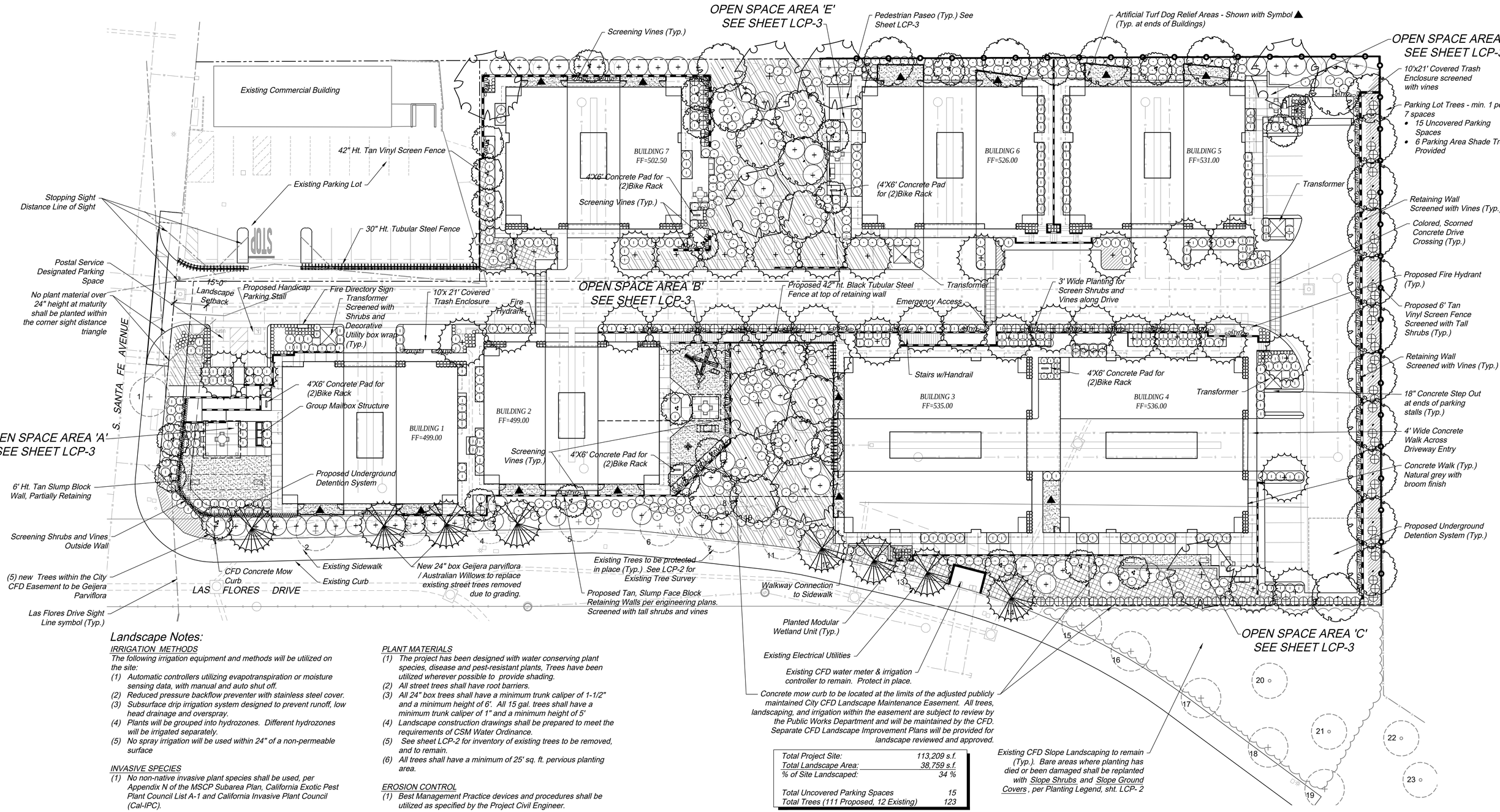
Job Number: 2025051 | Designer: FB
Date: | Drafter:

ELECTRICAL
TITLE -24

TE02

ATTACHMENT E3

PROJECT LANDSCAPE PLANS



Landscape Notes:

IRRIGATION METHODS

The following irrigation equipment and methods will be utilized on the site:

(1) Automatic controllers utilizing evapotranspiration or moisture sensing data, with manual and auto shut off.
(2) Reduced pressure backflow preventer with stainless steel cover.
(3) Subsurface drip irrigation system designed to prevent runoff, low head drainage and overspray.
(4) Plants will be grouped into hydrozones. Different hydrozones will be irrigated separately.
(5) No spray irrigation will be used within 24" of a non-permeable surface

INVASIVE SPECIES

(1) No non-native invasive plant species shall be used, per Appendix N of the MSCP Subarea Plan, California Exotic Pest Plant Council List A-1 and California Invasive Plant Council (Cal-IPC).

LANDSCAPE MAINTENANCE

(1) All landscaped areas outside the CFD Landscape Maintenance Easement boundary shall be maintained by the owner.
(2) All landscape improvements within the CFD Landscape Maintenance Easement boundary shall be City maintained.
(3) All fences and retaining walls shall be privately maintained by the owner.

PLANT MATERIALS

(1) The project has been designed with water conserving plant species, disease and pest-resistant plants, Trees have been utilized wherever possible to provide shading.
(2) All street trees shall have root barriers.
(3) All 24" box trees shall have a minimum trunk caliper of 1-1/2" and a minimum height of 6'. All 15 gal. trees shall have a minimum trunk caliper of 1" and a minimum height of 5'
(4) Landscape construction drawings shall be prepared to meet the requirements of CSM Water Ordinance.
(5) See sheet LCP-2 for inventory of existing trees to be removed, and to remain.
(6) All trees shall have a minimum of 25' sq. ft. pervious planting area.

EROSION CONTROL

(1) Best Management Practice devices and procedures shall be utilized as specified by the Project Civil Engineer.

MISCELLANEOUS

(1) On-site pedestrian and bicycle paths shall be clearly distinguished to ensure these routes are visible to drivers and require vehicles to yield to pedestrians and bicyclists.

Total Project Site:	113,209 s.f.
Total Landscape Area:	38,759 s.f.
% of Site Landscaped:	34 %
Total Uncovered Parking Spaces	15
Total Trees (111 Proposed, 12 Existing)	123

I AGREE TO COMPLY WITH THE REQUIREMENTS OF THE WATER EFFICIENT LANDSCAPE REGULATIONS AND SUBMIT A COMPLETE LANDSCAPE DOCUMENTATION PACKAGE

PROPERTY OWNER DATE

See Sheet LCP-3 for Common Usable Open Space Exhibit Amenities and calculations, including open space areas A,B,C,D and Pedestrian Paseos.

See Sheet LCP-2 for Planting Legend, Water Conservation Plan, Schematic Irrigation Plan, and Tree Survey

North

0 10' 20' 60'

Scale 1" = 20'

HOWARD ASSOCIATES
landscape architecture
1951 fourth avenue, ste. 302
san diego ca 92101 619 718 9660
rla 2681

NOVEMBER 20, 2025

Santa Fe Townhomes
Landscape Concept Plan

LCP-1

LANDSCAPE CONCEPT PLAN PLANTING LEGEND - SEE SHEET L-1

PLANT DESCRIPTION - SIZE, ESTIMATED QUANTITY
BOTANICAL NAME / COMMON NAME (WUCOLS ZONE 4)

TREES

LARGE ACCENT TREES - 36" BOX (APPROX. QTY = 10)
TIPUANA TIPU/ TIPU TREE (M)
ULMUS PARVIFOLIA 'TRUE GREEN'/ EVERGREEN ELM (L)

STREET TREES - EXISTING (APPROX. QTY = 12)
S. SANTA FE AVE. - RHUS LANCEA / AFRICAN SUMAC (L)
LAS FLORES DRIVE - GEIJERA PARVIFLORA / AUSTRALIAN WILLOW (M)

STREET TREES - 24" BOX (APPROX. QTY = 39) - MIN. PLANTER WIDTH 5'
ARBUTUS 'MARINA' / MARINA STRAWBERRY TREE (M)
CHITALPA T. 'PINK DAWN' / CHITALPA PINK DAWN (L)
KOELREUTERIA PANICULATA / CHINESE FLAME TREE (L)
LAGERSTROEMIA 'TUSCARORA' / TUSCARORA CRAPE MYRTLE (M)
PISTACIA CHINENSIS / CHINESE PISTACHE (M)
RHUS LANCEA / AFRICAN SUMAC (L)

PERIMETER SHADE TREES WITHIN CFD LANDSCAPE MAINTENANCE EASEMENT BOUNDARY - 24" BOX (QTY. 5) - MIN. PLANTER WIDTH 5'
GEIJERA PARVIFLORA / AUSTRALIAN WILLOW (M)

SMALL ACCENT TREES - 24" BOX (APPROX. QTY = 25) - MIN. PLANTER WIDTH 5'
CERCIS 'FOREST PANSY' / FOREST PANSY EASTERN REDBUD (M)
ERIOBOTRYA DEFLEXA / BRONZE LOQUAT (M)
HYMENOSPORUM FLAVUM / SWEETSHADE (M)
LAGERSTROEMIA 'TUSCARORA' / TUSCARORA CRAPE MYRTLE (M)
PODOCARPUS HENKELII / LONG LEAF YELLOWWOOD (M)

SLOPE/PERIMETER TREES - 15 GAL. -24" BOX (APPROX. QTY = 32) - MIN. PLANTER WIDTH 5'
GEIJERA PARVIFLORA / AUSTRALIAN WILLOW (M)
TRISTANIA CONFERTA / BRISBANE BOX (M)

SHRUBS AND GROUNDCOVERS

TALL SCREENING SHRUBS - 5 GAL (APPROX. QTY =120)
CALLISTEMON CITRINUS / CRIMSON BOTTLEBRUSH (L)
DODONEA VISCOSA / HOP BUSH (M)
PODOCARPUS 'MAKI'/ SHRUBBY YEW PODOCARPUS (M)
ILEX E. COLONNADE/ COLONNADE HOLLY (M)
TECOMA ORANGE JUBILEE / ORANGE BELLS (L)

SCREENING SHRUBS -- 5 GAL (APPROX. QTY = 329)
SALVIA 'WINNIFRED GILMAN' / WINNIFRED GILMAN BLUE SAGE (L)
WESTRINGIA FRUTICOSA / COASTAL ROSEMARY (L)

MASSING SHRUBS - 1 GAL. - 5 GAL (APPROX. QTY = 500)
CALLISTEMON 'SLIM' / SLIM DWARF CALLISTEMON (M)
DIETES BICOLOR / FORTNIGHT LILY (M)
HESPERALOE PARVIFLORA / RED YUCCA (L)
PENNISETUM RUBRUM / PURPLE FOUNTAIN GRASS (L)
ROSMARINUS 'ROMAN BEAUTY' / ROMAN BEAUTY ROSEMARY (L)
SALVIA G. 'FURMAN'S RED' / FURMAN'S RED AUTUMN SAGE (L)
PITTOSPORUM TOBIRA VARIEGATA / TOBIRA (M)
MUHLENBERGIA DUBIA / PINE MUHLY (L)

SMALL ACCENT SHRUBS - 1 GAL. - 5 GAL (APPROX. QTY = 383)
BUXUS 'UPTIGHT' - UPTIGHT BOXWOOD (M)
DIANELLA 'LITTLE REV' / LITTLE REV FLAX LILY (L)
LIGUSTRUM 'TEXANUM' / TEXAS PRIVET (M)
NANDINA 'OBSESSION' / OBSESSION HEAVENLY BAMBOO (M)
RHAPHIOLEPIS SPP. / INDIA HAWTHORN (M)
TRACHELOSPERMUM JASMINOIDES / STAR JASMINE (M)

SCREENING VINES - 5 GAL. (APPROX. QTY. = 10)
DISTICTIS BUCCINATORIA / BLOOD RED TRUMPET VINE (M)
TRACHELOSPERMUM JASMINOIDES / STAR JASMINE (M)

SPREADING GROUND COVERS - FLATS @ 12" O.C.
BACCHARIS 'PIGEON POINT' / DWARF COYOTE BUSH (L)
ROSMARINUS 'PROSTRATUS' / PROSTRATE ROSEMARY (L)
CFD GROUNDCOVER 1 GAL. @12" O.C.
LONICERA JAPONICA 'HALLIANA' / HALL'S HONEYSUCKLE (L)

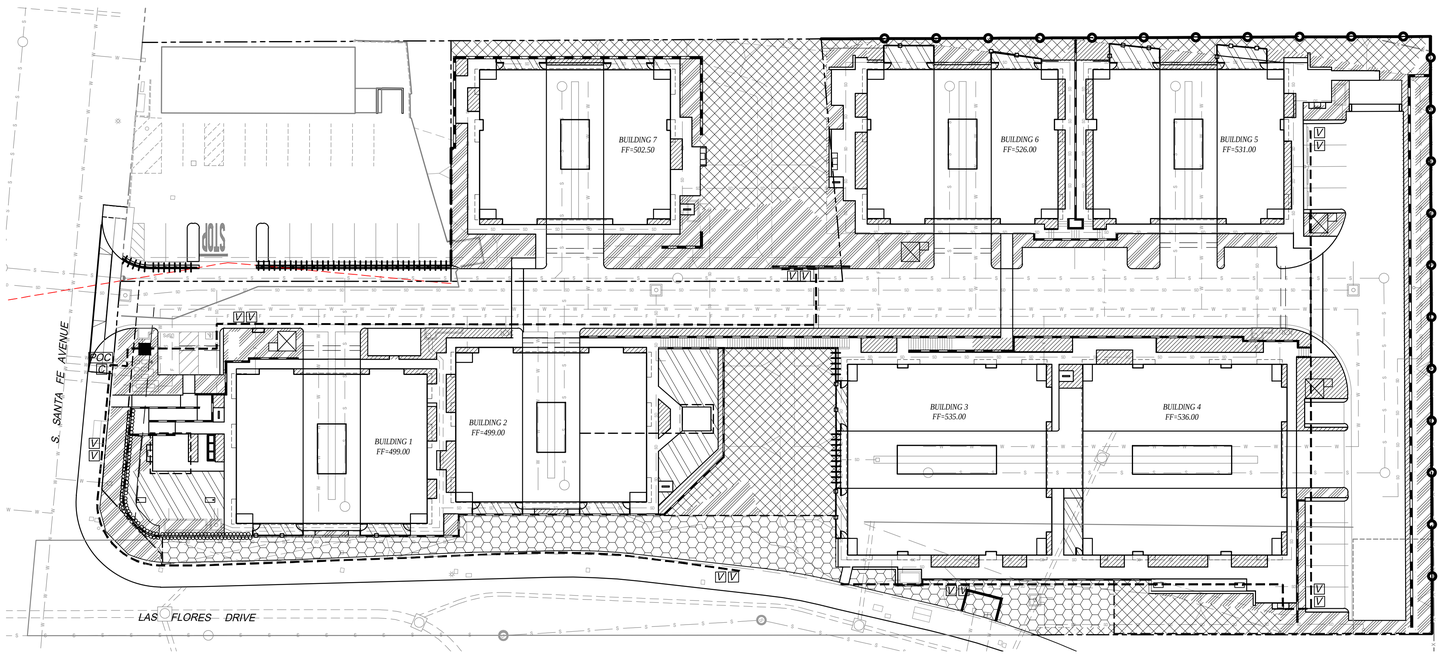
ARTIFICIAL TURF

SLOPE SHRUBS - 1 GAL. / 5 GAL. (APPROX. QTY. = 385)
ACACIA 'DESERT CARPET' / DESERT CARPET ACACIA (L)
BOUGAINVILLEA 'SAN DIEGO RED' / BOUGAINVILLEA (L)
ENCELIA CALIFORNICA / COAST SUNFLOWER (L)
HETEROMELES ARBUTIFOLIA / TOYON (L)
LANTANA 'NEW GOLD' / NEW GOLD LANTANA (L)
VERBENA L. 'DE LA MINA' / DE LA MINA VERBENA (L)

SLOPE GROUND COVERS - FLATS @ 12" O.C.
MYOPORUM P. 'PUTAH CREEK / PUTAH CREEK MYOPORUM (L)

BIOFILTRATION SYSTEM BASINS - 1 GAL. @ 18" O.C.
CAREX T. DIVULSA / EUROPEAN GREY SEDGE (L)
JUNCUS PATENS (L)

EXISTING SLOPE PLANTING TO REMAIN
PROTECT IN PLACE. ANY AREA DAMAGED DURING CONSTRUCTION, SHALL BE REPLANTED WITH MYOPORUM 'PUTAH CREEK' GROUND COVER AND SLOPE SHRUBS PER THE LEGEND ABOVE.



HYDROZONE MAP

Hydrozone Map Legend

ZONE		AREA	% OF TOTAL LANDSCAPE AREA
1	LOW WATER USE SHRUB AREAS IN-LINE DRIP IRRIGATION	10,878 SQ. FT	28 %
2	MODERATE WATER USE SHRUB AREAS IN-LINE DRIP IRRIGATION	4,230 SQ.FT	11 %
3	MODERATE WATER USE TREE AREAS NOT SHOWN (40 SQ FT./EA. TREE) ROOT WATERING DRIP IRRIGATION.	4,920 SQ. FT	12 %
4	LOW WATER USE SLOPES	9,604 SQ. FT.	25 %
5	ARTIFICIAL TURF	3,787 SQ. FT.	10 %
6	CFD LOW WATER USE SHRUBS AND GROUNDCOVER RAIN BIRD ROTARY NOZZLE IRRIGATION 5340 SQ.FT		14%
	TOTALS	38,759 SQ. FT.	100 %

North

0 15' 30' 90'

Scale 1" = 30'

City of San Marcos Water Efficient Landscape Worksheet

Reference Evapotranspiration (ET_o)			54.2	Project Type		Residential		0.55
Hydrozone # / Planting Description[a]	Plant Factor (PF)	Irrigation Method[b]	Irrigation Efficiency (IE)[c]		Landscape Area (Sq. Ft.)	ETAF x Area	Estimated Total Water Use (ETWU)[d]
Regular Landscape Areas							
1. Low Water Shrubs	0.3	Drip	0.81	0.37	10,878	4,029	135,387
2. Mod Water Shrubs	0.5	Drip	0.81	0.62	4,230	2,611	87,744
3. Mod Water Trees	0.5	Drip	0.81	0.62	4,920	3,037	102,057
4. Low Water Slopes (new)	0.3	Overhead	0.75	0.40	9,604	3,842	129,093
5. Very Low Inert Permeable q.c.	0.1		0	0.00	3,787	0	0
6.CFD Mod Water Shrubs and Groundcover	0.5	Overhead	0.75	0.67	5,340	3,560	119,630
				Totals	38,759	17,079	573,911
Special Landscape Areas							
				1	0.00	0	0
				Totals	0.00	0	0
						ETWU Total	573,911
						Maximum Allowed Water Allowance (MAWA)[e]	716,352

ETAF Calculations

Regular Landscape Areas

Total ETAF x Area	13,519
Total Area	38,759
Average ETAF	0.35

All Landscape Areas

Total ETAF x Area	13,519
Total Area	38,759
Average ETAF	0.35

Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas, and 0.45 or below for non-residential areas.

Schematic Irrigation Legend

- APPROXIMATE PROPOSED LOCATION FOR IRRIGATION MAINLINE
- V — APPROXIMATE PROPOSED LOCATION FOR IRRIGATION VALVES
- POC — APPROXIMATE PROPOSED LOCATION FOR POINT OF CONNECTION:
  - POTABLE WATER METER
  - BACKFLOW PREVENTER WITH LOCKING ENCLOSURE
  - MASTER VALVE
  - FLOW SENSOR
  - GATE VALVE ASSEMBLY
- APPROXIMATE PROPOSED LOCATION FOR IRRIGATION AND CONTROL WIRE SLEEVING
- C — APPROXIMATE PROPOSED LOCATION FOR AUTOMATIC CONTROLLER IN SS LOCKING PEDESTAL

EXISTING TREE SURVEY

TREE MITIGATION TABLE

NUMBER OF TREES TO BE REMOVED	6
NUMBER OF PROPOSED NEW TREES (MINIMUM SIZE - 24" BOX)	114

EXISTING TREE SURVEY LEGEND

SYM.	CAL.	BOTANICAL NAME	COMMON NAME	CONDITION	STATUS
1	8"	RHUS LANCEA	AFRICAN SUMAC	GOOD	REMAIN
2	6"	GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	GOOD	REMAIN
3	3"	GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	GOOD	REMOVE
4	6"	GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	GOOD	REMOVE
5	3"	GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	GOOD	REMAIN
6	8"	GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	GOOD	REMAIN
7	4"	GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	GOOD	REMAIN
8	8"	WASHINGTONIA ROBUSTA	MEXICAN FAN PALM	GOOD	REMOVE
9	8"	WASHINGTONIA ROBUSTA	MEXICAN FAN PALM	POOR	REMOVE
10	8"	WASHINGTONIA ROBUSTA	MEXICAN FAN PALM	POOR	REMOVE
11	3"	GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	GOOD	REMAIN
12	8"	GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	GOOD	REMOVE
13	3"	GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	GOOD	REMOVE
14	6"	GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	GOOD	REMOVE
15	4"	GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	POOR	REMAIN
16	4"	GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	GOOD	REMAIN
17	2"	GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	GOOD	REMAIN
18	2"	GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	GOOD	REMAIN
19	4"	GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	GOOD	REMAIN
20	4"	ERIOBOTRYA DEFLEXA	BRONZE LOQUAT	GOOD	REMAIN
21	8"	TIPUANA TIPU	TIPU TREE	GOOD	REMAIN
22	6"	TIPUANA TIPU	TIPU TREE	GOOD	REMAIN
23	6"	TIPUANA TIPU	TIPU TREE	GOOD	REMAIN

Water Conservation Notes

1. *All irrigation shall include effective and efficient watering methods utilizing Hunter MP rotator low-flow irrigation heads and Sub-surface drip irrigation.*
2. *All irrigation controllers shall have automatic rain shut-off sensors.*
3. *All plant material utilized is classified as 'low or moderate water use' by WUCOLS (water use classification of landscape species).*
4. *All planting areas shall receive regular maintenance and management designed to maximize healthy growth. The project owner shall be responsible for maintaining all landscaped areas.*
5. *All planting areas shall receive complete and appropriate soil preparation.*
6. *Only low volume or subsurface irrigation shall be used to irrigate any vegetation within 24" of an impermeable surface.*
7. *Planting areas shaded by buildings shall be amended to improve drainage and avoid remaining wet between irrigation cycles.*
8. *All landscaped areas except slopes steeper than 5:1 shall have a 4" layer of bark mulch.*

Irrigation Note

All planting areas shall have subsurface drip irrigation or MP Rotators

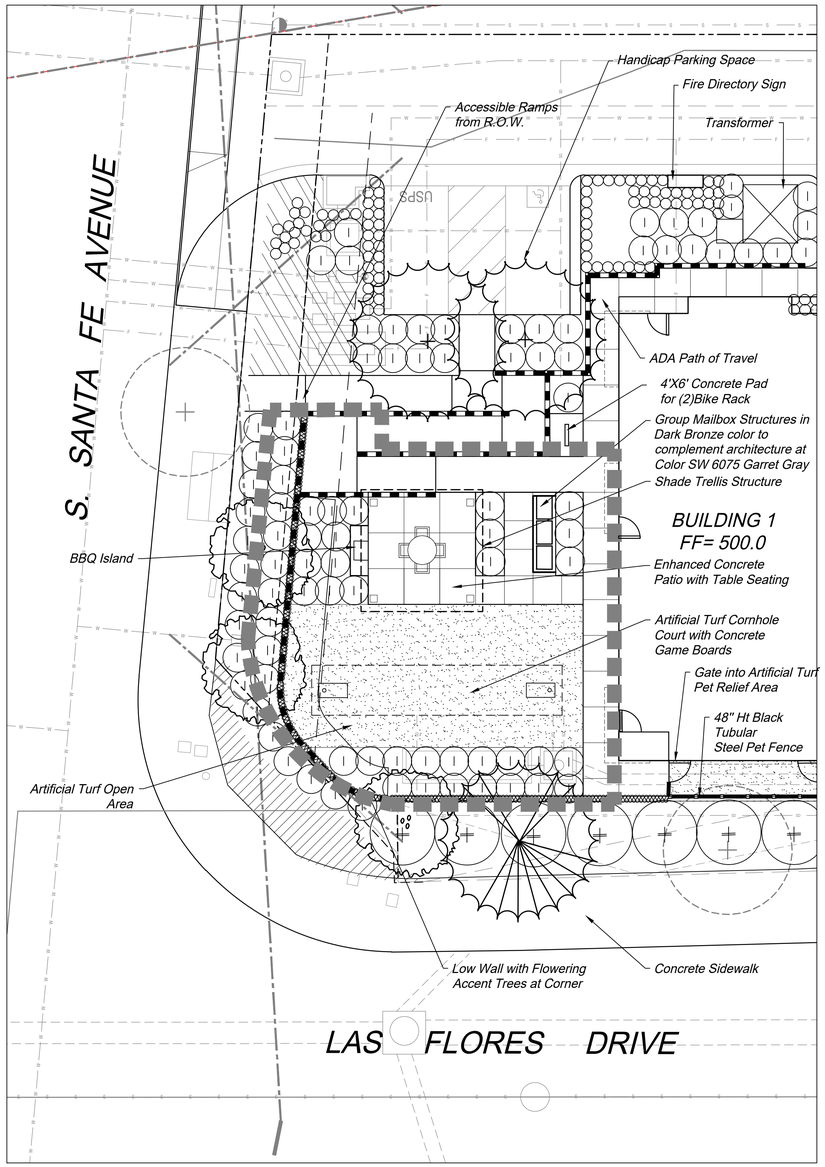
Santa Fe Townhomes
Water Conservation & Schematic Irrigation Plan

rla 2681
HOWARD ASSOCIATES
landscape architecture
1951 fourth avenue, ste. 302
san diego ca 92101 619 718 9660

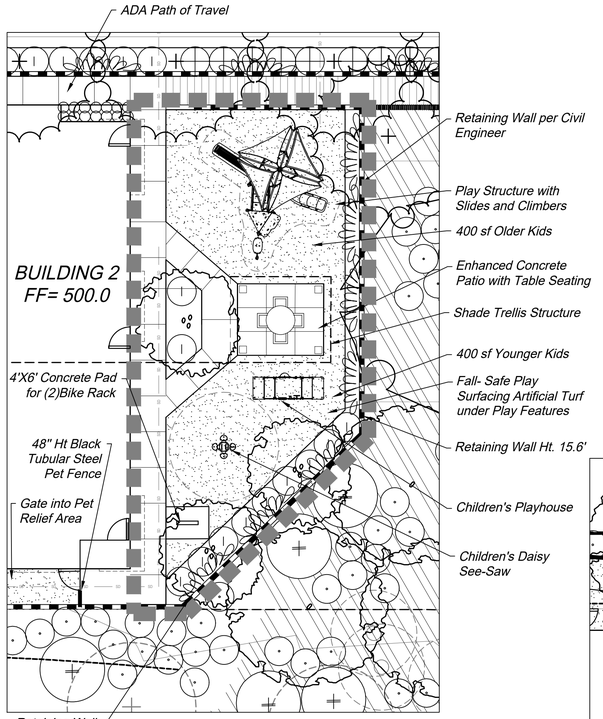
NOVEMBER 20, 2025

LCP-2

2101



OPEN SPACE AREA 'A'

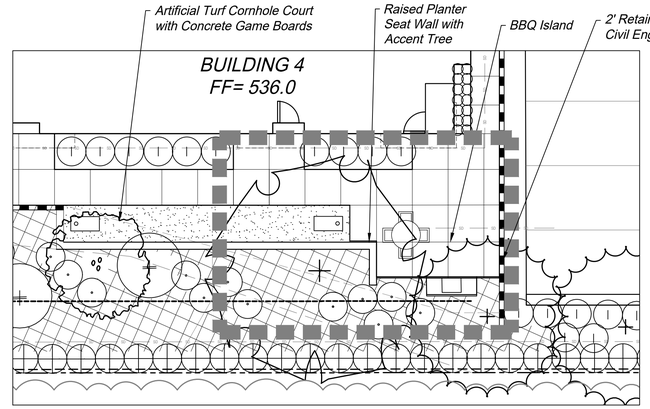


OPEN SPACE AREA 'B'

Tot Lot with 800 SF Play Area, including:

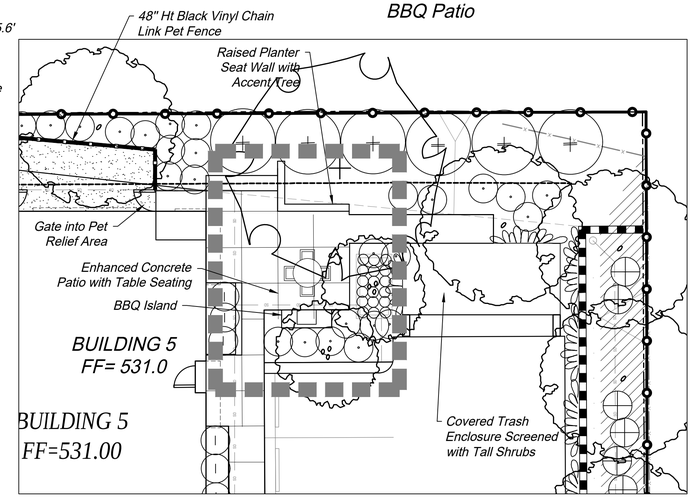
- Play Structure
- Play House
- Daisy See - Saw

Open Space Area 'B' Play Structure



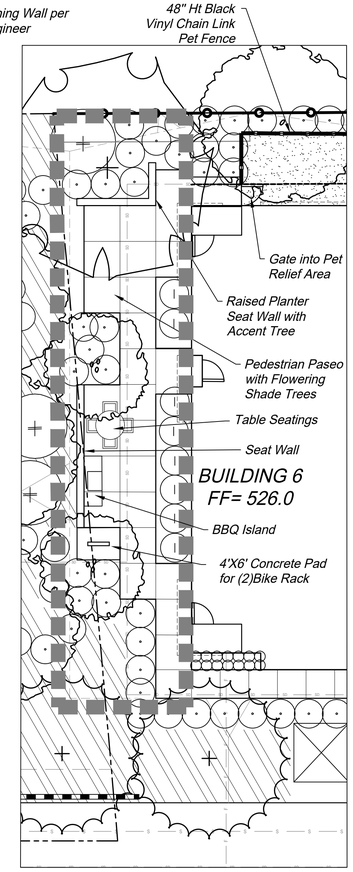
OPEN SPACE AREA 'C'

BBQ Patio



OPEN SPACE AREA 'D'

BBQ Patio



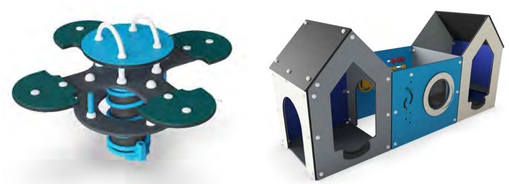
OPEN SPACE AREA 'E'

Typical Pedestrian Paseo

COMMON USABLE OPEN SPACE TABLE	
Open Space Area "A'	2,260 SF
Open Space Area "B'	1,830 SF
Open Space Area "C'	925 SF
Open Space Area "D'	850 SF
Open Space Area "E'	1,280 SF
Additional Pedestrian Paseo Common Walkway Areas	7,650 SF
Total	14,795 SF

Total Building First Floor Livable Area	5,155 SF
Total Common Usable Open Space	14,795 SF

Group Mailboxes



Open Space Area 'B' Play House, and Daisy See-Saw

Santa Fe Townhomes

Common Useable Open Space Exhibit

North

0 5' 10' 30'

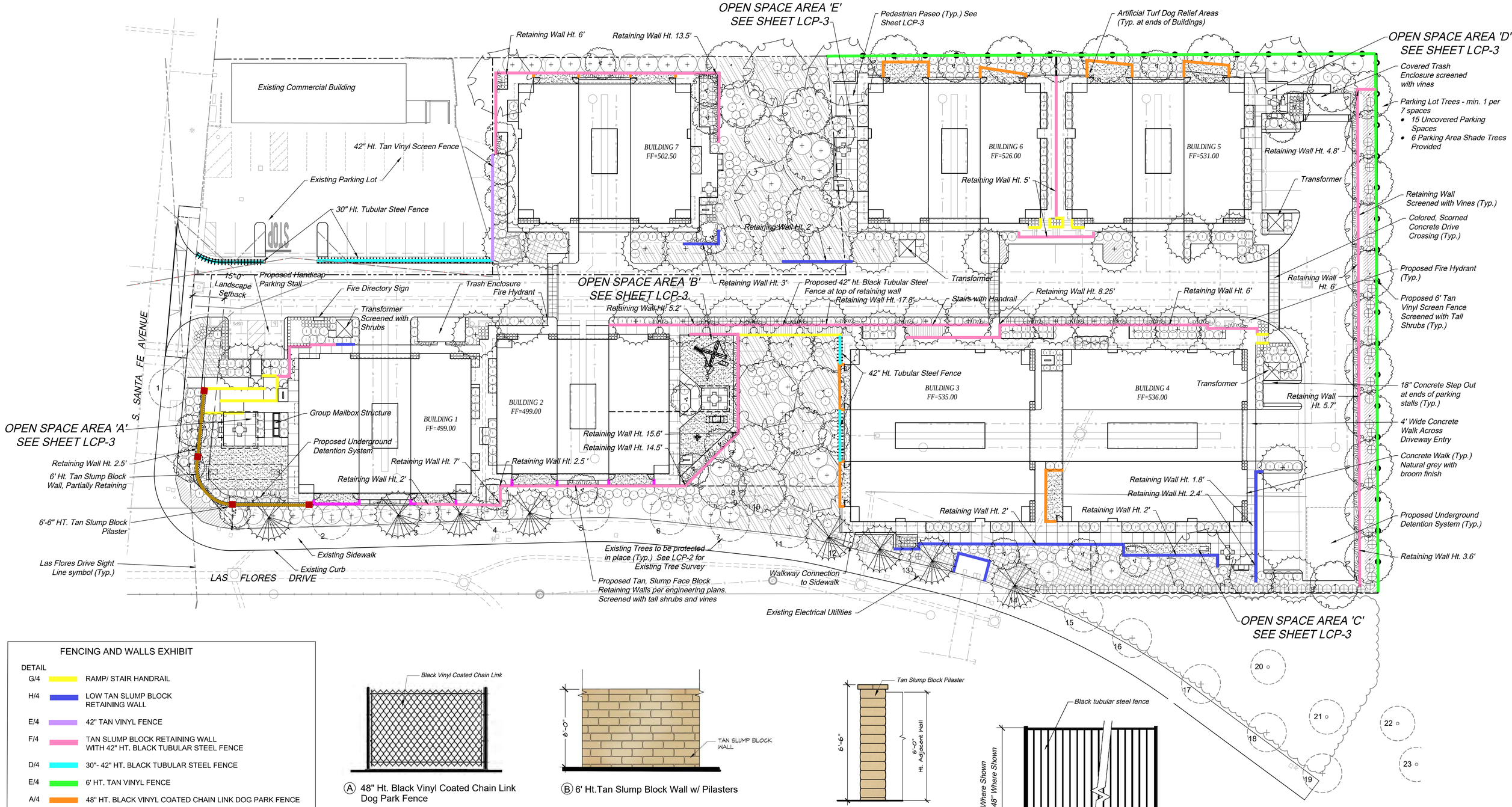
Scale 1" = 10'

HOWARD ASSOCIATES
landscape architecture
rla 2681
1951 fourth avenue, ste. 302
san diego ca 92101 619 718 9660

NOVEMBER 20, 2025

LCP-3

2102



FENCING AND WALLS EXHIBIT

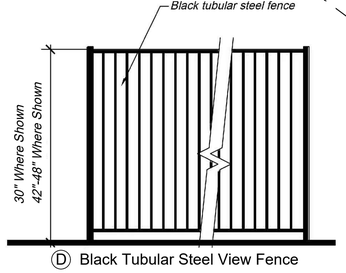
DETAIL		
G/4		RAMP/ STAIR HANDRAIL
H/4		LOW TAN SLUMP BLOCK RETAINING WALL
E/4		42" TAN VINYL FENCE
F/4		TAN SLUMP BLOCK RETAINING WALL WITH 42" HT. BLACK TUBULAR STEEL FENCE
D/4		30"- 42" HT. BLACK TUBULAR STEEL FENCE
E/4		6' HT. TAN VINYL FENCE
A/4		48" HT. BLACK VINYL COATED CHAIN LINK DOG PARK FENCE
D/4		48" HT. BLACK TUBULAR STEEL FENCE
B/4		6' HT. TAN SLUMP BLOCK WALL
C/4		12" SQ. TAN SLUMP BLOCK PILASTER

NOTE:
RETAINING WALL HEIGHTS PER CIVIL PLANS. A 42" BLACK TUBULAR STEEL FENCE SHALL BE ADDED WHERE INDICATED IN THE LEGEND.

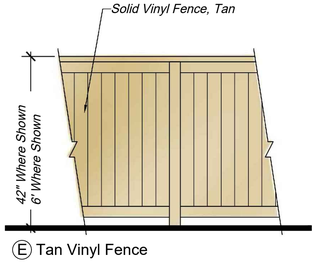
Ⓐ 48" Ht. Black Vinyl Coated Chain Link Dog Park Fence

Ⓑ 6' Ht.Tan Slump Block Wall w/ Pilasters

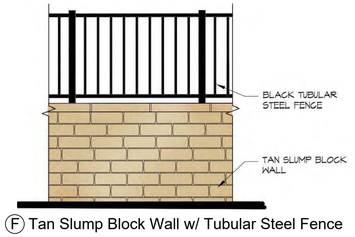
Ⓒ Tan Slump Block Pilaster



Ⓓ Black Tubular Steel View Fence

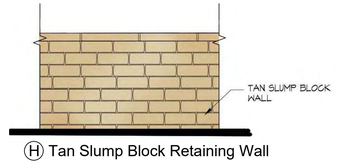


Ⓔ Tan Vinyl Fence



Ⓕ Tan Slump Block Wall w/ Tubular Steel Fence

Ⓖ Ramp/ Stair Handrail



Ⓗ Tan Slump Block Retaining Wall

North

0 10' 20' 60'

Scale 1" = 20'

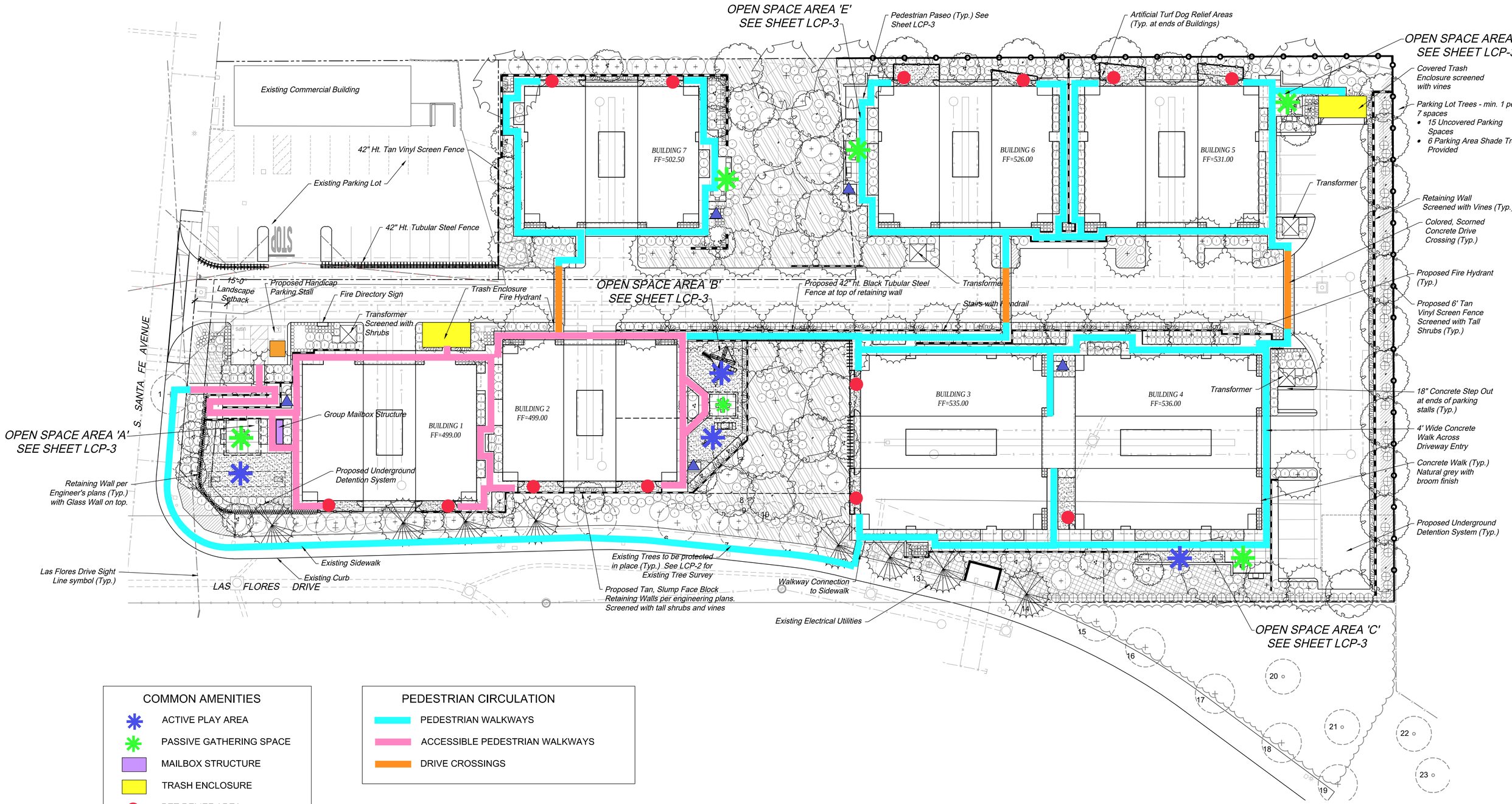
Santa Fe Townhomes
Fencing and Walls Exhibit

rla 2681
HOWARD ASSOCIATES
landscape architecture
1951 fourth avenue, ste. 302
san diego ca 92101 619 718 9660

NOVEMBER 20, 2025

LCP-4

2103



COMMON AMENITIES	PEDESTRIAN CIRCULATION
ACTIVE PLAY AREA	PEDESTRIAN WALKWAYS
PASSIVE GATHERING SPACE	ACCESSIBLE PEDESTRIAN WALKWAYS
MAILBOX STRUCTURE	DRIVE CROSSINGS
TRASH ENCLOSURE	
PET RELIEF AREA	
ADA PARKING	
BIKE RACK FOR 2 BIKES	

Santa Fe Townhomes

Pedestrian Circulation Exhibit

North

0 10' 20' 60'

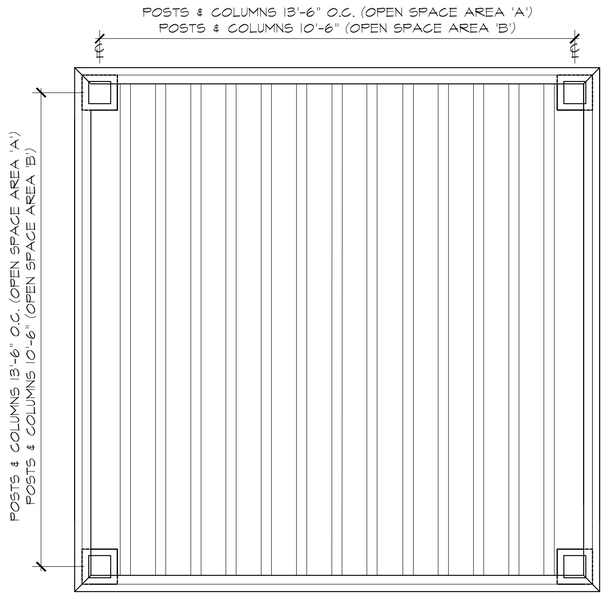
Scale 1" = 20'

HOWARD ASSOCIATES
landscape architecture
rla 2681
1951 fourth avenue, ste. 302
san diego ca 92101 619 718 9660

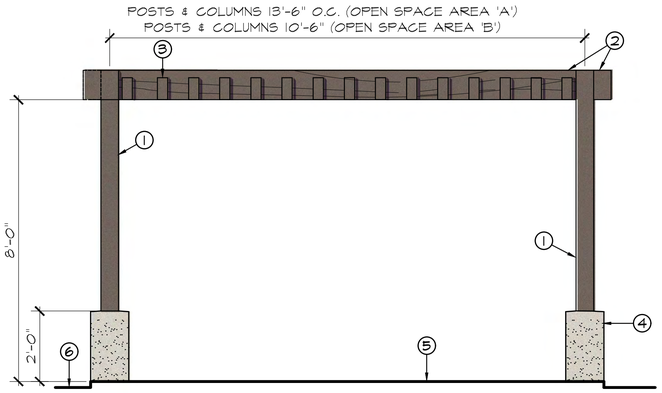
NOVEMBER 20, 2025

LCP-5

2104



PLAN VIEW



ELEVATION

① 3.5" SQ TUBULAR STEEL COLUMN W/2"X6 1/2" ALUMAWOOD PLANT-ON SIDE PLATE EA. SIDE OF COLUMN. CAP TOP PER MFR.

② 3x8 ALUMAWOOD

③ 2x6 ALUMAWOOD

④ 12" SQ. CMU COLUMN WITH STUCCO FINISH AND COLOR TO MATCH ARCH. CROWN CAP TO DRAIN - COLOR TO MATCH SW9166 DRIFT OF MIST

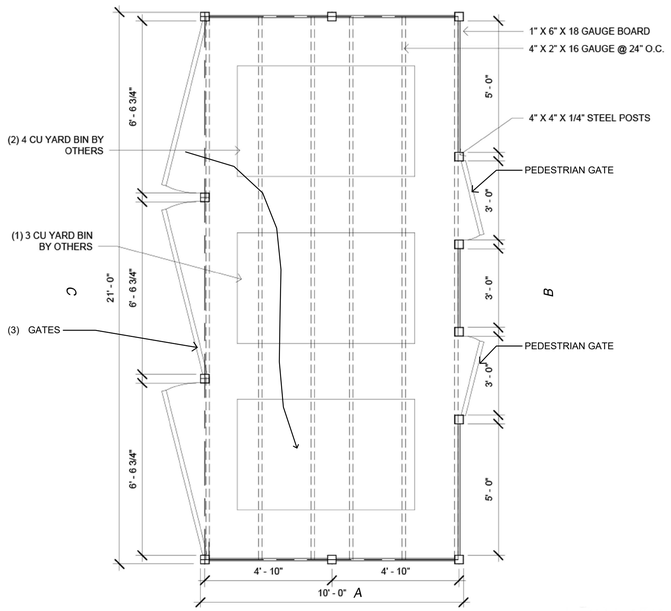
⑤ FINISH SURFACE - CONCRETE PAVING PER PLANS

⑥ FINISH GRADE

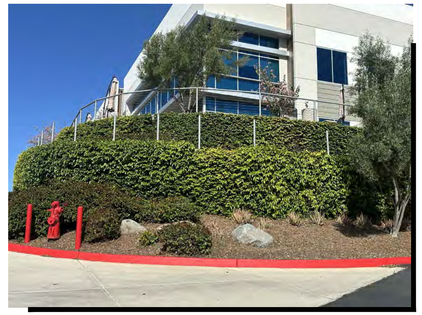
ALUMAWOOD COLOR TO BE 'SPANISH BROWN', TO MATCH SW 6075 'GARRET GREY'

SHADE STRUCTURE

N.T.S

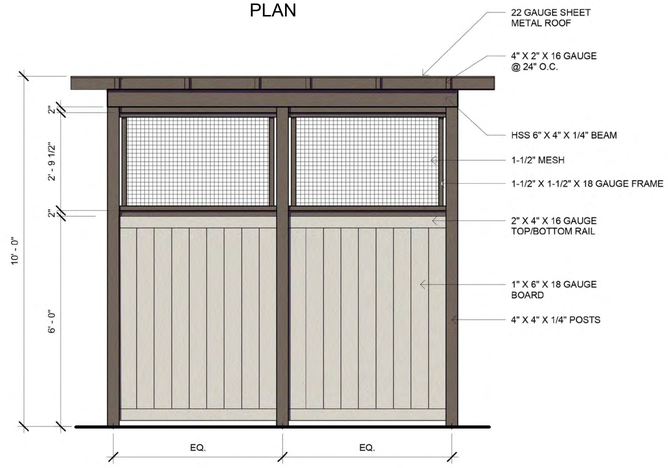


PLAN

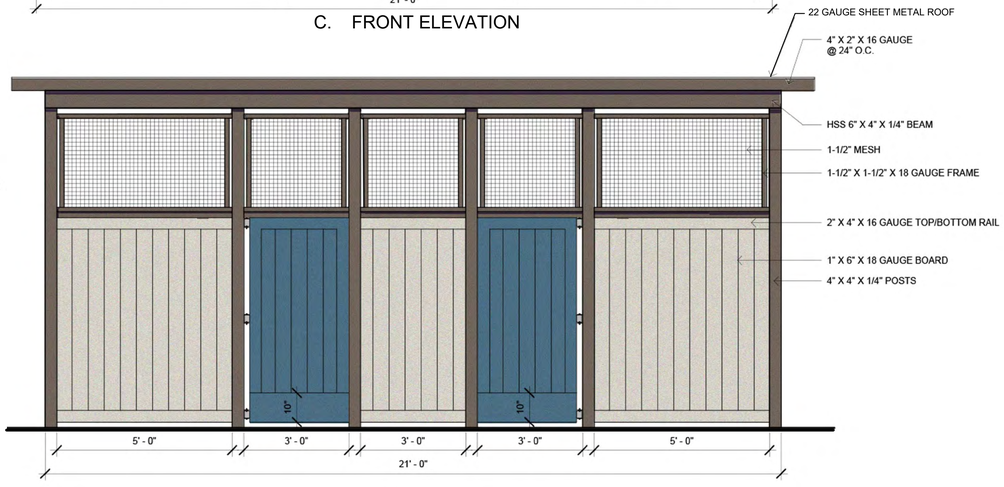


GEORGRID WALL PLANTED WITH VINES TYPICAL ILLUSTRATION

C. FRONT ELEVATION



A. SIDE ELEVATION



B. BACK ELEVATION

TRASH ENCLOSURE

N.T.S

NOTE:STRUCTURE COLORS COORDINATED WITH ARCHITECTURE COLORS:
WALLS TO BE SW 9166 DRIFT OF MIST
ROOF TO BE SW 6075 GARRET GRAY
DOORS TO BE SW 9149 INKY BLUE

Santa Fe Townhomes

Pedestrian Circulation Exhibit

North

0 10' 20' 60'

Scale 1" = 20'

rla 2681
HOWARD ASSOCIATES
landscape architecture
1951 fourth avenue, ste. 302
san diego ca 92101 619 718 9660

NOVEMBER 20, 2025

LCP-6

2105

ATTACHMENT F

LAND USE ANALYSIS

Santa Fe Flores Townhomes Land Use, Public Benefit and Infrastructure and Community Services Analysis

Santa Fe Flores Townhomes

Land Use Analysis

Project Description

The Santa Fe Flores Townhome project is a proposed 46 unit for sale multi-family project located at the northwest corner of South Santa Fe Avenue and North Las Flores Road in the Business-Industrial neighborhood within the City of San Marcos. The project sits on 3 parcels totaling 2.6 acres, two of which are currently zoned R-3-10 and one parcel zoned commercial. The 3 parcels will be combined into one parcel and the General Plan Amendment requested is to have all 3 parcels zoned R-3-6 which allows the 46 units to be 3 stories in height. There are significant recreational improvements in the project to service the families moving into the project including young children's play areas, dog walking and relief areas, barbecue areas as well as older children's play areas and a cornhole lawn game built into the project.

The project is requesting a General Plan Amendment from Medium Density Residential 2 (MDR2) to Medium High Density Residential (MHDR) for APN's 217-161-18,19 and a GPA from Commercial (C) to Medium High Density Residential (MHDR) for the northern portion of APN 217-161-17 (a total of 0.37 acres) as well as a rezone of all three of the parcels to R-3-6. Such action would be consistent with the adopted 2021-2029 Housing Element Update of the City of San Marcos.

This action will lead to a comprehensive package of all three parcels becoming a for sale medium high density project (MHDR) while being rezoned to R-3-6. The purpose of the GPA and rezone is to achieve a balanced and compatible mix of land uses in the area of South Santa Fe Avenue to meet the future needs of the residents of San Marcos which will further promote high quality development standards and land use patterns that encourage long term environmental sustainability.

A R-3-6 zone allows 20-30 units per acre, which for a 2.6 acre site plan could accommodate between 52-78 units. It is infeasible to meet even the lowest density (52 units) on this site for a number of reasons. Local government policies, site topography constraints, and urban infill constraints all coupled together only allow for a maximum density of 46 units on this site plan. Even without all the site topography and urban infill constraints, the City has a policy limiting any site with a single point of access to no more than 50 units. So even if the other constraints didn't limit the density even further, which they do, the maximum number of units the City would permit would be 50 units. Other constraining local governmental policies which limit the density to 46 units include open space/recreational amenity requirements, landscaping requirements as well as

building setbacks. The recently adopted Active Transportation Plan (ATP) for expanded bike lanes fronting the project further limits the buildable area on the site. Lastly, the R-3-6 zone also limits the height of the buildings to 3 stories.

Site topography and other site constraints also work to constrain the site to 46 units. The property consists of a steep slope going from at grade along South Santa Fe Avenue and rising up the hill to the north. The existence of North Las Flores Drive is the eastern constraint to the site and the existence of Gourmet Liquor limits the site to the west and south. To the north the site is constrained by the location of the Sprinter tracks and the Inland Rail Trail.

The site is a classic urban infill property where it is completely surrounded by already developed properties. This reduces the ability of the project to place various required development conditions (such as storm water retention and treatment, recreational and open space amenities) to a different location as can happen with greenfield development sites. When you include all of these constraints; local government policies, site topography and urban infill constraints the site is left with a maximum number of units of 46 which is slightly less than the maximum of 50 units that would be permitted on the site, per local government policy.

The General Plan Amendment/Rezone will comply with and implement General Plan Goals and Policies to include LU 1 -" Achieve a balanced and compatible mix of land uses" by providing a logical transition between existing and new land uses. The project will also implement LU 2 -" High quality and sustainable development" by promoting land use patterns that encourage long-term environmental sustainability and LU 3 - "Community connections" by providing a land use pattern that is compatible with and supports a variety of mobility opportunities and choices. The project provides new residents a walkable, bike friendly and transit oriented community in conjunction with NCTD's Bus Route 305 stop immediately in front of the project along South Santa Fe Avenue, a pedestrian and bike friendly project with immediate access to the Inland Rail Trail to the north of the project as well as a traditional mobility opportunity with a fully functional and improved South Santa Fe Avenue which provides access to all of North County.

The General Plan Amendment/Rezone will also implement LU 7 - “Growth Management, Healthy and Safe Community" by providing an urban infill work force housing project that will take advantage of existing built out transportation infrastructure (South Santa Fe Avenue) but adding to the infrastructure by providing an additional IOD of 8 feet beyond the current right of way for future multimodal transportation improvements including expanded and improved bike lanes.

The General Plan Amendment/Rezone will also assist in implementing LU 9 -"High Value Community Facilities" and LU 10 -"Fire Protection, Emergency Services and Law

Enforcement" by participating in police, fire and lighting/landscaping CFD's as well as contributing required public facility fees to assist regional infrastructure improvements. The project as a R-3-6 zoned site is superior to the existing zoning (R-3-10 and commercial) and will contribute valuable new multi-family for sale units to the City's housing portfolio. The site has been dormant for 40 plus years and it suggests that a new approach to development would be a responsible and timely approach to move the site into a more modern developable state which will serve the city well over time. The proposed project provides a number of significant public benefits, as described herein and the project as proposed with a General Plan Amendment/Rezone should be approved and implemented as soon as practicable. The proposed project provides a number of significant public benefits by implementing a number of General Plan Goals including LU-13 - "Water Supply and Services" by utilizing the closest water provider, VID and including the most modern technology to reduce water usage and waste on a per capita basis as well as LU 14- "Wastewater" by utilizing the closest sewer service provider, Buena Sanitation District, to ensure a safe and healthy wastewater system.

The Santa Fe Flores Townhome project blends in nicely with the surrounding land uses and produces a multi-family project on an urban infill project on properties which have been vacant for quite a long time due to challenging topography. The surrounding land uses are a mix of multi-family, single family, mobile homes, industrial, commercial and an older duplex community most of which could use a new project to hopefully stimulate some property owners to update/rehabilitate their properties.

Regional Connectivity

Regionally, the project is about 1 mile from connecting to State Highway 78 which feeds both Interstate 15 and Interstate 5. The site sits immediately adjacent to an NCTD bus stop (Route 305) which runs along Mission Road, South Santa Fe Road and other direct routes between the Escondido Transit Center and the Oceanside Transit Center. The General Plan Amendment/Rezone will also assist in implementing General Plan goal M-1 - "Efficient local and regional circulation system" and General Plan Goal M-3 - "Alternative modes of travel" by constructing a project with immediate access to NCTD Bus Route 305, the Inland Rail Trail while providing all 46 residential units with EV charging capability. New residents can literally take a bus from their front yard to go east or west along Route 305 passing through a number of transit centers, the closest being the transit/Sprinter center at Palomar Community College. In addition, the regional transportation network allows the residents of this project to access employment, shopping and entertainment options within the City of San Marcos as well as other regional facilities such as employment hubs.

Housing

Multi-family for sale residential development within the Santa Fe Flores Townhome project will encompass 2.6 acres and will include a maximum of 46 for sale units which will provide a family focused workforce housing project with all units being 3 bedroom units which should be attractive to a wide variety of family buyers. The project is a work force related, urban infill product that will, at a minimum, provide the city additional units to meet their RHNA numbers as well as paying in-lieu fees to the city to meet the intent of the City's Housing Element. The Santa Fe Flores Townhome project is consistent with the goals contained within the City of San Marcos Housing Element of the City's General Plan.

Surrounding Land Uses

The Santa Fe Flores Townhome project is compatible with all of the adjacent land uses. To the east across North Las Flores Drive is an affordable multi-family project, the north, buffered by the Sprinter tracks is a single family residential neighborhood (Rancho Santa Lina), to the northwest is industrial, to the west is commercial (Gourmet Liquor) and to the south across South Santa Fe Avenue is a mixture of multi-family rental projects, a mobile home park, and an older neighborhood consisting of duplexes and single family homes. This property is a perfect transition between industrial, commercial and residential uses in the neighborhood.

Viability of Site As Commercial or Rental Multi-Family/Land Use Analysis

This site has been sitting vacant for more than 40 years due to challenging topography, man-made improvements (the Sprinter line/railroad tracks, North Las Flores Drive and South Santa Fe Avenue), and a lack of a cohesive plan for development. The 3 parcels will be combined into a single parcel generating an attractive 3 story for sale multi-family project while eliminating a commercially zoned parcel that will never develop commercially due to topographic challenges. The site has never been a good commercial or industrial property, which was its previous zoning and while the current owners attempted to develop a rental multi-family project on a portion of the site, they discovered the costs of construction outweighed the ability of the project to generate rental income. By expanding the development by .37 of an acre of commercial north of Gourmet Liquor the project makes financial sense as a for sale townhome project, eliminates a difficult decaying urban infill site and produces a project that will assist in providing the City, new growth in an area of the City that has seen little in the way of

new upgraded development. In addition, the site has a bus stop practically in the front yard of the project as well as fronting on a major arterial (South Santa Fe Avenue) and has immediate access to the North Inland Rail Trail that, when completed, will run from Oceanside to Escondido to allow pedestrians and bicyclists a safe trail to use for a wide variety of purposes.

The development site plan consists of 3 separate parcels. Two parcels are zoned R-3-10 in keeping with a previous approval in 2023, and the third parcel (.37 acres) is zoned commercial and is being purchased from Gourmet Liquor and will be added to the overall site plan consisting of a total of 2.6 acres. The proposed project will amend the General Plan and Rezone all three parcels to R-3-6 which permits the project to move forward in a comprehensive development package of 46 for sale 3 bedroom multi-family residences in a 3 story configuration. All 3 parcels will be modified through a TSM and boundary adjustment to a single parcel with R-3-6 zoning.

The proposed General Plan Amendment and Rezone will address the unsuitability of the current General Plan/Zoning and allow for a comprehensive project that provides high quality housing versus a hodgepodge of commercial mixes in with a medium high density rental property that can not be financed in the current interest rate environment. The modified proposal will allow for a for sale medium high density project that is an improvement to the current General Plan/Zone designation and allows for a project that is compatible with all adjacent land uses while improving the neighborhood through high quality design, ownership opportunities while providing the future residents a number of mobility choices. The current General Plan and Zoning (MDR2 and zoning of R-3-10 and commercial) does not provide the same comprehensive land use opportunity to the future residents as does the proposed General Plan/Rezone of medium high density (MHDR) and R-3-6 zoning.

Therefore as evidenced in Figure 1 (site location with existing General Plan Use), and Figure 2 (site location with Proposed General Plan Use), and Figure 3 (Existing Zoning), and Figure 4 (Proposed Zoning) as well as Table 1 (General Plan Consistency/Compatibility Analysis) this project is a consistent and compatible land use for the location and is consistent with the Goals and Policies of the City of San Marcos General Plan Land Use Element.

Public Benefits

A number of public benefits have been identified and are discussed below.

1. A total of 200 temporary construction jobs will be created for the project's construction. This will exceed the number of jobs created to build either

commercial or industrial facilities. While these jobs are only temporary, they will add to the City's economy during construction.

2. Provide 46 for sale townhomes, all with 3 bedrooms which will provide an in-fill work force housing project which will help reduce the regional housing shortage and specifically help the City of San Marcos meet the RHNA numbers.
3. Payment of funds toward needed city and region-wide infrastructure. The project's PFF and CFD fair share contributions support a range of city-side maintenance and improvement programs including but not limited to circulation streets, SR-78 interchanges, NPDES programs, technology improvements, parks and habitat conservation fees.
4. Payment of in-lieu affordable housing fees will assist the city to meet their RHNA numbers as well as providing true affordable housing units throughout the City.
5. Environmental benefits include reduced traffic volumes from multi-family residential versus commercial and industrial uses. The reduction in ADT translates into a reduction in air and GHG emissions and less traffic on the road.
6. Elimination of an urban in-fill visual eyesore with an attractive townhome project with a continuity of landscape design, both along South Santa Fe Avenue and North Las Flores Drive.

The proposed project will provide a high quality project comprehensively zoned as R-3-6 which will blend in with surrounding land uses while providing numerous public benefits as listed above. Adoption of the General Plan Amendment/Rezone will assist in providing this neighborhood with a high quality project with modern architecture, recreational amenities, and will hopefully stimulate additional redevelopment within the immediate neighborhood to include opportunities for home ownership by future residents.

Infrastructure and Community Services

The project will either construct infrastructure or contribute funds to offset previously constructed infrastructure. In addition, the project will pay fees to the city of offset impacts to community services for the following areas:

1. School fees.
2. Parks, recreation and open space impacts.
3. Fire and Police services.
4. Library services.
5. PFF infrastructure fees for various long- term improvements.
6. Solid Waste Disposal.

7. CFD’s for landscaping, traffic signals, and other city maintenance programs.

Water and sewer infrastructure will be constructed by the project and future water and sewer service costs will be borne by the project. Library services will be collected via taxes collected by the County of San Diego and solid waste services will be provided by fees charged to the residents. All infrastructure required for the project will be constructed by the development.

The project will be served by the Buena Sanitation District (BSD) for sewer, Vista Irrigation District (VID) for water and San Marcos Unified School District (SMUSD) for K-12 education services and will pay all appropriate fees required by those agencies and through the MND process. The project is not located within the Buena Sanitation District boundaries but BSD has accounted for the required sewer capacity caused by this development and will process an Out of Area Service Agreement through the San Diego Local Agency Formation Commission (LAFCO) as it has for other west City projects. The Vista Irrigation District has previously provided a will serve letter based on a water service analysis provided in 2023 and has reconfirmed their ability to serve the project.

Conclusions

Considering all the factors analyzed herein, the proposed project would be superior to the existing R-3-10 and commercial zoning currently on the 3 parcels. The site’s proximity to mass transit, the Inland Rail Trail, and a major arterial, South Santa Fe Avenue lends itself to a work-force housing urban in-fill project that is transit oriented and is well suited for residential growth near employment and transit opportunities. The project as an R-3-6 zoned site is superior to the existing zoning and will contribute valuable new multi-family for sale units to the city’s housing portfolio. The fact that the site has laid dormant for 40 years or more, suggests a new approach would be a responsible and timely approach to move the site into a developable state which will serve the city well over time. The proposed project provides a number of significant public benefits, as described herein and the project as proposed should be approved and implemented as soon as possible.

ATTACHMENT G

FISCAL AND ECONOMIC IMPACT ANALYSIS

www.FinanceDTA.com

FISCAL IMPACT STUDY

SANTA FE FLORES
GENERAL PLAN AMENDMENT
GPA25-0001
SAN MARCOS, CALIFORNIA

MARCH 17, 2026

Public Finance
Public Private Partnerships
Development Economics
Clean Energy Bonds

Newport Beach | San Jose | San Francisco | Riverside
Dallas | Houston | Raleigh

2115

www.FinanceDTA.com
18201 Von Karman Ave. # 200
Irvine, CA 92612

CITY OF SAN MARCOS

FISCAL IMPACT STUDY
SANTA FE FLORES General Plan Amendment
(GPA25-0001)

Prepared for:

City of San Marcos

1 Civic Center Drive

San Marcos, CA

Attention: Sarah Cluff, Senior Planner

TABLE OF CONTENTS

SECTION

I EXECUTIVE SUMMARY 2

A Purpose of the Report 2

B Types of Fiscal Impacts Evaluated in this Study 2

C Fiscal Impact on City General Fund (Approved Plan vs. Proposed Plan) 3

D Market Considerations 3

II INTRODUCTION 3

A Scope and Methodology – Recurring Fiscal Impacts 3

B Persons Served Calculation 4

C Case Study Methodology 5

D Limitations – Accuracy of Information 6

III DESCRIPTION OF RECURRING FISCAL REVENUES/COSTS 7

A Analysis of Recurring Revenues - Case Study Method 7

B Analysis of Recurring Revenues – Multiplier Method 10

C Analysis of Recurring Costs – Case Study Method 11

D Analysis of Recurring Costs – Multiplier Method 12

IV FISCAL IMPACTS TO THE CITY 15

A Total Recurring Revenues 15

B Total Recurring Costs 15

C Overall Net Fiscal Impact 16

D Market Considerations 17

APPENDIX A

FISCAL IMPACT STUDY

I EXECUTIVE SUMMARY

A Purpose of the Report

The objective of this Fiscal Impact Study (the "Study") is to analyze the fiscal impacts to the City of San Marcos (the "City") from the zoning and land use change proposed for the development on the 2.6 acre property (the "Project").

The project site is located on the northwest corner of South Santa Fe Ave. and North Los Flores Drive and is north of the 78 freeway. The property is comprised of Assessor's Parcel Numbers (APNs) 217-161-17-00, 217-161-19-000 and 217,161-19-00. The project consists of a Multi-Family Site Development Plan modification to GPA 21-0008 and Tentative Subdivision Map for construction of 46 residential townhomes on 2.6 acres. The project includes a General Plan Amendment and Rezone from Commercial (C) to Multi-Family Residential (R-3-6) to add a 0.37-acre portion of the 2966 S. Santa Fe Avenue property. The existing R-3-10 zoned properties at 2972 & 2982 S. Santa Fe Ave will also be rezoned to R-3-6, to be consistent with the other portion of the project site. The Subject site has grown from 2.50 acres previously slated for Commercial and Multi-family Residential R-3-10 apartments (the "Original" project) to total 2.60 acres, planned for a 46-unit for-sale residential townhome community (The "Proposed" project).

Based on the market analysis prepared by Zonda Advisory (the "Zonda Analysis"), the ("Approved Plan") has been assumed to be a 50 Unit Apartment Development (APN's:217-161-18-00 & 217-161-19-00) plus a 2,821 Commercial Retail Strip Center, (APN: 217-161-17-00). The ("Proposed Plan") is a 46 Unit townhome Development (APN's: 217-161-1800; 217-161-19-00; and a 0.37-acre portion of 217-161-17-00). All of the planned units are 3 bedrooms. The building footprint is approximately 0.89 acres with 0.82 acres dedicated to parking. In aggregate, the seven buildings will comprise approximately 73,952 square feet. There will be a total of 107 parking spaces, 92 of which will be covered garages. In addition, 14,795 square feet of landscape and common open space will be provided throughout the development.

Consequently, the Study estimates the fiscal impacts of the Approved Plan and Proposed Plan (collectively, the "Scenarios") and provides a side-by-side comparison of both Scenarios.

B Types of Fiscal Impacts Evaluated in this Study

The fiscal impacts identified in this Study include recurring municipal revenues and costs to the City General Fund that result from the Project. The recurring revenues to the City identified in this Study are generated from a variety of sources, including property taxes, sales taxes, licenses and permits, franchise fees, fines, and other revenues. Although these revenues vary from year to year, they occur on a regular basis and are part of the City's budgeting plans on a yearly basis. The recurring General Fund expenditures for the City are equally important in this analysis. These recurring costs are associated with a variety of

other services including public safety, public works maintenance, and general government administrative services. Like the General Fund revenues, these are costs that the City must anticipate and plan for on a yearly basis.

Revenues that are considered non-recurring to the City such as various permitting fees are excluded from this Study. The reason for excluding them is because new development is generally required to pay specific fees such as grading and building prior to the construction of a project. As these are considered one-time revenues, there is no expectation that new development will need to pay these fees a second time. In addition, expenditures resulting from the Project that are considered to be non-recurring are also excluded from the Study.

C Fiscal Impact on City General Fund (Approved Plan vs. Proposed Plan)

The following table displays the annual net fiscal impact to the City under the Approved Plan and the Proposed Plan.

Table ES-1: Annual Net Fiscal Impact (City General Fund)

Fiscal Impact	Approved Plan	Proposed Plan
Total Recurring General Fund Revenues	$94,671	$115,754
Total Recurring General Fund Expenditures	($85,199)	($77,751)
Net Fiscal Impact	$9,472	$38,003
Revenue to Expense Ratio	1.11	1.49

As indicated in **Table ES-1** above, under the Approved Plan the overall fiscal impact to the City General Fund resulting from revenues generated by development and the recurring costs associated with the Project, is an annual recurring fiscal surplus of $9,472. This total is based on $94,671 in recurring annual revenue and $85,199 in recurring annual costs. In this analysis, the total annual revenue-to-cost ratio is projected to equal 1.11, which represents a positive impact to the City.

Under the Proposed Plan, the overall fiscal impact to the City General Fund, resulting from revenues generated by the Project and the recurring costs associated with this area is a recurring fiscal surplus of $38,003. This amount is based on $115,754 in recurring annual revenues and $77,751 in recurring current annual costs (expenditures). In this analysis, the total annual revenue-to-cost ratio is projected to equal 1.49, which represents a positive impact to the City.

D Market Considerations

The primary advantage of the proposed rezone over the original is that the site can provide new for-sale product to San Marcos which has strong buyer demand for townhomes coupled with a historical undersupply of new for-sale housing. Additionally, the site developed as proposed townhomes can deliver relatively attainably priced new for-sale product to San Marcos, at an average unit size which is much larger than the original apartment unit size. The proposed project consists of 2 lots with an existing medium

density residential 2 (MDR2) 15.1–20.0 du/ac general plan land use designation and a 0.37-acre portion of an adjacent parcel with a commercial (C) designation. The proposed project would re-designate both the MDR2 sites and the portion of the commercial site to medium high density residential (MHDR), 20.1– 30.0 du/ac, to develop 46 residential townhome units. According to the Zonda market study, drive thru commercial retail performance remains relatively strong in the right areas and should be attractive to commuters. However, the changing face of retail is causing high vacancies and putting downward pressure on rents and further rent correction could occur at secondary commercial retail locations. However, the proposed residential R-3-6 zoning for-sale residential would introduce needed homes at an attractive price point, fulfilling a deep demand pool of homebuyers looking to move to or purchase in San Marcos. In addition, there is an extreme market demand and supply shortage of for-sale residential townhomes, and the for-sale scenario has the ability to translate potential City revenue into actual dollars, whereas the approved project does not. In addition, the area immediately east of the proposed project is an affordable housing development. An advantage of the rezone over the existing use is that the site can provide new for sale product to San Marcos, which currently does not have new multifamily product.

Figure 1: Net Fiscal Impact (City General Fund) – Approved Plan

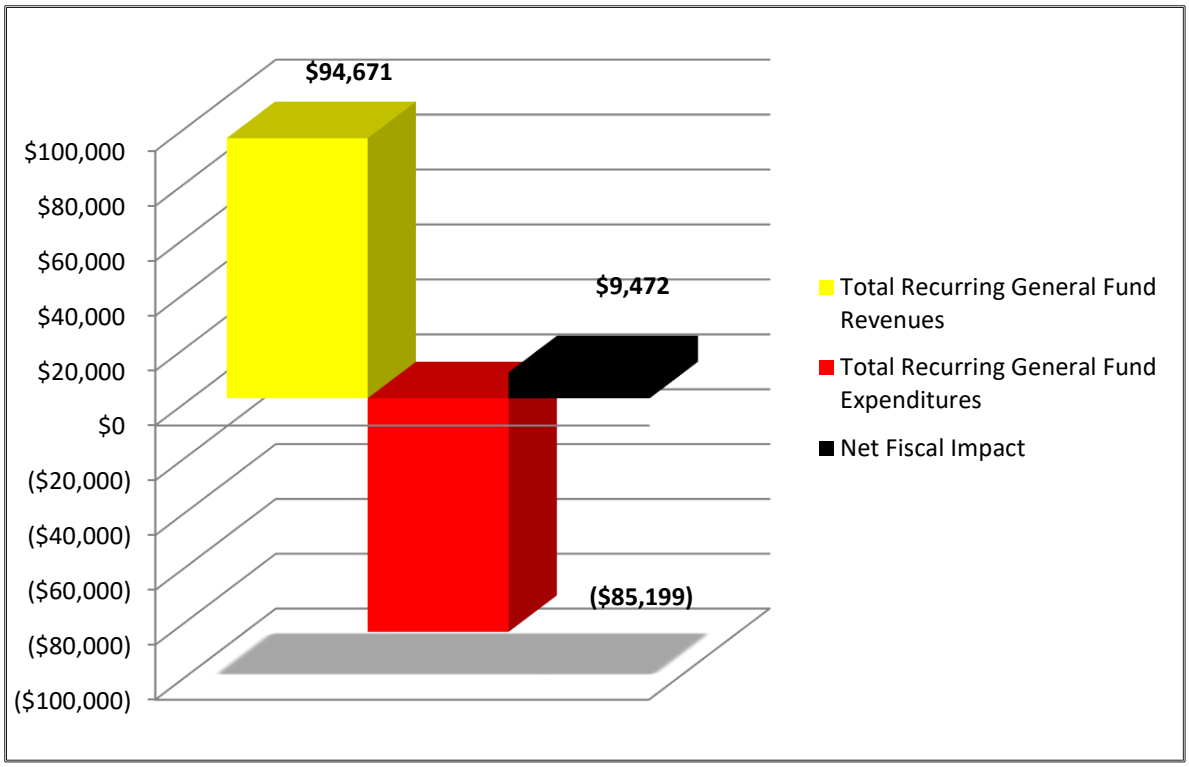
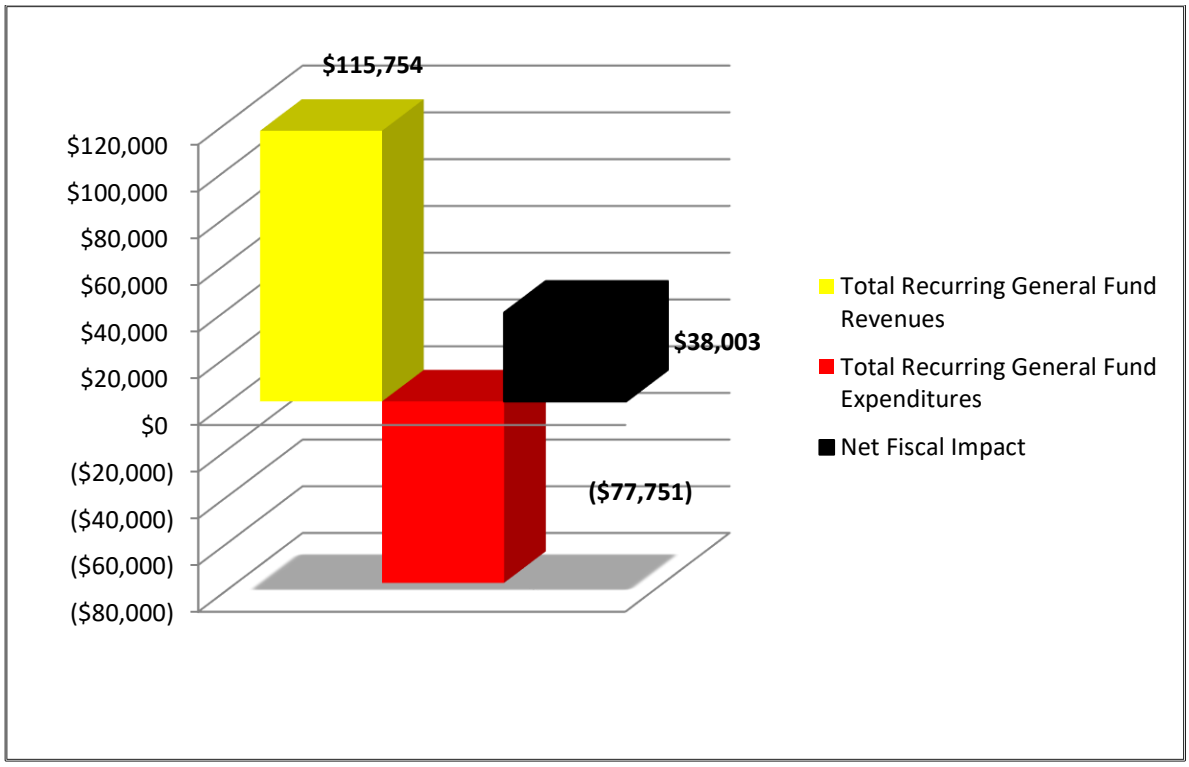


Figure 2: Net Fiscal Impact (City General Fund) – Proposed Plan



II INTRODUCTION

The objective of this Fiscal Impact Study (the "Study") is to analyze the fiscal impacts to the City of San Marcos (the "City") from the zoning and land use change proposed for the development on the 2.6 acre property (the "Project").

The project site is located on the northwest corner of South Santa Fe Ave. and North Los Flores Drive and is north of the 78 freeway. The property is comprised of Assessor's Parcel Numbers (APNs) 217-161-17-00, 217-161-19-000 and 217,161-19-00. The project consists of a Multi-Family Site Development Plan modification to GPA 21-0008 and Tentative Subdivision Map for construction of 46 residential townhomes on 2.6 acres. The project includes a General Plan Amendment and Rezone from Commercial (C) to Multi-Family Residential (R-3-6) to add a 0.37-acre portion of the 2966 S. Santa Fe Avenue property. The existing R-3-10 zoned properties at 2972 & 2982 S. Santa Fe Ave will also be rezoned to R-3-6, to be consistent with the other portion of the project site. The Subject site has grown from 2.5 acres previously slated for Commercial and Multi-family Residential R-3-10 apartments (the "Original" project) to total 2.60 acres, planned for a 46-unit for-sale residential townhome community (The "Proposed" project).

Based on the market analysis prepared by Zonda Advisory (the "Zonda Analysis"), the ("Approved Plan") has been assumed to be a 50 Unit Apartment Development (APN's:217-161-18-00 & 217-161-19-00) plus a 2,821 Commercial Retail Strip Center, (APN: 217-161-17-00). The ("Proposed Plan") is a 46 Unit townhome Development (APN's: 217-161-1800; 217-161-19-00; and a 0.37-acre portion of 217-161-17-00). All of the planned units are 3 bedrooms. The building footprint is approximately 0.89 acres with 0.82 acres dedicated to parking. In aggregate, the seven buildings will comprise approximately 73,952 square feet. There will be a total of 107 parking spaces, 92 of which will be covered garages. In addition, 14,795 square feet of landscape and common open space will be provided throughout the development.

Consequently, the Study estimates the fiscal impacts of the Approved Plan and Proposed Plan (collectively, the "Scenarios") and provides a side-by-side comparison of both Scenarios.

A Scope and Methodology – Recurring Fiscal Impacts

Fiscal impacts arising from a land development plan can be broadly categorized as one of two types: one-time impacts or recurring impacts. Each of these types may, in turn, be divided into a revenue component and a cost component. In this Study, it is assumed that one-time revenues would directly offset one-time costs; thus, the fiscal impacts considered focus on ongoing, or recurring, fiscal impacts of the Project on the City General Fund. Revenues that are generated outside of the City's General Fund (e.g., special district revenues) or costs are incurred by the City outside of the General Fund (e.g., costs financed through a special district) are <u>not</u> included in the fiscal impact analysis.

The fiscal impact analysis presented in this Study utilizes two specific methods of analysis: The Multiplier approach (consisting of three separate methodologies, specifically "Per Capita", "Per Employee", and "Per Capita/Employee") and the Case Study approach. Notably, the primary Multiplier approach used in this Study is the Per Capita/Employee methodology, which recognizes the fact that the exact relationship of service demands and revenue generating potential between residents and employees is difficult to quantify. In order to address this challenge, several assumptions are employed.

B Persons Served Calculation

DTA has determined that utilizing a Per Capita/Employee, or Persons Served population, comprised of all residents and 50% of employees is common fiscal practice in quantifying the impact of a new development in a given service area. This number suggests that a resident generally has twice the fiscal impact of an employee. This methodology involves calculating the average City-wide revenues/costs per Persons Served, utilizing the City's Operating Budget for fiscal year ("FY") 2025-2026 (the "City Budget"), and applying these revenue/cost assumptions to the specific number of Persons Served projected for the Project.

According to information provided by the California Department of Finance Housing and Population Information and the State of California Employees Development Department (EDD), as of 2025, the City of San Marcos has a resident population of 97,123 and an employee population base of 45,700 persons. Given the assumptions presented in the previous paragraph; the City population of 97,123 plus the employee base of (45,700 x 50%), results in a current Persons Served population of 119,973 for the City of San Marcos.

Table 1: Persons Served (Approved Plan)

Land Use [1]	Residents	Direct Employees	Persons Served
Commercial Retail		2	1
Apartments	123		123
Total	123	2	124

Notes:

1. Numbers may not sum due to rounding.

Both Approved and Proposed plans presented in this report will generate a Persons Served total, which will be used to calculate recurring fiscal revenue and expenditures to the City General fund. As indicated earlier, the Approved Plan consists of be a 50 Unit Apartment Development and a 2,821 Commercial Retail Strip Center.

As illustrated in **Table 1** above, this scenario projects 2 direct employees in commercial development x (50%) resulting in 1 persons served and 123 apartment residents. The

persons served totals presented in this table are used in the following sections of the report to generate both revenue and expenditures totals to the City's General Fund as a result of the implementation of the Approved Plan scenario.

In contrast, the Proposed Plan scenario consists of the construction of a 46-unit residential townhome buildings and 107 parking spaces on the 2.6 acre subject property and as indicated in **Table 2** below, generating 113 residents and persons served. The persons served total presented in both of these tables are used in each of the following sections of this report to generate both revenue and expenditures totals to the City's General Fund due to the implementation of the Proposed Plan scenario.

Table 2: Persons Served (Proposed Plan)

Land Use [1]	Residents	Persons Served
Townhomes	113	113
Total	**113**	**113**

Notes:

1 Numbers may not sum due to rounding.

If necessary, DTA will also use the Per Employee methodology to project recurring fiscal factors based on employment only, in areas such as business license revenues. Similarly, DTA will use the Per Capita methodology where appropriate to project recurring fiscal factors based on population only. Again, the Per Employee methodology or Per Capita methodology involve calculating the average City-wide revenues/costs per employee or per capita, utilizing the City Budget, and applying these factors to the specific number of residents or employees, respectively, projected under each Scenario.

Finally, certain revenues and expenditures for which the Multiplier methodology was utilized, were not expected to increase one-to-one with new development. Therefore, in order to accurately account for this, DTA applied a series of discount rates to specific revenues/costs. Generally, if needed, a discount rate would be applied to revenues or expenditures to exclude an administrative/overhead component of the revenue or expenditure that would likely not increase one-to-one with population or employment growth.

C Case Study Methodology

While most recurring revenues analyzed in this Study are projected using the Multiplier methodology, some major revenue sources, including Property Taxes and Sales Taxes, were calculated using a Case Study methodology that involves calculating marginal revenues to be specifically generated by a particular land use, instead of applying an

average City-wide revenue factor. For purposes of this Study, all recurring revenues and costs are stated in current (un-inflated) 2025 dollars, based on the assumption that the relative impacts of inflation in future years will be the same for both of these fiscal impact categories.

D Limitations – Accuracy of Information

The fiscal models in this Study contain an analysis of revenues, service costs (expenditures), and impacts to the City resulting from the Project. These models are based on both (i) information provided to DTA by City staff, and (ii) certain DTA assumptions compiled by DTA from various sources including previous fiscal impact studies prepared by the firm. The sources of information and basis of the estimates calculated in the Study are stated herein. While DTA is confident that the sources of information are reliable, DTA does not express an opinion or any other form of assurance on the accuracy of such information.

Furthermore, the analysis of fiscal impacts contained in this Study is not considered to be a "financial forecast" or a "financial projection;" as technically defined by the American Institute of Certified Public Accountants. The word "projection" used within this Study relates to broad expectations of future events and/or market conditions. Since the analysis contained herein is based on estimates and assumptions that are inherently subject to uncertainty and variation depending on evolving events, DTA cannot represent that such estimates will definitely be achieved. Some assumptions inevitably will not materialize, and unanticipated events and circumstances may occur. Therefore, the actual results achieved may vary over time from the projections stated throughout this Study.

III DESCRIPTION OF RECURRING FISCAL REVENUES/COSTS

This section presents recurring revenue and service cost (expenditure) impacts to the City General Fund for both the Approved Plan and the Proposed Plan, along with the methodology and assumptions utilized to project these impacts. Detailed numerical analyses of anticipated revenue and service cost (expenditure) impacts are contained in **Appendix A**.

A Analysis of Recurring Revenues - Case Study Method

A.1 Property Taxes – Secured and Unsecured

Secured property tax revenues are projected based on the City's estimated share of the general one percent (1%) property tax levy. Total projected secured property tax revenues to the City from the Project are estimated at 16.541% of the basic 1% property tax levy, for Tax Rate Area ("TRA") 13203. Please refer to **Table 1** on the next page and **Exhibit 5** of **Appendix A** for details regarding the secured and unsecured property tax assumptions utilized in the fiscal impact analysis.

Unsecured property taxes collected in the City are levied on tangible personal property that is not secured by real estate. Examples of unsecured property include trade fixtures (e.g., manufacturing equipment and computers), as well as airplanes, boats, and mobile homes on leased land. In generating the fiscal impact models for this Study, DTA has assumed that unsecured property values average 2.75% of the secured value for residential land uses and 10.00% of the secured value for non-residential land uses. Unsecured property tax revenue generated for both the Approved Plan and Proposed Plan are presented in **Exhibit 5** of **Appendix A**.

A.2 Property Transfer Tax

Per California Revenue & Taxation Code §11901 et seq. and the San Marcos Municipal Code §3.12.030, sales of real property are taxed by the County of San Diego (the "County") at a rate of $1.10 per $1,000 of property value. For property located in the City, the property transfer tax is divided equally between the City and the County, with the City receiving $0.55 per $1,000 of transferred property sale or resale value, excluding assumed liens or encumbrances. Per typical baseline assumptions, DTA assumes that residential development changes ownership at an average rate of 10% per year. DTA also assumes that non-residential development changes ownership at an average rate of 5% per year, and that continuing liens and encumbrances are insignificant.

A.3 Property Taxes in-Lieu of Vehicle License Fees (VLF)

The passage of Proposition 1A in California in 2004 enacted a constitutional amendment that introduced a new methodology to calculate property taxes in-lieu of VLF. Per California Revenue and Taxation Code §97.70, the property tax in-lieu of VLF amount now grows in proportion to the growth rate of gross assessed valuation in a city or county. Property taxes in-lieu of VLF revenues are projected to grow with

the change in the City-wide gross assessed valuation of taxable property from the prior fiscal year.

Property tax in-lieu of VLF revenues constitute an addition to other property tax apportionments and were calculated for purposes of this Study at $0.67 per $1,000 increase in assessed valuation on a City-wide basis. **Table 3** presents details regarding the property tax assumptions utilized in the fiscal impact analysis.

Table 3: Property Tax Assumptions

Property Tax Assumptions	Approved Plan	Proposed Plan
Assessed Valuation		
Residential	$18,196,500	$35,436,744
Non-residential	$1,579,486	$0
Unsecured Property Tax ***(Assumptions apply to both Scenarios)***		
(As a Portion of the 1% General Property Tax Levy)		
TRA 13203 City of San Marcos	9.591%	9.591%
TRA 13203 Fire District	6.950%	6.950%
Unsecured Property Tax ***(Assumptions apply to both Scenarios)***		
Residential	2.75%	2.75%
Non-residential	10.0%	10.0%
Property Transfer Tax ***(Assumptions apply to both Scenarios)***		
Residential Property Turnover Rate	10.0%	10.0%
Non-residential Property Turnover Rate	5.0%	5.0%
Transfer Tax as a % of Assessed Value	0.11%	0.11%
Property Transfer Tax Passed through to the City	50.0%	50.0%
Property Tax in-Lieu of Vehicle License Fee (VLF) ***(Assumptions apply to both Scenarios)***		
Total San Marcos Gross Assessed Value (VLF Base year)	$7,756,621,947	$7,756,621,947
Total City Property Tax In-Lieu of VLF Revenues	$5,191,930	$5,191,930
Property Tax In-Lieu of VLF Increase per $1,000 of AV	$0.67	$0.67

A.4 Sales Taxes

Direct sales tax revenues are generated by retail sales from businesses within City limits, with 1.00% of taxable sales receipts passed through to the City. **Exhibit 6** of **Appendix A** reflects estimated taxable sales per square foot for each on-site, non-residential land use type, based on data from the Urban Land Institute's Dollars &

Cents of Shopping Projects publication and total estimated taxable sales for the Project, based on development assumptions provided by the City and the Zonda Analysis.

Indirect sales tax revenues, as also summarized in **Exhibit 6** of **Appendix A**, are projected based on estimated purchases made by residents and employees of the Project within the City. Based on the methodology outlined in the International Council of Shopping Centers' Office-Worker Retail Spending in a Digital Age (2012), DTA assumed that each on-site employee spends approximately $7,437 within the City per year, while local Townhome Residential household spending is expected to be $21,721 and local Apartment spending is expected to be $14,738 within the City. The assumed capture rate for employee spending in the City is 50%. Sales tax assumptions presented in this Study are summarized in **Table 4** below.

Table 4: Sales Tax Assumptions

Sales Tax Assumptions	Approved Plan	Proposed Plan
Percentage of Sales Tax Passed through City of San Marcos	1.00%	1.00%
Local Employee Spending	$7,437	$7,437
Local Residential Spending (Townhomes)	-	$21,721
Local Residential Spending (Apartments)	$14,738	-
Capture Rate of Retail Spending (within the City)	50%	50%
Displacement Rate (existing taxable sales within the City)	20%	20%
Taxable Sales per Square Foot – Commercial Retail	$500	NA

Notes:

1. Residential spending based on US Census median income levels for San Marcos.

A.5 Community Facilities District ("CFD") Special Tax Revenue

The Project is currently located in five (5) separate Community Facilities Districts (collectively, the "CFDs") and will be subject to the applicable special tax for each CFD based on the land uses anticipated under each Scenario. Notably, revenues generated from CFD No. 98-02 and CFD No. 2011-01 will not be deposited in the City's General Fund and have therefore been excluded from this analysis. **Table 5** below and **Exhibit 7** of **Appendix A** summarize the CFD assumptions utilized for the Approved Plan and the Proposed Plan.

Table 5: CFD Assumptions

Community Facilities District	Approved Plan	Proposed Plan	Fund Designation
CFD 98-01 IA 1			
Commercial (Per Acre)	$1,364.20		**General Fund**
Office (Per Acre)	$2,728.40		
Industrial (Per Acre)	$1,032.90		
Residential (Per Unit)		$194.90	
CFD 98-02 (Zones A - E)			
Commercial (Per Acre)	$1,196.40		Non-General Fund
Office (Per Acre)	$1,196.43		
Industrial (Per Acre)	$796.63		
Residential (Per Unit)		$268.00	
CFD 98-02 (Zone F)			
Commercial (Per Acre)	NA		Non-General Fund
Office (Per Acre)	NA		
Industrial (Per Acre)	NA		
Residential (Per Unit)		NA	
CFD 2001-01			
Commercial (Per Acre)	$1,261.10		**General Fund**
Office (Per Acre)	$2,522.25		
Industrial (Per Acre)	$954.81		
Residential (Per Unit)		$180.01	
CFD 2011-01			
Commercial (Per Sq. Ft.)	$0.468		Non-General Fund
Office (Per Sq. FT)	$0.468		
Industrial (Per Sq. Ft.)	$1.2053		
Residential (Per Unit)		$354.11	

B Analysis of Recurring Revenues – Multiplier Method

Utilizing the Multiplier methodology discussed in Section II (A) of this Study, the multipliers presented in this section and illustrated in **Table 6** below quantify the marginal increase in revenue for each specific revenue category as a result of the proposed development Scenario(s). Additional details on each revenue category are also provided below.

Table 6: General Fund Revenues (Multiplier Method)

Revenue Category	Amount	Methodology	Discount
Franchise Fees	$49.26	Persons Served	0%
Licenses and Permits	$2.82	Persons Served	0%
Fines and Forfeitures	$9.37	Persons Served	0%

B.1 Franchise Fees

The City receives franchise fee revenue from a variety of sources including utility companies (e.g. electricity, water, trash, etc.), pipelines that run under the City's streets, cable TV, taxi, and from companies that operate in the City's right-of-way to provide services for residents (e.g. tow trucks and solid waste haulers). Some franchise taxes (fees) are set dollar amounts that increase each year according to changes in some index, such as the Consumer Price Index. Other franchise fees are based on a percentage of utility revenues.

Using the *Per Capita/Employee Multiplier* approach, DTA has projected Franchise fees at $49.26 per persons served. This number represents the marginal increase in revenue per additional persons served in this category.

B.2 Licenses and Permits

Although Licenses and Permits made up only a small portion of the City's revenue in FY 2025-2026, it is considered an important source of income to the City's General Fund. In addition to business licenses, the city imposes fees on a variety of permits including building, electrical, plumbing, grading, construction, and many other areas.

DTA projects Licenses and Permits at $2.82 per persons served using the *Per Capita/Employee Multiplier* approach.

B.3 Fines and Forfeitures

To ensure the payment of various licenses and fees, the City's Municipal Code empowers the City to impose penalties and to collect fines in several areas. Among the significant categories in this section are parking fines, traffic fines, and forfeitures/ penalties for business licenses and franchises. After a careful review of this revenue source, Fines and Forfeiture have also been projected using the *Per Capita/Employee Multiplier* approach, at $9.37 per persons served.

C Analysis of Recurring Costs – Case Study Method

C.1 General Government

According to the City Budget, the percentage of recurring General Government overhead (percentage of total recurring General Fund expenditures) to the City General Fund non-government expenditures, is 28.15%. This is based on total general government expenditures of $23,208,622 and non-general government

expenditure of $82,432,038. General Government costs are generated from several areas including City Council, Administration, Economic Development, City Attorney, City Clerk, Human Resources/Risk Management, Finance/Information Systems, and Real Property Services. Non-general government costs include Public Works, Development Services, Public Safety, Parks and Recreation, and other Financing Sources.

D Analysis of Recurring Costs – Multiplier Method

Table 7 below quantifies the marginal increase in expenditures for specific expenditure category as a result of the proposed development Scenario(s). A detailed description of each category is also provided below.

Table 7: General Fund Costs (Multiplier Method)

Categories	Amount	Methodology	Discount
Public Works	$62.26	Persons Served	0%
Development Services	$60.54	Persons Served	0%
Public Safety	$331.72	Persons Served	0%
Parks and Recreation	$39.12	Persons Served	0%
Other Financing Sources	$0.00	Persons Served	90%

D.1 Public Works

The Public Works Department is responsible for the design, construction, maintenance and management of the City's vital municipal infrastructure system. It is composed of two divisions, Operations and Engineering. The Operations divisions includes administration, right-of-way maintenance, facilities maintenance, fleet maintenance, and parks and landscape maintenance, and is responsible for the maintenance and repair of City streets, buildings, flood control, storm drains, street lights, traffic signals, public places, parks, special districts, vehicles and equipment. The Engineering division administers and coordinates the capital improvement program, traffic engineering, stormwater maintenance, and construction inspection and management.

The Department also oversees the drafting and execution of related contracts and agreements; coordination with outside agencies; preparation and administration of capital grant funding; management of City-owned asset data; and provides inspection and acceptance services for development and public infrastructure improvements in the City.

DTA projects the combined Public Works Department multiplier at $62.26 per persons served using the *Per-Capita/Employee Multiplier* approach. Again, this represents the marginal increase in expenditure per additional persons served in this category.

D.2 Development Services

The Development Services Department handles a wide array of development activity from project entitlement approvals to grading permits and serves to address violations of City ordinances related to land use and development. The planning division administers the City's General Plan and various zoning and environmental regulations by analyzing and recommending measures to protect existing resources and to ensure the orderly development of the community that will maintain a balance between the quality of life, the environment and economic stability of the City. The engineering divisions administer and coordinate the capital improvement program, land development engineering, traffic engineering, watershed management, construction inspection and management. The geographic information system (GIS) division supports municipal services including planning, infrastructure management, and asset control by providing geospatial data and mapping services. The administration division provides general department oversight and support as well as special projects as needed.

Notably, DTA projects the combined Development Services multiplier at $60.54 per persons served using the *Per-Capita/Employee Multiplier* approach.

D.3 Public Safety

The Public Safety division discussed in this section is made up of both Law Enforcement and Fire services. According to the City Budget, this division accounts for the City's largest General Fund expenditure (over 50.0% of the City's annual General Fund expenditure). The City currently has a contract for police services with the San Diego County Sherriff's Department. The City contract for law enforcement services includes patrol, traffic, community-oriented policing, gang and narcotics details, detectives, and clerical and supervisory personnel. In contrast, the City operates its own Fire Department, which provides services to over 100,000 residents in the 33 square mile San Marcos Fire Protection District ("SMFPD"). The City itself, comprises 24 square miles of the SMFPD.

Based on the City Budget, DTA projects the combined Public Safety multiplier at $331.72 per persons served using the *Per Capita/Employee Multiplier* approach.

D.4 Parks and Recreation

The Parks and Recreation department is responsible for providing programs and services at the City's parks and recreation facilities. Among the specific elements of the department's work, are pre-school and youth programming, holiday celebrations, special events, cultural and performing arts activities, parks and trails planning, as well as aquatics and other programs. San Marcos has 44 parks spanning 300 acres, and more than 72 miles of trails. Based on the City Budget, DTA projects the Parks and Recreation multiplier at $39.12 per persons served using the *Per Capita/Employee Multiplier* approach.

D.5 Other Financing Services

The Other Financial Services category is comprised of Transfers Out, Annual Replacement, and Rehab Transfers. In FY 2025-26 it is projected to have a combined multiplier of $0.00 per persons served using the *Per Capita/Employee Multiplier* approach as no other financing sources were reported in the 2025-2026 budget. However, as explained in the earlier Scope and Methodology section, a discount rate of 90% would have been applied to this expenditure to exclude an administrative/overhead component of the expenditure that would not increase one-to-one with population or employment growth.

IV FISCAL IMPACTS TO THE CITY

A Total Recurring Revenues

Under the Approved Plan, total annual incremental recurring revenues are projected to total $94,671 Notably Secured Property Tax revenue makes up the largest percentage total (37.3%). In addition, as shown in the table below, CFD Revenue, Property In-lieu of Vehicle License Fees and Direct and Indirect Sales Tax also make up significant portions of the revenue to the City.

Under the Proposed Plan, annual incremental recurring revenues total $115,754. As illustrated below in **Table 8**, the largest percentage of revenue generated under the Proposed Plan is attributed to Secured Property Tax revenue (50.6%). Other areas making up a significant portion of the revenue to the City include Property In-Lieu of Vehicle License fees and CFD Revenues. **Exhibits 1 and 11,** in **Appendix A** provide additional details regarding all recurring revenues and the assumptions used in their derivation.

Table 8: Recurring Fiscal Revenues (City General Fund)

Revenue Category	Approved Plan		Proposed Plan	
	Amount	Percent	Amount	Percent
Secured Property Tax	$35,325	37.3%	$58,617	50.6%
Unsecured Property Tax	$1,089	1.2%	$1,612	1.4%
Property Transfer Tax	$1,044	1.1%	$1,965	1.7%
Property In-Lieu of Vehicle License Fee	$11,811	12.5%	$23,151	20.0%
Direct and Indirect Sales tax	$18,690	19.7%	$6,780	5.9%
Franchise Fees	$6,108	6.5%	$5,574	4.8%
Licenses and Permits	$537	0.6%	$490	0.4%
Fines and Forfeitures	$350	0.4%	$319	0.3%
CFD Revenue	$19,717	20.8%	$17,246	14.9%
Total Revenues	$94,671	100.0%	$115,754	100.0%

B Total Recurring Costs

As illustrated in **Table 9** below, under the Approved Plan, the total annual incremental recurring costs are projected to be $85,199 per year. Public Safety (48.3%) and General Government (28.2%) make up the largest cost percentages in this category. Under the Proposed Plan, the total annual recurring costs are projected to be $77,751 per year. Like the Approved Plan, the largest annual costs are expected to be Public Safety and General Government. **Exhibits 1** and **12**, in **Appendix A** provide additional details about all recurring costs and the assumptions used in their derivation.

Table 9: Recurring Fiscal Costs (City General Fund)

Categories	Approved Plan		Proposed Plan	
	Amount	Percent	Amount	Percent
Public Works	$7,720	9.1%	$7,045	9.1%
Development Services	$7,507	8.8%	$6,851	8.8%
Public Safety	$41,133	48.3%	$37,537	48.3%
Parks and Recreation	$4,851	5.7%	$4,427	5.7%
Other Financing Sources	$0	0.0%	$0	0.0%
General Government	$23,988	28.2%	$21,891	28.2%
Total Costs	$85,199	100.0%	$77,751	100.0%

C Overall Net Fiscal Impact

Table 10 presented below, under the Approved Plan the overall fiscal impact to the City General Fund, resulting from revenues generated by development is an annual recurring fiscal surplus of $9,472. This total is based on $94,671 in recurring annual revenue and $85,199 in recurring annual costs. In this analysis, the total annual revenue-to-cost ratio is projected to equal 1.11, which represents a positive impact to the City.

Under the Proposed Plan, the overall fiscal impact to the City General Fund, resulting from revenues generated by the Project and the recurring costs associated with this area is a recurring fiscal surplus of $38,003. This amount is based on $115,754 in recurring annual revenues and $77,751 in recurring current annual costs (expenditures). In this analysis, the total annual revenue-to-cost ratio is projected to equal 1.49, which represents a positive impact to the City.

Table 10: Annual Net Fiscal Impact (City General Fund)

Fiscal Impact	Approved Plan	Proposed Plan
Total Recurring General Fund Revenues	$94,671	$115,754
Total Recurring General Fund Expenditures	($85,199)	($77,751)
Net Fiscal Impact	$9,472	$38,003
Revenue to Expense Ratio	1.11	1.49

D Market Considerations

The primary advantage of the proposed rezone over the original is that the site can provide new for-sale product to San Marcos which has strong buyer demand for townhomes coupled with a historical undersupply of new for-sale housing. Additionally, the site developed as proposed townhomes can deliver relatively attainably priced new for-sale product to San Marcos, at an average unit size which is much larger than the original apartment unit size. The proposed project consists of 2 lots with an existing medium density residential 2 (MDR2) 15.1–20.0 du/ac general plan land use designation and a 0.37-acre portion of an adjacent parcel with a commercial (C) designation. The proposed project would re-designate both the MDR2 sites and the portion of the commercial site to medium high density residential (MHDR), 20.1– 30.0 du/ac, to develop 46 residential townhome units. According to the Zonda market study, drive thru commercial retail performance remains relatively strong in the right areas and should be attractive to commuters. However, the changing face of retail is causing high vacancies and putting downward pressure on rents and further rent correction could occur at secondary commercial retail locations. However, the proposed residential R-3-6 zoning for-sale residential would introduce needed homes at an attractive price point, fulfilling a deep demand pool of homebuyers looking to move to or purchase in San Marcos. In addition, there is an extreme market demand and supply shortage of for-sale residential townhomes, and the for-sale scenario has the ability to translate potential City revenue into actual dollars, whereas the approved project does not. In addition, the area immediately east of the proposed project is an affordable housing development. An advantage of the rezone over the existing use is that the site can provide new for sale product to San Marcos, which currently does not have new multifamily product.

APPENDIX A

City of San Marcos
Santa Fe Flores General Plan Amendment
Fiscal Impact Report

FISCAL IMPACT STUDY

CITY OF SAN MARCOS
SANTA FE FLORES TOWNHOMES
FISCAL IMPACT ANALYSIS

FISCAL IMPACT SUMMARY

PROJECT SUMMARY

DEMOGRAPHICS

CASE STUDY REVENUES

CASE STUDY EXPENDITURES

MULTIPLIER REVENUES

MULTIPLIER EXPENDITURES

CITY BUDGET SUMMARY

EXHIBIT 1

CITY OF SAN MARCOS
SANTA FE FLORES TOWNHOMES
FISCAL IMPACT SUMMARY

RECURRING GENERAL FUND REVENUES [1]	APPROVED PLAN AMOUNT	APPROVED PLAN % OF TOTAL	PROPOSED PLAN AMOUNT	PROPOSED PLAN % OF TOTAL
SECURED PROPERTY TAX	$35,325	37.3%	$58,617	50.6%
UNSECURED PROPERTY TAX	$1,089	1.2%	$1,612	1.4%
PROPERTY TRANSFER TAX	$1,044	1.1%	$1,965	1.7%
PROPERTY TAX IN-LIEU OF VEHICLE LICENSE FEE	$11,811	12.5%	$23,151	20.0%
DIRECT AND INDIRECT SALES TAX	$18,690	19.7%	$6,780	5.9%
FRANCHISE FEES	$6,108	6.5%	$5,574	4.8%
LICENSES AND PERMITS	$537	0.6%	$490	0.4%
FINES AND FORFEITURES	$350	0.4%	$319	0.3%
CFD REVENUE	$19,717	20.8%	$17,246	14.9%
TOTAL RECURRING GENERAL FUND REVENUES	**$94,671**	**100.0%**	**$115,754**	**100.0%**

RECURRING GENERAL FUND EXPENDITURES [2]	APPROVED PLAN AMOUNT	APPROVED PLAN % OF TOTAL	PROPOSED PLAN AMOUNT	PROPOSED PLAN % OF TOTAL
PUBLIC WORKS	$7,720	9.061%	$7,045	9.061%
DEVELOPMENT SERVICES	$7,507	8.811%	$6,851	8.811%
PUBLIC SAFETY	$41,133	48.279%	$37,537	48.278%
PARKS AND RECREATION	$4,851	5.694%	$4,427	5.694%
OTHER FINANCING USES	$0	0.000%	$0	0.000%
GENERAL GOVERNMENT	$23,988	28.155%	$21,891	28.155%
TOTAL RECURRING GENERAL FUND EXPENDITURES	**$85,199**	**100.0%**	**$77,751**	**100.0%**

NET FISCAL IMPACT	APPROVED PLAN	PROPOSED PLAN
TOTAL ANNUAL RECURRING GENERAL FUND SURPLUS/(DEFICIT)	**$9,472**	**$38,003**
TOTAL ANNUAL REVENUE/EXPENDITURE RATIO	**1.11**	**1.49**

NOTES:

[1] Please see Exhibits 5-7 and 9 for the derivation of these calculations.

[2] Please see Exhibits 8 and 10 for the derivation of these calculations.

All figures subject to rounding

EXHIBIT 2

CITY OF SAN MARCOS
SANTA FE FLORES TOWNHOMES
PROJECT SUMMARY

		ORGINAL PLAN										PROPOSED PLAN									
TOTAL GROSS ACRES LAND USE TYPE		BUILDING SPACE ACRES[1]	BUILDING SPACE SF[1]	ESTIMATED VALUE BSF	TOTAL ESTIMATED VALUE[2]	BUILDING SPACE ACRES[1]	UNITS[1]	BUILDING SPACE SF[1]	ESTIMATED VALUE BSF	ESTIMATED AVERAGE VALUATION[2,3]	TOTAL ESTIMATED VALUE[2]	BUILDING SPACE ACRES[1]	BUILDING SPACE SF[1]	ESTIMATED VALUE BSF	TOTAL ESTIMATED VALUE[2]	BUILDING SPACE ACRES[1]	UNITS[1]	BUILDING SPACE SF[1]	ESTIMATED VALUE BSF	ESTIMATED AVERAGE VALUATION[2,3]	TOTAL ESTIMATED VALUE[2]
GRAND TOTAL	2.60	**0.37**	**2,821**	**$560**	**$1,579,486**	**2.50**	**50**	**36,393**	**$500**	**$363,930**	**$18,196,500**	**0.00**	**0**	**$0**	**$0**	**1.70**	**46**	**73,968**	**$483**	**$776,664**	**$35,726,544**
NON-RESIDENTIAL		**0.37**	**2,821**		**$1,579,486**																
COMMERCIAL RETAIL STRIP CEN		0.37	2,821	$560	$1,579,486																
RESIDENTIAL																					
NON RESIDENTIAL																					
-																					
RESIDENTIAL						**2.50**	**50**	**36,393**	**$500**	**$363,930**	**$18,196,500**										
MULTI-FAMILY APARTMENTS						2.50	50	36,393	$500	$363,930	$18,196,500										
TOWNHOMES																**1.70**	**46**	**73,968**	**$483**	**$776,664**	**$35,726,544**

NOTES

[1] Source: City of San Marcos.

[2] Source: Zonda Research

[3] "Estimated average sale price" refers to the Estimated closing price per Zonda assumptions.

[4] Source: Zonda Research, "Santa Fe Flores 2025

* Totals may not sum due to rounding

EXHIBIT 3

CITY OF SAN MARCOS
SANTA FE FLORES TOWNHOMES
CITY DEMOGRAPHICS

POPULATION, HOUSEHOLDS, AND EMPLOYMENT (2025)	
POPULATION[1]	97,123
EMPLOYMENT[2]	45,700
TOTAL PERSONS SERVED[3]	119,973
HOUSEHOLDS [1]	33,157
MFR AVERAGE HOUSEHOLD SIZE[1]	2.46
Multi-family	

NOTES

[1] California Department of Finance, Housing and Population Information, January 1, 2025 and US Census.
[2] Source: Calif. Employment Development Dept. June 2025
[3] Assumes City population plus 50% of employees.

EXHIBIT 4

CITY OF SAN MARCOS
SANTA FE FLORES TOWNHOMES
PROJECT DEMOGRAPHICS

	APPROVED PLAN										PROPOSED PLAN									
LAND USE TYPE	BSF	SF PER EMPLOYEE[2]	DIRECT EMPLOYEES	PERSONS SERVED	BSF	UNITS	PERSONS PER HOUSEHOLD1	RESIDENTS	DIRECT EMPLOYEES	PERSONS SERVED	BSF	SF PER EMPLOYEE[2]	DIRECT EMPLOYEES	PERSONS SERVED	BSF	UNITS	PERSONS PER HOUSEHOLD[1]	RESIDENTS	DIRECT EMPLOYEES	PERSONS SERVED
GRAND TOTAL	**2,821**		**2**	**1**	**36,393**	**50**	**2.46**	**123**	**0**	**123**	**0**		**0**	**0**	**73,968**	**46**	**2.46**	**113**	**0**	**113**
NON-RESIDENTIAL	**2,821**		**2**	**1**																
COMMERCIAL RETAIL STRIP CENT	2,821	1,221	2	1																
RESIDENTIAL					**0**	**0**	**0**	**0**	**0**	**0**										
NON-RESIDENTIAL															**73,968**	**46**		**113**	**0**	**113**
TOWNHOMES															73,968	46	2.46	113	0	113
RESIDENTIAL					**36,393**	**50**	**2.46**	**123**	**0**	**123**										
MULTI-FAMILY APARTMENTS					36,393	50	2.46	123	0	123										

NOTES

[1] Source: Zonda Research.

[2] Source: Commercial Buildings Energy Consumption Survey (CBECS), 2018.

EXHIBIT 5
CITY OF SAN MARCOS
SANTA FE FLORES TOWNHOMES
ESTIMATED PROPERTY TAX REVENUES (CASE STUDY)

PROPERTY TAX SUMMARY		
LAND USE TYPE	**APPROVED PLAN**	**PROPOSED PLAN**
ALL PROPERTY TAXES		
SECURED PROPERTY TAXES	$35,325	$58,617
UNSECURED PROPERTY TAXES	$1,089	$1,612
PROPERTY TRANSFER TAXES	$1,044	$1,965
PROPERTY TAX IN-LIEU OF VLF	$11,811	$23,151
GRAND TOTAL ALL PROPERTY TAXES	**$49,269**	**$85,345**
RESIDENTIAL PROPERTY TAXES		
SECURED PROPERTY TAXES	$32,712	$58,617
UNSECURED PROPERTY TAXES	$828	$1,612
PROPERTY TRANSFER TAXES	$1,001	$1,965
PROPERTY TAX IN-LIEU OF VLF	$11,516	$23,151
TOTAL RESIDENTIAL PROPERTY TAXES	**$46,057**	**$85,345**
NON-RESIDENTIAL PROPERTY TAXES		
SECURED PROPERTY TAXES	$2,613	$0
UNSECURED PROPERTY TAXES	$261	$0
PROPERTY TRANSFER TAXES	$43	$0
PROPERTY TAX IN-LIEU OF VLF	$295	$0
TOTAL NON-RESIDENTIAL PROPERTY TAXES	**$3,212**	**$0**

SECURED PROPERTY TAX CALCULATION			
LAND USE TYPE		**APPROVED PLAN**	**PROPOSED PLAN**
GRAND TOTAL			
ESTIMATED BUILDOUT VALUE		$19,775,986	$35,726,544
ESTIMATED EXEMPTIONS		$0	($289,800)
ESTIMATED ASSESSED VALUE		$19,775,986	$35,436,744
ESTIMATED SECURED PROPERTY TAXES		$32,712	$58,617
RESIDENTIAL			
ESTIMATED BUILDOUT VALUE		$18,196,500	$35,726,544
ESTIMATED EXEMPTIONS			($289,800)
HOMEOWNER'S EXEMPTION (ANNUALLY) [1]	$7,000		
PERCENT OF SALE UNITS TAKING HOMEOWNER'S EXEMPTION[1]	90%		
ESTIMATED ASSESSED VALUE		$18,196,500	$35,436,744
ESTIMATED SECURED PROPERTY TAXES		$30,100	$58,617
NON-RESIDENTIAL			
ESTIMATED BUILDOUT VALUE		$1,579,486	$0
ESTIMATED EXEMPTIONS		$0	$0
ESTIMATED ASSESSED VALUE		$1,579,486	$0
ESTIMATED SECURED PROPERTY TAXES		$2,613	$0

UNSECURED PROPERTY TAX CALCULATION			
LAND USE TYPE		**APPROVED PLAN**	**PROPOSED PLAN**
GRAND TOTAL		$1,089	$1,612
RESIDENTIAL			
ESTIMATED UNSECURED PROPERTY TAXES		$828	$1,612
UNSECURED TAXES AS A % OF SECURED	**2.75%**		
NON-RESIDENTIAL			
ESTIMATED UNSECURED PROPERTY TAXES		$261	$0
UNSECURED TAXES AS A % OF SECURED	**10.00%**		

[1] Per the City of San Marcos Housing Needs Assessment 2019 only 9% of City's of housing stock is made up of condominiums/townhouses and mobile homes DTA estimates that 90% of these units will be owner occupied Sinc e 10 % are rented out we use 90% as homeowners exemption number

EXHIBIT 5 - CONTINUED

CITY OF SAN MARCOS
SANTA FE FLORES TOWNHOMES
ESTIMATED PROPERTY TAX REVENUES (CASE STUDY)

PROPERTY TRANSFER TAX CALCULATION			
LAND USE TYPE		APPROVED PLAN	PROPOSED PLAN
GRAND TOTAL		$1,044	$1,965
RESIDENTIAL			
ESTIMATED PROPERTY TRANSFER TAXES		$1,001	$1,965
ESTIMATED BUILDOUT VALUE		**$18,196,500**	**$35,726,544**
TRANSFER TAX AS A % OF ASSESSED VALUE	0.11%		
PROPERTY TRANSFER TAX PASSED THROUGH TO CITY OF SAN MARCOS	50.00%		
RESIDENTIAL PROPERTY TURNOVER RATE	10.00%		
NON-RESIDENTIAL			
ESTIMATED PROPERTY TRANSFER TAXES		$43	$0
ESTIMATED BUILDOUT VALUE		**$1,579,486**	**$0**
TRANSFER TAX AS A % OF ASSESSED VALUE	0.11%		
PROPERTY TRANSFER TAX PASSED THROUGH TO CITY OF SAN MARCOS	50.00%		
NON-RESIDENTIAL PROPERTY TURNOVER RATE	5.00%		

PROPERTY TAX IN-LIEU OF VEHICLE LICENSE FEE CALCULATION			
LAND USE TYPE		APPROVED PLAN	PROPOSED PLAN
GRAND TOTAL		$11,811	$23,151
RESIDENTIAL			
ESTIMATED PROPERTY TAX IN-LIEU OF VLF		$11,516	$23,151
ESTIMATED BUILDOUT VALUE		$18,196,500	$35,726,544
ESTIMATED EXISTING ASSESSED VALUE		**$992,179**	**$1,139,022**
PROPERTY TAX IN-LIEU OF VLF INCREASE PER $1,000 OF AV	$0.67		
NON-RESIDENTIAL			
ESTIMATED PROPERTY TAX IN-LIEU OF VLF		$295	$0
ESTIMATED BUILDOUT VALUE		$1,579,486	$0
ESTIMATED EXISTING ASSESSED VALUE		**$1,139,022**	**$0**
PROPERTY TAX IN-LIEU OF VLF INCREASE PER $1,000 OF AV	$0.67		

EXHIBIT 5 - CONTINUED

CITY OF SAN MARCOS
SANTA FE FLORES TOWNHOMES
ESTIMATED PROPERTY TAX REVENUES (CASE STUDY)

PROPERTY TAX AND PROPERTY TRANSFER TAX RATES AND ASSUMPTIONS

PROPERTY TAX ALLOCATION (AS A PORTION OF THE 1% GENERAL PROPERTY TAX LEVY)	
CITY OF SAN MARCOS[3,4]	9.591%
FIRE DISTRICT[3,4]	6.950%
TOTAL	**16.541379%**
PROPERTY TRANSFER TAX RATE AND ALLOCATION [5]	
TRANSFER TAX AS A % OF ASSESSED VALUE	0.11%
PROPERTY TRANSFER TAX PASSED THROUGH TO CITY OF SAN MARCOS	50.00%
PROPERTY TAX IN-LIEU OF VLF ASSUMPTIONS	
TOTAL CITY OF SAN MARCOS GROSS ASSESSED VALUE[6]	$7,756,621,947
TOTAL CITY PROPERTY TAX IN-LIEU VLF REVENUES[6]	$5,191,930
PROPERTY TAX IN-LIEU OF VLF INCREASE PER $1,000 OF AV	$0.67

NOTES

[1] Estimate, subject to change.

[2] Based on typical DTA baseline assumptions.

[3] Based on "General Fund" levy for Tax Rate Area (TRA) 13203. Data provided by the County of San Diego Auditor-Controller's Office.

[4] Based on the average of the rates for TRA 13112.

[5] Source: California Revenue & Taxation Code §11901, et seq.; San Marcos Municipal Code §3.12.020.

[6] Source: State Controller's Office Division of Accounting and Reporting, Revenue and Taxation Code Section 97.70 (c)(1)(B)(i) - Vehicle License Fee Adjustment Amounts.

EXHIBIT 6

CITY OF SAN MARCOS
SANTA FE FLORES TOWNHOMES
ESTIMATED SALES TAX REVENUES (CASE STUDY)

SALES TAX SUMMARY		
LAND USE TYPE	**APPROVED PLAN**	**PROPOSED PLAN**
GRAND TOTAL	**$18,690**	**$6,780**
RESIDENTIAL SALES TAXES		
DIRECT SALES TAX	NA	NA
INDIRECT SALES TAX - TAXABLE RESIDENT PURCHASES		
TOWNHOMES	$0	$6,780
TOTAL RESIDENTIAL SALES TAXES	**$0**	**$6,780**
NON-RESIDENTIAL SALES TAXES		
DIRECT SALES TAX[1]		
COMMERCIAL RETAIL STRIP CENTER	$11,284	NA
INDIRECT SALES TAX - TAXABLE EMPLOYEE PURCHASES	$37	$0
INDIRECT SALES TAX - TAXABLE RESIDENT PURCHASES	$7,369	
TOTAL NON-RESIDENTIAL SALES TAXES	**$18,690**	**$0**

DIRECT SALES TAX ASSUMPTIONS		
TAXABLE SALES PER SF[1]		
COMMERCIAL RETAIL STRIP CENTER	$500.00	$0.00
DISPLACED TAXABLE SALES[2]	20%	20%

[1] Based on typical DTA baseline assumptions.

[2] Based on typical DTA baseline assumptions.

EXHIBIT 6 - CONTINUED

CITY OF SAN MARCOS
SANTA FE FLORES TOWNHOMES
ESTIMATED SALES TAX REVENUES (CASE STUDY)

RESIDENTIAL INDIRECT SALES TAX ASSUMPTIONS

DISPOSABLE INCOME PER HOUSEHOLD (OWNER)	
ESTIMATED AVERAGE HOUSEHOLD INCOME (ASSUMES 3:1 INCOME TO HOUSEHOLD PAYMENT RATIO) [1]	
RESIDENTIAL	$176,016
MORTGAGE ASSUMPTIONS	
RESIDENTIAL	
AVERAGE PROJECTED SALES PRICE PER UNIT	$776,664
AVERAGE MORTGAGE (20% DOWN PAYMENT)	$621,331
ANNUAL MORTGAGE PAYMENT (6.0% FOR 30 YEARS)	$44,702
ADDITIONAL ANNUAL PROPERTY TAXES & HOA	$13,970
RETAIL TAXABLE EXPENDITURES (AS A % OF DISPOSABLE INCOME)	
RESIDENTIAL	24.6810%
RESIDENTIAL SALES TAX ASSUMPTIONS (RENTAL)	
DISPOSABLE INCOME PER HOUSEHOLD	$105,000
RETAIL TAXABLE EXPENDITURES (AS A % OF DISPOSABLE INCOME)	28.073%
RESIDENTIAL SALES TAX ASSUMPTIONS (AFFORDABLE HOUSING)	
DISPOSABLE INCOME PER HOUSEHOLD	$74,667
RETAIL TAXABLE EXPENDITURES (AS A % OF DISPOSABLE INCOME)	31.254%

RESIDENTIAL / NON-RESIDENTIAL INDIRECT SALES TAX ASSUMPTIONS [2]

EMPLOYEES (ANNUAL SPENDING PER EMPLOYEE) [2]	$7,437
RESIDENTIAL (ANNUAL SPENDING PER HOUSEHOLD) HOMEOWNER [2]	$21,721
RESIDENTIAL (ANNUAL SPENDING PER HOUSEHOLD) RENTAL	$14,738
RESIDENTIAL (ANNUAL SPENDING PER HOUSEHOLD) AFFORDABLE HOUSING	$10,480

[1] Based on typical DTA baseline assumptions.

[2] Based on typical DTA baseline assumptions.

EXHIBIT 6 - CONTINUED

CITY OF SAN MARCOS
SANTA FE FLORES TOWNHOMES
ESTIMATED SALES TAX REVENUES (CASE STUDY)

CITY INDIRECT SALES TAX ASSUMPTIONS

SALES TAX % TO CITY[1]	1.00%
CITY RETAIL TAXABLE PURCHASE CAPTURE RATE [2]	50%

SAMPLE PROPERTY TAX BILL

FY 2025-26 AD VALOREM PROPERTY TAX RATE ()	1.14247%
PROPOSED SCHOOL CFD	0.00000%
CITY CFD SPECIAL TAXES	$997.02
OTHER DIRECT ASSESSMENTS	
VECTOR CONTROL	$7.92
CWA WATER AVAILABILITY	$10.00
MOSQUITO SURVEILLANCE	$2.28
MWD WATER STANDBY CHARGE	$11.50
SEWER SERVICE CHARGE	$467.88
TOTAL ETR	1.335166%

NOTES

[1] Estimate, subject to change.

[2] Estimate, subject to change.

** All figures subject to rounding*

EXHIBIT 7

CITY OF SAN MARCOS
SANTA FE FLORES TOWNHOMES
ESTIMATED CFD SPECIAL TAX REVENUES (CASE STUDY)

CFD SPECIAL TAX SUMMARY - GENERAL FUND IMPACTS

	APPROVED ACRES / SQ. FT.			PROPOSED ACRES / SQ FT/ UNITS			APPROVED	PROPOSED
LAND USE TYPE	**COMMERCIAL**	**OFFICE**	**RESIDENTIAL**	**COMMERCIAL**	**OFFICE**	**RESIDENTIAL**	**PLAN**	**PLAN**
TOTAL CFD SPECIAL TAXES							**$19,717**	**$17,246**
RESIDENTIAL CFD SPECIAL TAXES [1]								
CFD 98-01 IA 1			50			46	$9,745.00	$8,965
CFD 2001-01 (FIRE)			50			46	$9,000.50	$8,280
TOTAL RESIDENTIAL CFD SPECIAL TAXES							**$18,746**	**$17,246**
NON-RESIDENTIAL CFD SPECIAL TAXES [1]								
CFD 98-01 IA 1	0.37						$505	$0
CFD 2001-01 (FIRE)	0.37						$467	$0
TOTAL NON-RESIDENTIAL CFD SPECIAL TAXES							**$971**	**$0**

CFD SPECIAL TAX SUMMARY - NON-GENERAL FUND IMPACTS (EXCLUDED FROM ANALYSIS)

	APPROVED ACRES / SQ. FT.			PROPOSED ACRES / SQ FT/ UNITS			APPROVED	PROPOSED
LAND USE TYPE	**COMMERCIAL**	**OFFICE**	**RESIDENTIAL**	**COMMERCIAL**	**OFFICE**	**RESIDENTIAL**	**PLAN**	**PLAN**
TOTAL CFD SPECIAL TAXES							**$32,752**	**$28,617**
RESIDENTIAL CFD SPECIAL TAXES [1]								
CFD 98-02 (ZONES A - E)[2]			50			46	$13,400.00	$12,328
CFD 98-02 (ZONE F)[2, 3]			50			46	NA	NA
CFD 2011-01[2, 4]			50			46	$17,705.50	$16,289
TOTAL RESIDENTIAL CFD SPECIAL TAXES							**$31,106**	**$28,617**
NON-RESIDENTIAL CFD SPECIAL TAXES [1]								
CFD 98-02 (ZONES A - E)[2]	0.37						$443	$0
CFD 98-02 (ZONE F)[2, 3]							NA	NA
CFD 2011-01[2, 5]	2,821						$1,204	$0
TOTAL NON-RESIDENTIAL CFD SPECIAL TAXES							**$1,647**	**$0**

CFD SPECIAL TAX RATE ASSUMPTIONS

	FY 2025-26 SPECIAL TAX RATE		
LAND USE	**PER ACRE**	**PER SF**	**PER UNIT**
RESIDENTIAL [1]			
CFD 98-01 IA 1			$194.90
CFD 2001-01 (FIRE)			$180.01
CFD 98-02 (ZONES A - E)[2]			$268.00
CFD 98-02 (ZONE F)[2, 3]			NA
CFD 2011-01[2, 4]			$354.11
COMMERCIAL [1]			
CFD 98-01 IA 1	$1,364.20		
CFD 2001-01 (FIRE)	$1,261.10		
CFD 98-02 (ZONES A - E)[2]	$1,196.40		
CFD 98-02 (ZONE F)[2, 3]	N/A		
CFD 2011-01[2, 5]	$0.4268		
OFFICE [1]			
CFD 98-01 IA 1	$2,728.40		
CFD 2001-01 (FIRE)	$2,522.25		
CFD 98-02 (ZONES A - E)[2]	$1,196.43		
CFD 98-02 (ZONE F)[2, 3]	NA		
CFD 2011-01[2, 5]	$0.4268		
INDUSTRIAL [1]			
CFD 98-01 IA 1	$1,032.90		
CFD 2001-01 (FIRE)	$954.81		
CFD 98-02 (ZONES A - E)[2]	$796.63		
CFD 98-02 (ZONE F)[2, 3]	NA		
CFD 2011-01[2, 5]	$1.2053		

NOTES

[1] Source: City of San Marcos. Assumes Senior Residential property is charged as Commercial property under the RMA. Subject to confirmation by the City.

[2] Special assessments collected from the CFD are deposited into Special Funds, not the General Fund. Therefore, these CFD revenues are excluded from this analysis.

[3] No special tax rate for Zone F has been established for the project.

[4] "Townhome" Rate, per dwelling unit

[5] "Retail" Rate, per building square foot

All figures subject to rounding

EXHIBIT 8

CITY OF SAN MARCOS
SANTA FE FLORES TOWNHOMES
ESTIMATED GENERAL GOVERNMENT EXPENDITURES (CASE STUDY)

GENERAL GOVERNMENT EXPENDITURES CALCULATION		
	APPROVED PLAN	PROPOSED PLAN
ESTIMATED RECURRING GENERAL GOVERNMENT OVERHEAD EXPENDITURES[1]	$23,988	$21,891

GENERAL GOVERNMENT ASSUMPTIONS	
TOTAL RECURRING CITY GENERAL FUND EXPENDITURES (EXCLUDING GENERAL GOVERNMENT OVERHEAD)[2]	$59,223,416
TOTAL RECURRING CITY GENERAL GOVERNMENT OVERHEAD[3]	$23,208,622
TOTAL RECURRING GENERAL FUND EXPENDITURES	$82,432,038
RECURRING CITY GENERAL GOVERNMENT OVERHEAD (% OF TOTAL RECURRING GENERAL FUND EXPENDITURES)[3]	39.19%
MARGINAL INCREASE IN GENERAL GOVERNMENT COSTS	100%

NOTES
[1] Based on total recurring project general fund expenditures (excluding general government overhead) from Exhibit 12.
[2] Based on City of San Marcos Operating Budget, Fiscal Year 2025 - 2026
[3] General Government Overhead Expenditures defined as costs for City Council, Administration, Housing and Neighborhood Services, City Attorney, City Clerk, Human Resources/Risk Management, Finance/Information Systems, and Real Property Services.

All figures subject to rounding

EXHIBIT 9

CITY OF SAN MARCOS
SANTA FE FLORES TOWNHOMES
ESTIMATED MULTIPLIER BASED GENERAL FUND REVENUES

MULTIPLIER BASED GENERAL FUND REVENUE SUMMARY		
REVENUE CATEGORY	**APPROVED PLAN**	**PROPOSED PLAN**
FRANCHISE FEES	$6,108	$5,574
BUILDING PERMIT FEES	$537	$490
BUSINESS LICENSE FEES	$350	$319
OTHER LICENSE AND PERMITS	$1,162	$1,060
TOTAL ESTIMATED MULTIPLIER REVENUES	**$8,157**	**$7,443**

MULTIPLIER BASED REVENUE ASSUMPTIONS		
REVENUE CATEGORY	**MULTIPLIER[1]**	**BASIS**
SALES TAX	NA	CASE STUDY
PROPERTY TAX	NA	CASE STUDY
FRANCHISE FEES	$49.26	PERSONS SERVED
BUILDING PERMIT FEES	$4.33	PERSONS SERVED
BUSINESS LICENSE FEES	$2.82	PERSONS SERVED
OTHER LICENSE AND PERMITS	$9.37	PERSONS SERVED

NOTES

[1] Based on City of San Marcos Operating Budget, Fiscal Year 2025-26

All figures subject to rounding

EXHIBIT 10

CITY OF SAN MARCOS
SANTA FE FLORES TOWNHOMES
ESTIMATED MULTIPLIER BASED GENERAL FUND EXPENDITURES

MULTIPLIER BASED GENERAL FUND EXPENDITURE SUMMARY		
EXPENDITURE CATEGORY	**APPROVED PLAN**	**PROPOSED PLAN**
PUBLIC WORKS	$7,720	$7,045
DEVELOPMENT SERVICES	$7,507	$6,851
PUBLIC SAFETY	$41,133	$37,537
PARKS AND RECREATION	$4,851	$4,427
OTHER FINANCING USES	$0	$0
TOTAL MULTIPLIER EXPENDITURES	**$61,211**	**$55,860**

MULTIPLIER BASED EXPENDITURE ASSUMPTIONS		
EXPENDITURE CATEGORY	**MULTIPLIER[1]**	**BASIS**
PUBLIC WORKS	$62.26	PERSONS SERVED
DEVELOPMENT SERVICES	$60.54	PERSONS SERVED
PUBLIC SAFETY	$331.72	PERSONS SERVED
PARKS AND RECREATION	$39.12	PERSONS SERVED
OTHER FINANCING USES	$0.00	PERSONS SERVED

NOTES

[1] Based on City of San Marcos Operating Budget, Fiscal Year 2025-26

All figures subject to rounding

EXHIBIT 11
SANTA FE FLORES TOWNHOMES
CITY OF SAN MARCOS
FY 2025-26 GENERAL FUND REVENUE SUMMARY

REVENUE CATEGORY	TOTAL REVENUES	REVENUE TYPE	PROJECTION METHOD	DISCOUNT [1]	MULTIPLIER
REVENUES INCLUDED IN FISCAL IMPACT ANALYSIS					
TAXES AND SPECIAL ASSESSMENTS					
SALES TAX	$22,009,320	RECURRING	CASE STUDY	NA	NA
PROPERTY TAX	$33,863,177	RECURRING	CASE STUDY	NA	NA
SPECIAL TAXES/ASSESSMENTS	$7,822,600	RECURRING	CASE STUDY	NA	NA
TRANSIENT OCCUPANCY TAX	$1,928,000	RECURRING	CASE STUDY	NA	NA
TOTAL TAXES AND SPECIAL ASSESSMENTS	**$65,623,097**				
LICENSES AND PERMITS					
FRANCHISE FEES	$5,910,000	RECURRING	PERSONS SERVED	0%	$49.26
BUILDING PERMIT FEES	$520,000	RECURRING	PERSONS SERVED	0%	$4.33
BUSINESS LICENSE FEES	$338,600	RECURRING	PERSONS SERVED	0%	$2.82
OTHER LICENSE AND PERMITS	$1,124,363	RECURRING	PERSONS SERVED	0%	$9.37
TOTAL LINCENSE AND PERMITS	**$7,892,963**				
TOTAL INCLUDED GENERAL FUND REVENUES					**$65.78**
INTERGOVERNMENTAL					
STATE MANDATES	$255,000	NA	NA	NA	NA
STATE GRANTS	$459,500	NA	NA	NA	NA
LOCAL GRANTS	$0	NA	NA	NA	NA
COUNTY	$320,000	NA	NA	NA	NA
FEDERAL GRANTS	$0	NA	NA	NA	NA
TOTAL INTERGOVERNMENTAL	**$1,034,500**				
CHARGES FOR SERVICES [3]					
DEPARTMENTAL SERVICES	$10,623,185	NA	NA	NA	NA
REIMBURSEMENTS	$4,068,500	NA	NA	NA	NA
TOTAL CHARGES FOR SERVICES	**$14,691,685**				
FINES AND FORFITURES					
FINES AND FORFITURES	$492,000	NA	NA	NA	NA
Total FINES AND FORFITURES	**$492,000**				
USE OF MONEY AND PROPERTY					
RENTAL INCOME	$33,500	NA	NA	NA	NA
PARTNNERSHIP INCOME	$540,000	NA	NA	NA	NA
INTEREST INCOME	$940,000	NA	NA	NA	NA
TOTAL USE OF MONEY AND PROPERTY	**$1,513,500**				
DEVELOPER FEES					
DEVELOPER FEES	$20,000	NA	NA	NA	NA
DEVELOPER FEES	**$20,000**				
MISCELLANEOUS REVENUE					
DONATIONS	$8,000	NA	NA	NA	NA
OTHER MIS. REVENUE	$221,200	NA	NA	NA	NA
TOTAL MISCELLANEOUS REVENUE	**$229,200**				
OTHER FINANCING SOURCES					
OPERATING TRANSFERS IN - REAL PROPERTY	$4,500,000	NA	NA	NA	NA
OPERATING TRANSFERS IN - CREEKSIDE		NA	NA	NA	NA
MANAGEMENT	$1,425,000	NA	NA	NA	NA
OPERATING TRANSFERS IN - OTHER	$966,800	NA	NA	NA	NA
TOTAL OTHER FINANCING SOURCES	**$6,891,800**				
TOTAL GENERAL FUND REVENUES + CHARGES FOR SERVICES					
TOTAL RECURRING GENERAL FUND REVENUES	**$98,428,745**				

NOTES

[1] Certain revenues may not be be expected to increase one-to-one with the new development.

[2] Source: FY 2025-26 Budget.

[3] All Charges for Services are deducted from expenditures on Exhibit 12.

[4] Interest income is modeled on a case study basis on Exhibit 8.

All figures subject to rounding

EXHIBIT 12
SANTA FE FLORES TOWNHOMES
CITY OF SAN MARCOS
FY 2025-26 GENERAL FUND EXPENDITURE SUMMARY

EXPENDITURE CATEGORY	TOTAL EXPENDITURES	CHARGES FOR SERVICES ADJUSTMENT	EXPENDITURE TYPE	PROJECTION METHOD[1]	DISCOUNT[2]	MULTIPLIER
EXPENDITURES INCLUDED IN FISCAL IMPACT ANALYSIS						
GENERAL GOVERNMENT EXPENDITURES						
CITY COUNCIL	$276,917		RECURRING	CASE STUDY	NA	NA
ADMINISTRATION	$9,931,163		RECURRING	CASE STUDY	NA	NA
COMMUNICATION AND ENGAGEMENT	$494,276		RECURRING	CASE STUDY	NA	NA
ECONOMIC DEVELOPMENT	$676,616		RECURRING	CASE STUDY	NA	NA
CITY ATTORNEY	$855,000		RECURRING	CASE STUDY	NA	NA
CITY CLERK	$838,298		RECURRING	CASE STUDY	NA	NA
HUMAN RESOURCES/ RISK MANAGEMENT	$4,521,963		RECURRING	CASE STUDY	NA	NA
FINANCE	$2,116,422		RECURRING	CASE STUDY	NA	NA
INFORMATION SYSTEMS	$3,464,442		RECURRING	CASE STUDY	NA	NA
REAL PROPERTY SERVICES	$33,525		RECURRING	CASE STUDY	NA	NA
TOTAL GENERAL GOVERNMENT EXPENDITURES	**$23,208,622**					
		$23,208,622				**$0.00**
PUBLIC WORKS						
ADMNISTRATION	$739,665	($260,820)	RECURRING	PERSONS SERVED	0%	$3.99
RIGHT OF WAY MAINTENANCE	$3,319,794	($1,170,623)	RECURRING	PERSONS SERVED	0%	$17.91
FLEET MAINTENANCE	$2,506,543	($883,855)	RECURRING	PERSONS SERVED	0%	$13.53
PARK AND LANDSCAPE	$3,359,545	($1,184,640)	RECURRING	PERSONS SERVED	0%	$18.13
FACILITIES MAINTENANCE	$1,612,395	($568,561)	RECURRING	PERSONS SERVED	0%	$8.70
TOTAL PUBLIC WORKS	**$11,537,942**	**($4,068,500)**				
		$7,469,442		**PERSONS SERVED**	**0%**	**$62.26**
DEVELOPMENT SERVICES						
ADMINISTRATION	$1,237,473		RECURRING	PERSONS SERVED	0%	$10.31
PLANNING	$2,077,493		RECURRING	PERSONS SERVED	0%	$17.32
BUILDING	$0		RECURRING	PERSONS SERVED	0%	$0.00
ENGINEERING	$3,009,307		RECURRING	PERSONS SERVED	0%	$25.08
WATERSHED PROGRAM MANAGEMENT	$939,254		RECURRING	PERSONS SERVED	0%	$7.83
TOTAL DEVELOPMENT SERVICES	**$7,263,527**					
		$7,263,527		**PERSONS SERVED**	**0%**	**$60.54**
PUBLIC SAFETY						
FIRE DEPARTMENT	$25,324,773	($5,311,593)	RECURRING	PERSONS SERVED	0%	$166.81
LAW ENFORCEMENT	$25,096,100	($5,311,593)	RECURRING	PERSONS SERVED	0%	$164.91
TOTAL PUBLIC SAFETY	**$50,420,873**	**($10,623,185)**				
		$39,797,688		**PERSONS SERVED**	**0%**	**$331.72**
PARKS AND RECREATION						
PARKS AND RECREATION	$4,692,759		RECURRING	PERSONS SERVED	0%	$39.12
TOTAL PARKS AND RECREATION	**$4,692,759**	**$0**				
		$4,692,759		**PERSONS SERVED**	**0%**	**$39.12**
OTHER FINANCING USES						
ANNUAL REPLACEMENT/REHAB TRANSFERS	$0		RECURRING	PERSONS SERVED	90%	**$0.00**
TOTAL OTHER FINANCING SOURCES	**$0**	**$0**				
		$0		**PERSONS SERVED**	90%	**$0.00**
TOTAL INCLUDED EXPENDITURES	**$97,123,723**	**$82,432,038**				
EXPENDITURES EXCLUDED FROM FISCAL IMPACT ANALYSIS						
TRANSFERS OUT	$831,000		NA	NA	NA	NA
TOTAL EXCLUDED GENERAL FUND EXPENDITURES	**$831,000**					
TOTAL GENERAL FUND EXPENDITURES	**$97,954,723**	**$82,432,038**		**Ratio**		
				28.15%		

NOTES

[1] Persons Served method assumes City population plus 50% of employees.

[2] Certain expenditures may not be expected to increase one-to-one with the new development.

* Source: FY 2025-26 Budget.

All figures subject to rounding

www.FinanceDTA.com

18201 VON KARMAN #200
IRVINE, CA 92612
PHONE (800) 969-4DTA

Public Finance
Public Private Partnerships
Development Economics
Clean Energy Bonds

www.FinanceDTA.com

ECONOMIC IMPACT STUDY

SANTA FE FLORES

GENERAL PLAN AMENDMENT

GPA25-0001

SAN MARCOS, CALIFORNIA

March 16, 2026

Public Finance
Public-Private Partnerships
Development Economics
Clean Energy Bonds

Newport Beach | San Jose | San Francisco | Riverside
Dallas | Houston | Raleigh

2157

www.FinanceDTA.com
18201 Von Karman #200
Irvine, CA 92612

CITY OF SAN MARCOS

SAN MARCOS
DISCOVER LIFE'S POSSIBILITIES

ECONOMIC IMPACT REPORT
SANTA FE FLORES GENERAL PLAN AMENDMENT
(GPA25-0001)

Prepared for:

City of San Marcos

1 Civic Center Drive

San Marcos, CA 92069

Attention: Sarah Cluff, Senior Planner

TABLE OF CONTENTS

SECTION		PAGE
I	EXECUTIVE SUMMARY	2
A	Purpose of the Study	2
B	Types of Economic Impacts Evaluated in the Study	2
C	Economic Impact Conclusions	3
D	Market Considerations	4
II	INTRODUCTION	6
A	Scope and Methodology	6
B	Limitations – Accuracy of Information	9
III	ECONOMIC IMPACTS	10
A	Recurring Economic Impacts	10
B	One-Time Employment and Output Impacts (Construction)	13
C	Market Considerations	15

APPENDICES

APPENDIX A	ECONOMIC IMPACT MODEL, APPROVED PLAN
APPENDIX B	ECONOMIC IMPACT MODEL, PROPOSED PLAN

I EXECUTIVE SUMMARY

A Purpose of the Study

The objective of this Economic Impact Study (the "Study") is to analyze the economic impacts to the City of San Marcos (the "City") from the zoning and land use change proposed for the development on the 2.6-acre property (the "Project").

The project site is located on the northwest corner of South Santa Fe Ave. and North Los Flores Drive and is north of the 78 freeway. The property is comprised of Assessor's Parcel Numbers (APNs) 217-161-17-00, 217-161-19-000 and 217,161-19-00. The project consists of a Multi-Family Site Development Plan modification to GPA 21-0008 and Tentative Subdivision Map for construction of 46 residential townhomes on 2.6 acres. The project includes a General Plan Amendment and Rezone from Commercial (C) to Multi-Family Residential (R-3-6) to add a 0.37-acre portion of the 2966 S. Santa Fe Avenue property. The existing R-3-10 zoned properties at 2972 & 2982 S. Santa Fe Ave will also be rezoned to R-3-6, to be consistent with the other portion of the project site. The Subject site has grown from 2.5 acres previously slated for Commercial and Multi-family Residential R-3-10 apartments (the "Original" project) to total 2.60 acres, planned for a 46-unit for-sale residential townhome community (The "Proposed" project).

Based on the market analysis prepared by Zonda Advisory (the "Zonda Analysis"), the ("Approved Plan") has been assumed to be a 50 Unit Apartment Development (APN's:217-161-18-00 & 217-161-19-00) plus a 2,821 Commercial Retail Strip Center, (APN: 217-161-17-00). The ("Proposed Plan") is a 46 Unit townhome Development (APN's: 217-161-1800; 217-161-19-00; and a 0.37-acre portion of 217-161-17-00). All of the planned units are 3 bedrooms. The building footprint is approximately 0.89 acres with 0.82 acres dedicated to parking. In aggregate, the seven buildings will comprise approximately 73,952 square feet. There will be a total of 107 parking spaces, 92 of which will be covered garages. In addition, 14,795 square feet of landscape and common open space will be provided throughout the development. Consequently, the Study estimates the economic impacts of the Approved Plan and Proposed Plan (collectively, the "Scenarios") and provides a side-by-side comparison of both Scenarios.

B Types of Economic Impacts Evaluated in the Study

The Study identifies the general economic impacts that would occur due to the Project and quantifies these impacts wherever possible. General economic impacts include additions to employment (number of average annual full- and part-time jobs) and economic output (e.g., gross receipts) in the City.

The Study also distinguishes between one-time impacts and permanent impacts. One-time impacts include benefits that occur on a non-recurring basis as a result of construction activity, while permanent impacts refer to benefits that occur on a continuing basis, year after year. Generally, first, there is a one-time impact from the construction of a facility.

Then, after the construction phases are complete, firms have a recurring impact on the economy through their ongoing operations.

Economic impact studies also operate under the basic assumption that any increase in spending has three effects: direct, indirect, and induced. First, there is a direct effect caused by the additional output of goods or services. Second, there is a ripple of indirect effects on all of the industries whose outputs are used by various industries and by a firm's supply chain. Third, there are induced effects that arise when employment increases in the region and stimulates greater household spending.

C Economic Impact Conclusions

The economic impact of the Approved Plan and the Proposed Plan are analyzed separately within the Study. In order to quantify the findings, the Study has evaluated the following elements as the major indicators of the economic impact: (i) Permanent Employment – direct-on-site and indirect/induced (which supplies or supports direct employment), (ii) Permanent Output (Gross Receipts) – total direct output plus output produced by suppliers and employee spending, and (iii) One-Time Construction Impacts.

C.1 Recurring Impacts

As illustrated in **Tables ES-1** and **ES-2** below, Permanent Employees are higher under the Approved Plan while permanent Gross Receipts are higher under the Proposed Plan. The number of employees listed in the Tables below; two (2) for the Approved Plan and zero (0) for the Proposed Plan refer solely to Direct Employment as opposed to the Employment totals presented in **Tables ES-3** and **ES-4**, which refer to both Direct and Indirect/Induced Total Employees.

Table ES-1: Permanent (Recurring) Employment and Overall Economic Output
Approved Plan

Recurring Impacts	Direct	Indirect/Induced	Total
Employees			
City of San Marcos	2	0	2
Overall Output			
City of San Marcos	$871,680	$103,972	$975,652

Table ES-2: Permanent (Recurring) Employment and Overall Economic Output Proposed Plan

Recurring Impacts	Direct	Indirect/Induced	Total
Employees			
City of San Marcos	0	0	0
Overall Output			
City of San Marcos	$999,176	$253,381	$1,252,557

In addition, DTA has estimated that the direct and indirect/induced effects on the City to total $975,562 for the Approved Plan and $1,252,557 for the Proposed Plan.

C.2 One-Time Impacts

In addition, the number of one-time construction employees is almost twice the number under the Proposed than in the Approved Plan. (It's important to note that the townhomes are about twice the square footage as the apartment units) In addition, the Gross receipts are also expected to be higher under the Proposed Plan. The tables presented in this section summarize the major conclusions related to the One-Time economic impacts of both the Approved Plan and the Proposed Plan.

Table ES-3: Construction (One-Time) Employment and Overall Economic Output Approved Plan

One-Time Impact	Direct	Indirect/Induced	Total
Employees			
City of San Marcos	65	40	105
Overall Output			
City of San Marcos	$11,342,563	$4,615,938	$15,958,501

Table ES-4: Construction (One-Time) Employment and Overall Economic Output Proposed Plan

One-Time Impact	Direct	Indirect/Induced	Total
Employees			
City of San Marcos	122	80	202
Overall Output			
City of San Marcos	$21,831,600	$10,489,695	$32,321,295

D Market Considerations

The primary advantage of the proposed rezone over the original is that the site can provide new for-sale product to San Marcos which has strong buyer demand for townhomes coupled with a historical undersupply of new for-sale housing. Additionally, the site developed as proposed townhomes can deliver relatively attainably priced new for-sale

product to San Marcos, at an average unit size which is much larger than the original apartment unit size. The proposed project consists of 2 lots with an existing medium density residential 2 (MDR2) 15.1–20.0 du/ac general plan land use designation and a 0.37-acre portion of an adjacent parcel with a commercial (C) designation. The proposed project would re-designate both the MDR2 sites and the portion of the commercial site to medium high density residential (MHDR), 20.1– 30.0 du/ac, to develop 46 residential townhome units. According to the Zonda market study, drive thru commercial retail performance remains relatively strong in the right areas and should be attractive to commuters. However, the changing face of retail is causing high vacancies and putting downward pressure on rents and further rent correction could occur at secondary commercial retail locations. However, the proposed residential R-3-6 zoning for-sale residential would introduce needed homes at an attractive price point, fulfilling a deep demand pool of homebuyers looking to move to or purchase in San Marcos. In addition, there is an extreme market demand and supply shortage of for-sale residential townhomes, and the for-sale scenario has the ability to translate potential City revenue into actual dollars, whereas the approved project does not. In addition, the area immediately east of the proposed project is an affordable housing development. An advantage of the rezone over the existing use is that the site can provide new for sale product to San Marcos, which currently does not have new multifamily product.

II INTRODUCTION

The objective of this Economic Impact Study (the "Study") is to analyze the economic impacts to the City of San Marcos (the "City") from the zoning and land use change proposed for the development on the 2.6-acre property (the "Project").

The project site is located on the northwest corner of South Santa Fe Ave. and North Los Flores Drive and is north of the 78 freeway. The property is comprised of Assessor's Parcel Numbers (APNs) 217-161-17-00, 217-161-19-000 and 217,161-19-00. The project consists of a Multi-Family Site Development Plan modification to GPA 21-0008 and Tentative Subdivision Map for construction of 46 residential townhomes on 2.6 acres. The project includes a General Plan Amendment and Rezone from Commercial (C) to Multi-Family Residential (R-3-6) to add a 0.37-acre portion of the 2966 S. Santa Fe Avenue property. The existing R-3-10 zoned properties at 2972 & 2982 S. Santa Fe Ave will also be rezoned to R-3-6, to be consistent with the other portion of the project site. The Subject site has grown from 2.5 acres previously slated for Commercial and Multi-family Residential R-3-10 apartments (the "Original" project) to total 2.60 acres, planned for a 46-unit for-sale residential townhome community (The "Proposed" project).

Based on the market analysis prepared by Zonda Advisory (the "Zonda Analysis"), the ("Approved Plan") has been assumed to be a 50 Unit Apartment Development (APN's:217-161-18-00 & 217-161-19-00) plus a 2,821 Commercial Retail Strip Center, (APN: 217-161-17-00). The ("Proposed Plan") is a 46 Unit townhome Development (APN's: 217-161-1800; 217-161-19-00; and a 0.37-acre portion of 217-161-17-00). All of the planned units are 3 bedrooms. The building footprint is approximately 0.89 acres with 0.82 acres dedicated to parking. In aggregate, the seven buildings will comprise approximately 73,952 square feet. There will be a total of 107 parking spaces, 92 of which will be covered garages. In addition, 14,795 square feet of landscape and common open space will be provided throughout the development.

Consequently, the Study estimates the economic impacts of the Approved Plan and Proposed Plan (collectively, the "Scenarios") and provides a side-by-side comparison of both Scenarios.

A Scope and Methodology

A.1 Approach

The Study identifies the general economic impacts that would occur with the development of the Approved Plan and the Proposed Plan individually and quantifies these impacts wherever possible. General economic impacts include additions to employment (number of average annual full- and part-time jobs), and economic output (e.g., gross receipts). The Study also distinguishes between one-time economic impacts and permanent economic impacts. One-time impacts include benefits to the community that occur on a non-recurring basis as a result

of construction and development activity, while permanent, recurring impacts refer to benefits that occur on a continuing basis, year after year. Additionally, for purposes of the Study, all economic impacts are stated in constant (un-inflated) 2025 dollars, based on the assumption that the relative impacts of inflation in future years may be difficult to gauge.

Furthermore, in evaluating economic impacts, the Study quantifies both direct and indirect/induced economic impacts on the City. Direct economic impacts reflect the initial or first-round increases in jobs and output, all of which occur directly on-site. Indirect/induced economic impacts are the secondary and other additional rounds of economic activity that occur as a consequence of the direct impacts and can occur elsewhere within the City. The indirect impacts represent the economic activity – buying and selling of goods and services – of suppliers to the land use types analyzed. In this Study, suppliers to the Proposed Plan would likely include maintenance and repair professionals, utilities' providers, wholesale trade companies, commercial and business support services; while suppliers to the Approved Plan may include construction supply firms, computer and other technology firms, accounting and bookkeeping professionals, and utilities' providers. Additionally, the suppliers representing the indirect one-time impacts would likely include heavy industrial and construction suppliers for the actual development of buildings and facilities. Finally, the induced impacts represent the economic activity that results from household spending by employees of all companies directly and indirectly affected by the construction and operation of the land uses analyzed in the Study.

A.2 North American Industry Classification

Indirect and induced impacts can occur throughout all industries of the economy and have been categorized using the North American Industry Classification System ("NAICS"). Adopted by the Office of Management and Budget ("OMB") in 1997 to replace the Standard Industrial Classification System ("SIC"), NAICS is a widely-used system to classify business establishments for the collection, analysis, and publication of statistical data in Canada, Mexico, and the United States. NAICS industries are identified using a 6-digit coding system to classify all economic activity into twenty broad sectors, five of which are mainly goods-producing sectors and fifteen of which are services-providing sectors. This 6-digit hierarchical structure allows for the identification of nearly 1,170 industries. The broad NAICS sectors include the Retail/Commercial, Business Park, Industrial/Warehousing, and Construction, which are the focal NAICS categories analyzed within this Study to determine the indirect and induced economic impacts generated under both Scenarios.

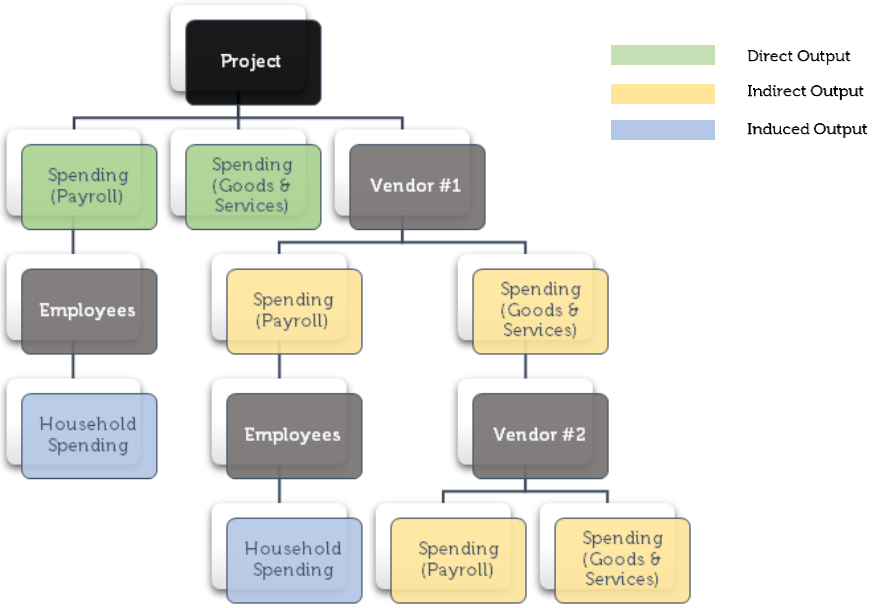
A.3 IMPLAN Multiplier Method

Although there is a consensus among economists that indirect and induced, or "multiplier" effects exist, most economists also agree that such effects are difficult to measure. Patterns on spending and employment among suppliers and employee households often vary over time and from one region to another. Nevertheless, there are certain input-output models that can be used to estimate indirect and induced effects.

In quantifying the indirect and induced economic impacts for the Study, DTA utilized the Impact Analysis for Planning ("IMPLAN") Input/output Modeling System, a type of quantitative economic model that provides an approximate measure of the "multiplier effect" of a firm's spending on payroll and the purchasing of goods and services. In this study, DTA used Version 3 of the IMPLAN economic modeling system.

Like similar econometric models, IMPLAN helps to calculate the flow of payments for goods and services across different industry sectors, and between households and industries. The IMPLAN model can be envisioned simply as a large spreadsheet with hundreds of industries (plus the household sector) arrayed across the top as producers, and the same industries and households listed down the side as consumers. Each million dollars (output) in spending by any one consumer (i.e., within the Approved Plan or the Proposed Plan) is allocated across the producing industries from which that consumer buys goods and services. These producing industries, in turn, spend money buying goods and services from their own distinct sets of suppliers. Thus, the IMPLAN multiplier model allows one to gauge the effect on each dollar an industry spends as it diffuses through a regional economy. Furthermore, it allows one to translate the overall regional impact of spending into jobs and employee compensation. Please refer to the example presented in **Figure 1** for a graphical representation of the multiplier effect in development.

Figure 1: Example of the Multiplier Effect (Direct, Indirect and Induced Output)



Source: DTA, 2019

B Limitations – Accuracy of Information

The economic models presented in this Study contain analysis of revenues and impacts resulting from the Approved Plan and the Proposed Plan. These models are based on both (i) information provided to DTA by the City and its consultants, Applicant of the Proposed Plan, and (ii) certain DTA assumptions taken from DTA's proprietary databases, as compiled by DTA from previous studies prepared by the firm. The sources of information and basis of the estimates calculated in the Study are stated herein. While DTA is confident that the sources of information are reliable, DTA does not express an opinion or any other form of assurance on the accuracy of such information. The analysis of economic impacts contained in the Study is not considered to be a "financial forecast" or a "financial projection" as technically defined by the American Institute of Certified Public Accountants. The word "projection" used within the Study relates to broad expectations of future events or market conditions. Since the analyses contained herein are based on estimates and assumptions that are inherently subject to uncertainty and variation depending on evolving events, DTA cannot represent that such estimates will definitely be achieved. Some assumptions inevitably will not materialize, and unanticipated events and circumstances may occur. Therefore, the actual results achieved may vary from these projections stated throughout the Study.

III ECONOMIC IMPACTS

The Study identifies the general economic impacts that would occur under the Approved Plan and compares them to the impacts under the Proposed Plan, quantifying the impacts of each Scenario wherever possible. General economic impacts include additions to employment (number of average annual full- and part-time jobs) and economic output (e.g., gross receipts). The Study also distinguishes between one-time economic impacts and permanent economic impacts. One-time impacts include benefits to the community that occur on a non-recurring time basis as a result of construction and development activity, while permanent, recurring impacts refer to benefits that occur on a continuing basis, year after year.

A Recurring Economic Impacts

A.1 Assumptions

Information provided to DTA indicates that the Approved Plan includes a 50-unit multifamily apartment project consisting of 50 rental units on 2.5 gross acres (2.23 acres net) plus an additional 0.37 acres currently zoned as Commercial. The proposed plan includes 107 parking spaces, 14,795 square feet of common open space, dog relief areas, four BBQ areas, two artificial turf game courts, and an 800-square-foot play area for children. The 28 corner units each feature a 64-square-foot private balcony and a 450-square-foot private roof deck, while the 18 interior units each include a 61-square-foot balcony and a 340-square-foot roof deck.

Under the Proposed plan site consists of 46 townhome units distributed across seven buildings on 2.6 acres. All of the planned units are 3 bedrooms. The building footprint is approximately 0.89 acres with 0.82 acres dedicated to parking. In aggregate, the seven buildings will comprise approximately 73,952 square feet. There will be a total of 107 parking spaces, 92 of which will be covered garages. In addition, 14,795 square feet of landscape and common open space will be provided throughout the development. Please see **Table 1**, presented below, for a general summary of the built-out projection on the Approved Plan and the Proposed Plan.

Table 1: Assumptions – Approved Plan vs. Proposed Plan

Assumptions	Approved Plan	Proposed Plan
Residential Land Use	**Units**	**Units**
Apartments	50	
Town Homes		46
Residential Land Use	**Sq. Ft.**	**Sq. Ft.**
Apartments	36,393	
Town Homes		73,952
Residential Land Use	**Residents**	**Residents**
Apartments	123	
Town Homes		113
Non-Residential Land Use	**Sq. Ft.**	**Sq. Ft.**
Commercial Retail	2,821	
Employment	**Direct Employees**	**Direct Employees**
Commercial Retail	2	0

A.2 Job Creation

As indicated in the Table below, full development and build-out of both the Approved Plan is expected to be slight, resulting in two (2) new jobs, while the Proposed Plan is expected to result in zero (0) recurring jobs in the City. This total includes combined direct and indirect/induced employment. Although the specific location of the additional indirect jobs created cannot be identified in this Study, most of these jobs will likely be support service jobs in retail, transportation, and similar areas.

Table 2: Approved Plan – Recurring Employment

Recurring Impacts	Direct	Indirect/Induced	Total
Total Output			
City of San Marcos	2	0	2

Tables 2 and 3 presented, as well as Exhibit 1 of **Appendices A** and **B**, summarize the direct and indirect/induced recurring employment impacts of the Approved Plan and the Proposed Plan.

Table 3: Proposed Plan – Recurring Employment

Recurring Impacts	Direct	Indirect/Induced	Total
Total Output			
City of San Marcos	0	0	0

Since the analyses contained herein are based on estimates and assumptions that are inherently subject to uncertainty and variation depending on evolving events, DTA cannot represent that such estimates will definitely be achieved. Some assumptions inevitably will not materialize, and unanticipated events and circumstances may occur. Therefore, the actual results achieved may vary from these projections stated throughout the Study.

A.3 Overall Economic Output

In addition to the Employment projections presented in the previous section, Total Output (i.e., total expenditures including sales or gross receipts, or other operating income) within the City will increase noticeably under both development Scenarios. However, as indicated below in **Tables 4** and **5** total output projections under the Approved Plan exceed those of the Proposed Plan. Total output is estimated and based on the different types of development projected to occur. As stated in Section I, this Study analyzes direct and indirect/induced impacts. Regarding gross receipts, the direct impact reflects the initial or first-round increases in output (total spending/gross receipts, including payroll), all of which occur directly on the either the Approved Plan site or the Proposed Plan site.

Table 4: Approved Plan – Recurring Total Output

Recurring Impacts	Direct	Indirect/Induced	Total
Overall Output			
City of San Marcos	$871,680	$103,972	$975,652

Table 5: Proposed Plan – Recurring Total Output

Recurring Impacts	Direct	Indirect/Induced	Total
Overall Output			
City of San Marcos	$999,176	$253,381	$1,252,557

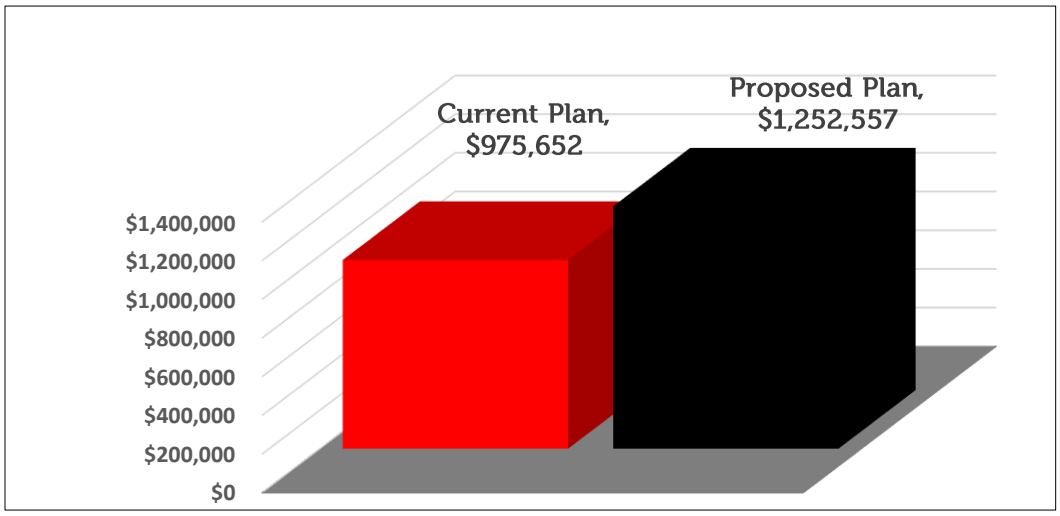
Indirect/induced economic impacts are the secondary effects, and other additional rounds of economic activity that occur as a consequence of the direct output impacts can occur outside of the Approved Plan and the Proposed Plan. The indirect impacts represent the economic activity – buying and selling of goods and services – of suppliers and/or supporting businesses. The induced impacts represent the

economic activity that results from household spending by employees of all companies directly and indirectly affected by the Project.

Based again on IMPLAN Version 3 multipliers and other assumptions utilized in the Study, DTA has estimated that the direct and indirect/induced effects on the City total $5975,652 for the Approved Plan and $1,252,557 for the Proposed Plan.

As shown in the tables above, DTA estimates that the direct and indirect/induced effects on the City resulting from the Approved Plan (including employees and residents) are greater than those under the Proposed Plan. The side-by-side comparison of recurring Total Output can be seen in the graphical representation of presented in **Figure 2** below.

Figure 2: Approved Plan vs. Proposed Plan – Recurring Total Output



B One-Time Employment and Output Impacts (Construction)

According to IMPLAN, development of the Approved Plan area is projected to create approximately one hundred and five (105) one-time construction jobs in the City of San Marcos. This total includes combined direct and indirect/induced employment. For the Proposed Plan, two hundred and two (202) one-time construction jobs are expected to be created. Again, one-time construction and development costs will also have multiplier effects on the economy, generating one-time increases in output from construction of the non-residential buildings and all related site improvements. **Tables 6 and 7** below summarize the projected increases in employment resulting from construction activities, under each Scenario.

Table 6: Approved Plan – One Time Employment

One-Time Impacts	Direct	Indirect/Induced	Total
Employees			
City of San Marcos	65	40	105

Table 7: Proposed Plan – One-Time Employment

One-Time Impacts	Direct	Indirect/Induced	Total
Employees			
City of San Marcos	122	80	202

As with recurring economic impacts, experience and modeling indicate that a large percentage of these jobs will be support service and construction jobs in industries currently occupying the Approved area. These jobs are likely to be located close to either the Approved Plan or the Proposed Plan. The tables presented above summarize the projected increases in employment to be generated directly from construction of the Project land uses, based on DTA construction cost assumptions.

Table 8: Approved Plan – One-time Total Output

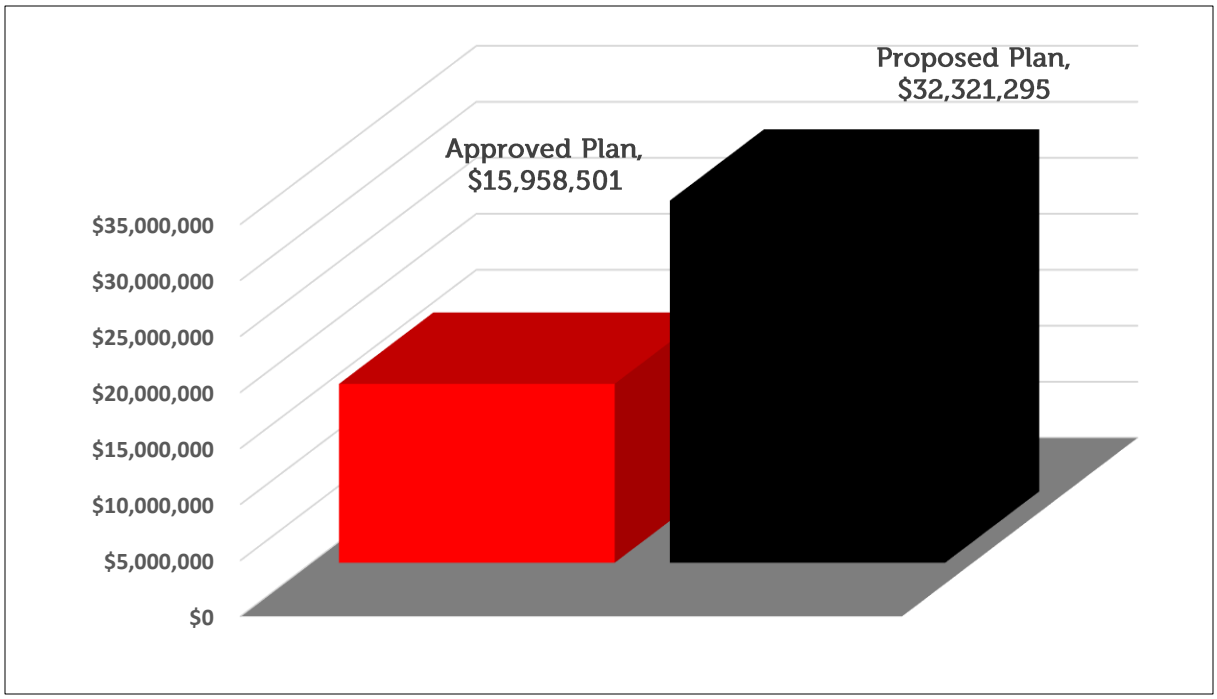
One-Time Impacts	Direct	Indirect/Induced	Total
Output			
City of San Marcos	$11,342,563	$4,615,938	$15,958,501

Table 9: Proposed Plan – One-time Total Output

One-Time Impacts	Direct	Indirect/Induced	Total
Output			
City of San Marcos	$21,831,600	$10,489,695	$32,321,295

Notably, projected one-time Total Output is expected to increase considerably under both the Approved and Proposed scenarios, as illustrated in **Tables 8 and 9** above. DTA estimates that the direct and indirect/induced effects on the City total $15,958,501 million in One-Time Total Output for the Approved Plan and $32,321,296 million for the Proposed Plan. A side-by-side comparison of both Scenarios can be seen graphically in **Figure 3** presented below.

Figure 3: Approved Plan vs. Proposed Plan – One-Time Total Output



C Market Considerations

The primary advantage of the proposed rezone over the original is that the site can provide new for-sale product to San Marcos which has strong buyer demand for townhomes coupled with a historical undersupply of new for-sale housing. Additionally, the site developed as proposed townhomes can deliver relatively attainably priced new for-sale product to San Marcos, at an average unit size which is much larger than the original apartment unit size. The proposed project consists of 2 lots with an existing medium density residential 2 (MDR2) 15.1–20.0 du/ac general plan land use designation and a 0.37-acre portion of an adjacent parcel with a commercial (C) designation. The proposed project would re-designate both the MDR2 sites and the portion of the commercial site to medium high density residential (MHDR), 20.1– 30.0 du/ac, to develop 46 residential townhome units. According to the Zonda market study, drive thru commercial retail performance remains relatively strong in the right areas and should be attractive to commuters. However, the changing face of retail is causing high vacancies and putting downward pressure on rents and further rent correction could occur at secondary commercial retail locations. However, the proposed residential R-3-6 zoning for-sale residential would introduce needed homes at an attractive price point, fulfilling a deep demand pool of homebuyers looking to move to or purchase in San Marcos. In addition, there is an extreme

market demand and supply shortage of for-sale residential townhomes, and the for-sale scenario has the ability to translate potential City revenue into actual dollars, whereas the approved project does not. In addition, the area immediately east of the proposed project is an affordable housing development. An advantage of the rezone over the existing use is that the site can provide new for sale product to San Marcos, which currently does not have new multifamily product.

APPENDIX A

City of San Marcos
Santa Fe Flores
Economic Impact Study

ECONOMIC IMPACT MODEL, APPROVED PLAN

CITY OF SAN MARCOS
SANTA FE FLORES
ECONOMIC IMPACT ANALYSIS - (APPROVED PLAN)

RECURRING JOBS

RECURRING IMPACTS

ONE-TIME JOBS

ONE TIME IMPACTS

JOB HOUSING BALANCE

SUMMARY

EXHIBIT 1A

SANTA FE FLORES

RECURRING EMPLOYMENT - APPROVED PLAN

ASSUMPTIONS

I. RESIDENTIAL LAND USE ASSUMPTIONS

LAND USE CATEGORY	UNITS
Apartments	50

II. NON-RESIDENTIAL LAND USE ASSUMPTIONS

LAND USE CATEGORY[1]	EMPLOYEES/1,000 SQ. FT.[2]	SQ. FT.[1]
COMMERCIAL RETAIL	0.82	2,821
		2,821

RECURRING EMPLOYMENT

III. CITY

	DIRECT EMPLOYEES[3]	INDIRECT EMPLOYEES[4]	INDUCED EMPLOYEES[4]	TOTAL EMPLOYEES
COMMERCIAL RETAIL	2	0	0	2
APARTMENTS				
TOTAL RECURRING EMPLOYMENT	**2**	**0**	**0**	**2**

NOTES:

[1] Source: City of San Marcos.

[2] Commercial Buildings Energy Consumption Survey (CBECS), 2012.

[3] Based on multiplying Category SF by Employees/1,000 SF metric.

[4] Source: San Marcos City IMPLAN multipliers.

* ***All figures subject to rounding***

EXHIBIT 2A
SANTA FE FLORES
RECURRING ECONOMIC IMPACTS - APPROVED PLAN

ASSUMPTIONS

I.	RESIDENTIAL SPENDING ASSUMPTIONS	HOUSEHOLD INCOME	% INCOME SPENT IN CITY	TOTAL RESIDENT SPENDING / YR.
	APARTMENTS	$105,000	28.07%	$736,909

II.	NON-RESIDENTIAL OUTPUT ASSUMPTIONS	AVERAGE OUTPUT / EMPLOYEE [1]	OUTPUT / YR. [1]
	COMMERCIAL RETAIL	$67,385	$134,771

RECURRING OUTPUT

III. CITY

	DIRECT OUTPUT	INDIRECT OUTPUT [1]	INDUCED OUTPUT [1]	TOTAL OUTPUT
COMMERCIAL RETAIL	$134,771	$25,076	$36,302	$196,150
APARTMENTS	$736,909	$16,065	$26,529	$779,503
TOTAL RECURRING OUTPUT	**$871,680**	**$41,141**	**$62,831**	**$975,652**

NOTES:

[1] Source: San Marcos City IMPLAN multipliers.

EXHIBIT 3A
SANTA FE FLORES
ONE-TIME EMPLOYMENT -APPROVED PLAN

ASSUMPTIONS

I.	RESIDENTIAL LAND ASSUMPTIONS	UNITS
	APARTMENTS	50

II.	NON-RESIDENTIAL LAND USE ASSUMPTIONS	SQ. FT.
	COMMERCIAL RETAIL	2,821

III.	PUBLIC FACILITIES	TOTAL COST
	PROJECT INFRASTRUCTURE	NA

ONE-TIME EMPLOYMENT

IV. CITY

	DIRECT EMPLOYEES [1]	INDIRECT EMPLOYEES [1]	INDUCED EMPLOYEES [1]	TOTAL EMPLOYEES
COMMERCIAL RETAIL	9	1	2	12
APARTMENTS	56	21	16	93
TOTAL ONE-TIME EMPLOYEES	**65**	**22**	**18**	**105**

NOTES:

[1] Source: San Marcos City IMPLAN multipliers (IMPLAN Sector 58: Construction of new non-residential structures).

* ***All figures subject to rounding***

EXHIBIT 4A
SANTA FE FLORES
ONE-TIME IMPACTS - APPROVED PLAN

ASSUMPTIONS

I.	RESIDENTIAL CONSTRUCTION COST ASSUMPTIONS	UNITS	ESTIMATED SQ. FT. PER DWELLING UNIT	COST PER UNIT
	townhomes	50	525 to 820	$200,000

II.	NON-RESIDENTIAL CONSTRUCTION COST ASSUMPTIONS	IMPROVEMENT VALUE[1]	CONSTRUCTION COST PER SQ. FT.
	Commercial Retail	$1,342,563	$476

III.	PUBLIC FACILITIES	TOTAL COST
	PROJECT INFRASTRUCTURE	NA

ONE-TIME OUTPUT

IV. CITY

	DIRECT OUTPUT	INDIRECT OUTPUT [2]	INDUCED OUTPUT [2]	TOTAL OUTPUT
Apartments	$10,000,000	$1,875,354	$2,194,219	$14,069,573
Commercial Retail	$1,342,563	$251,778	$294,588	$1,888,929
TOTAL ONE-TIME OUTPUT	**$11,342,563**	**$2,127,132**	**$2,488,806**	**$15,958,501**

NOTES:

[1] Assumes that improvement value is approximately 85% of total valuation.
[2] Source: San Marcos City IMPLAN multipliers (IMPLAN Sector 58: Construction of new non-residential structures).
* **All figures subject to rounding**

EXHIBIT 5A
SANTA FE FLORES
JOBS-HOUSING BALANCE - APPROVED PLAN

ASSUMPTIONS

I. EXISTING DEMOGRAPHICS

CITY OF SAN MARCOS	
HOUSING UNITS [1]	33,157
EMPLOYEES [2]	45,700

II. JOB IMPACTS [3]

CITY OF SAN MARCOS	
DIRECT IMPACT	2
ADDITIONAL INDIRECT	0
ADDITIONAL INDUCED	0
TOTAL	**2**

III. CUMULATIVE PROJECT DEMOGRAPHICS

EXISTING HOUSING UNITS PLUS PROJECT - CITY OF SAN MARCOS	**33,207**
PERCENTAGE INCREASE	*0.15%*
EXISTING EMPLOYEES PLUS PROJECT - CITY OF SAN MARCOS	**45,702**
PERCENTAGE INCREASE	*0.0044%*

JOBS-HOUSING BALANCE

IV. JOBS-HOUSING BALANCE

CITY OF SAN MARCOS	
EXISTING	1.38
EXISTING WITH PROJECT	1.38
PERCENTAGE INCREASE	**-0.15%**

NOTES:

[1] Source: State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties, and the State (20252).
[2] Source: California Employment Development Department ("EDD") - Labor Market Information Division.
[3] Please see Exhibit B-1: Recurring Jobs.

* ***All figures subject to rounding***

EXHIBIT 6A
SANTA FE FLORES
SUMMARY - APPROVED PLAN

ASSUMPTIONS

I. RESIDENTIAL LAND USE ASSUMPTIONS	UNITS
Apatments	123

II. NON-RESIDENTIAL LAND USE ASSUMPTIONS	EMPLOYEES/1,000 SQ. FT.	SQ. FT.
Commercial Retail	0.82	2,821

ECONOMIC IMPACTS CONCLUSIONS

RECURRING IMPACTS

III. JOB CREATION	DIRECT	INDIRECT/INDUCED	TOTAL
CITYWIDE	2	0	2

IV. TOTAL OUTPUT	DIRECT	INDIRECT/INDUCED	TOTAL
CITYWIDE	$871,680	$103,972	$975,652

ONE-TIME IMPACTS

V. CONSTRUCTION JOBS	DIRECT	INDIRECT/INDUCED	TOTAL
CITYWIDE	65	40	105

VI. CONSTRUCTION OUTPUT	DIRECT	INDIRECT/INDUCED	TOTAL
CITYWIDE	$11,342,563	$4,615,938	$15,958,501

OTHER IMPACTS

VII. JOBS-HOUSING BALANCE	BALANCE EXISTING	BALANCE WITH PROJECT	% INCREASE/ (DECREASE)
CITYWIDE	1.37829	1.37628	-0.15%

APPENDIX B

City of San Marcos
Santa Fe Flores
Economic Impact Study

ECONOMIC IMPACT MODEL, PROPOSED PLAN

CITY OF SAN MARCOS
SANTA FE FLORES
ECONOMIC IMPACT ANALYSIS - (PROPOSED PLAN)

RECURRING JOBS

RECURRING IMPACTS

ONE-TIME JOBS

ONE TIME IMPACTS

JOB HOUSING BALANCE

SUMMARY

EXHIBIT 1b
SANTA FE FLORES
RECURRING EMPLOYMENT - PROPOSED PLAN

ASSUMPTIONS

I. RESIDENTIAL LAND USE ASSUMPTIONS

LAND USE CATEGORY	UNITS
Townhomes	46

II. NON-RESIDENTIAL LAND USE ASSUMPTIONS

LAND USE CATEGORY[1]	EMPLOYEES/1,000 SQ. FT.[2]	SQ. FT.[1]
		0

RECURRING EMPLOYMENT

III. CITY

	DIRECT EMPLOYEES[3]	INDIRECT EMPLOYEES[4]	INDUCED EMPLOYEES[4]	TOTAL EMPLOYEES
Townhomes	0	0	0	0
TOTAL RECURRING EMPLOYMENT	0	0	0	0

NOTES:

[1] Source: City of San Marcos.
[2] Commercial Buildings Energy Consumption Survey (CBECS), 2012.
[3] Based on multiplying Category SF by Employees/1,000 SF metric.
[4] Source: San Marcos City IMPLAN multipliers.

* *All figures subject to rounding*

EXHIBIT 2b
SANTA FE FLORES
RECURRING ECONOMIC IMPACTS - PROPOSED PLAN

ASSUMPTIONS

I. RESIDENTIAL SPENDING ASSUMPTIONS	HOUSEHOLD INCOME	% INCOME SPENT IN CITY	TOTAL RESIDENT SPENDING / YR.
Townhomes	$176,016	24.68%	$999,176

II. NON-RESIDENTIAL OUTPUT ASSUMPTIONS	AVERAGE OUTPUT / EMPLOYEE[1]	OUTPUT / YR.[1]

RECURRING OUTPUT

III. CITY

	DIRECT OUTPUT	INDIRECT OUTPUT[1]	INDUCED OUTPUT[1]	TOTAL OUTPUT
Townhomes	$999,176.1	$217,581.4	$35,799.4	$1,252,557
TOTAL RECURRING OUTPUT	**$999,176**	**$217,581**	**$35,799**	**$1,252,557**

NOTES:
[1] Source: San Marcos City IMPLAN multipliers.

* ***All figures subject to rounding***

EXHIBIT 3b
SANTA FE FLORES
ONE-TIME EMPLOYMENT - PROPOSED PLAN

ASSUMPTIONS

I.	RESIDENTIAL LAND ASSUMPTIONS	UNITS
	Townhomes	46

II.	NON-RESIDENTIAL LAND USE ASSUMPTIONS	SQ. FT.
		-
		-
		-
		-

III.	PUBLIC FACILITIES	TOTAL COST
	PROJECT INFRASTRUCTURE	NA

ONE-TIME EMPLOYMENT

IV. CITY

	DIRECT EMPLOYEES [1]	INDIRECT EMPLOYEES [1]	INDUCED EMPLOYEES [1]	TOTAL EMPLOYEES
Townhomes	122	46	34	202
TOTAL ONE-TIME EMPLOYEES	**122**	**46**	**34**	**202**

NOTES:

[1] Source: San Marcos City IMPLAN multipliers (IMPLAN Sector 58: Construction of new non-residential structures).

* ***All figures subject to rounding***

EXHIBIT 4b
SANTA FE FLORES
ONE-TIME IMPACTS - PROPOSED PLAN

ASSUMPTIONS

I. RESIDENTIAL CONSTRUCTION COST ASSUMPTIONS	UNITS	ESTIMATED SQ. FT. PER DWELLING UNIT	COST PER UNIT
Townhomes	46	NA	$474,600

II. NON-RESIDENTIAL CONSTRUCTION COST ASSUMPTIONS	IMPROVEMENT VALUE [1]	VSTRUCTION COST PER SQ. FT.

III. PUBLIC FACILITIES	TOTAL COST
PROJECT INFRASTRUCTURE	NA

ONE-TIME OUTPUT

IV. CITY

	DIRECT OUTPUT	INDIRECT OUTPUT [2]	INDUCED OUTPUT [2]	TOTAL OUTPUT
Townhomes	$21,831,600	$5,875,672	$4,614,023	$32,321,295
TOTAL ONE-TIME OUTPUT	**$21,831,600**	**$5,875,672**	**$4,614,023**	**$32,321,295**

NOTES:
[1] Assumes that improvement value is approximately 85% of total valuation.
[2] Source: San Marcos City IMPLAN multipliers (IMPLAN Sector 58: Construction of new non-residential structures).
* **All figures subject to rounding**

EXHIBIT 5b
SANTA FE FLORES
JOBS-HOUSING BALANCE - PROPOSED PLAN

ASSUMPTIONS

I. EXISTING DEMOGRAPHICS

CITY OF SAN MARCOS	
HOUSING UNITS [1]	33,157
EMPLOYEES [2]	45,700

II. JOB IMPACTS [3]

CITY OF SAN MARCOS	
DIRECT IMPACT	0
ADDITIONAL INDIRECT	0
ADDITIONAL INDUCED	0
TOTAL	**0**

III. CUMULATIVE PROJECT DEMOGRAPHICS

EXISTING HOUSING UNITS PLUS PROJECT - CITY OF SAN MARCOS	**33,203**
PERCENTAGE INCREASE	*0.14%*
EXISTING EMPLOYEES PLUS PROJECT - CITY OF SAN MARCOS	**45,700**
PERCENTAGE INCREASE	*0.0%*

JOBS-HOUSING BALANCE

IV. JOBS-HOUSING BALANCE

CITY OF SAN MARCOS	
EXISTING	1.38
EXISTING WITH PROJECT	1.38
PERCENTAGE INCREASE	***-0.14%***

NOTES:

[1] Source: State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties, and the State (2025).
[2] Source: California Employment Development Department ("EDD") - Labor Market Information Division.
[3] Please see Exhibit B-1: Recurring Jobs.
* ***All figures subject to rounding***

EXHIBIT 6b
SANTA FE FLORES

ASSUMPTIONS

I. RESIDENTIAL LAND USE ASSUMPTIONS	UNITS
MIXED USE RESIDENTIAL	46

II. NON-RESIDENTIAL LAND USE ASSUMPTIONS	EMPLOYEES/1,000 SQ. FT.	SQ. FT.
-	-	-
-	-	-
-	-	-
-	-	-

ECONOMIC IMPACTS CONCLUSIONS

RECURRING IMPACTS

III. JOB CREATION	DIRECT	INDIRECT/INDUCED	TOTAL
CITYWIDE	0	0	0

IV. TOTAL OUTPUT	DIRECT	INDIRECT/INDUCED	TOTAL
CITYWIDE	$999,176	$253,381	$1,252,557

ONE-TIME IMPACTS

V. CONSTRUCTION JOBS	DIRECT	INDIRECT/INDUCED	TOTAL
CITYWIDE	122	80	202

VI. CONSTRUCTION OUTPUT	DIRECT	INDIRECT/INDUCED	TOTAL
CITYWIDE	$21,831,600	$10,489,695	$32,321,295

OTHER IMPACTS

VII. JOBS-HOUSING BALANCE	BALANCE EXISTING	BALANCE WITH PROJECT	% INCREASE/ (DECREASE)
CITYWIDE	1.378	1.376	-0.14%

www.FinanceDTA.com

18201 VON KARMAN #200
IRVINE, CA 92612
PHONE (800) 969-4DTA

Public Finance
Public-Private Partnerships
Development Economics
Clean Energy Bonds

ATTACHMENT H

PLANNING COMMISSION MEETING MINUTES

SAN MARCOS
DISCOVER LIFE'S POSSIBILITIES

MINUTES

Regular Meeting of the Planning Commission

MONDAY, APRIL 20, 2026
City Council Chambers
1 Civic Center Drive, San Marcos, CA 92069

CALL TO ORDER
At 6:30 p.m. Planning Commission Chair Saulsberry called the meeting to order.

PLEDGE OF ALLEGIANCE
Commissioner Smith led the Pledge of Allegiance to the Flag.

ROLL CALL
The Secretary called the roll:

PRESENT: COMMISSIONERS: BARNETT, CAVANAUGH, KILDOO, SAULSBERRY, CARROLL, GUERRERO, SMITH

ALTERNATE COMMISSIONERS IN AUDIENCE: MARCINKO, NORRIS

ABSENT COMMISSIONERS: NONE

Also present were: Planning Division Director Joe Farace, Senior Planner Sarah Cluff, Senior Civil Engineer Bradley Holder, Deputy City Attorney Punam Prahalad, Senior Management Analyst Song LeBaron, and Project Coordinator Diana Rodriguez.

ORAL AND WRITTEN COMMUNICATIONS

Greg Cola, President of the Arbor Ranch HOA, stated he was there to better understand the Planning Commission process and expressed opposition to the proposed high-density development at the Briggs Tree Nursery site. He emphasized the community's desire for transparency, responsible growth, and preservation of neighborhood character.

Erica Prinster, a resident from Arbor Ranch, asked for clarification on the rezoning process and community rights related to the Briggs project.

CONSENT CALENDAR

1. APPROVAL OF MINUTES, 2/2/2026

Action:
COMMISSIONER CAVANAUGH MOVED TO APPROVE CONSENT CALENDAR ITEM #1 AS PRESENTED; SECONDED BY COMMISSIONER GUERRERO. MOTION CARRIED BY THE FOLLOWING VOTE.

AYES:	COMMISSIONERS:	BARNETT, CAVANAUGH, KILDOO, SAULSBERRY, CARROLL, GUERRERO, SMITH
NOES:	COMMISSIONERS:	NONE
ABSENT:	COMMISSIONERS:	NONE
ABSTAIN:	COMMISSIONERS:	NONE

2. **Project No:** VAC26-0001 Summary Vacation
   Applicant: City of San Marcos
   Request: The Summary Vacation and Abandonment of the drainage easement located along Redel Road granted by document 2015-0403598 on July 30, 2015, within the boundaries of Site Development Plan SDP24-0001 for the Student Housing Block F Project.
   Recommendation: Staff recommends approval to City Council

Action:
COMMISSIONER BARNETT MOTIONED TO RECOMMEND APPROVAL TO CITY COUNCIL PC26-5198 FOR VAC26-0001 AND SECONDED BY COMMISSIONER GUERRERO. MOTION CARRIED BY THE FOLLOWING VOTE.

AYES:	COMMISSIONERS:	BARNETT, CAVANAUGH, KILDOO, SAULSBERRY, CARROLL, GUERRERO, SMITH
NOES:	COMMISSIONERS:	NONE
ABSENT:	COMMISSIONERS:	NONE
ABSTAIN:	COMMISSIONERS:	NONE

PUBLIC HEARING

3. **Project No:** GP25-0001, R25-0001, MFSDP25-0001, & TSM25-0001
   Applicant: Santa Fe Flores LP
   Request: A request for entitlements to construct a multi-family residential development consisting of 46 condominium units on a 2.6-acre vacant site, at 17.69 du/ac density, located on the northwest corner of South Santa Fe Avenue and North Las Flores Drive. The project proposal includes seven three-story buildings, consisting of 46 three-bedroom units, each with an attached two-car garage and private open space, with common open space and recreational amenities.
   Recommendation: Staff recommends approval to City Council

Senior Planner Sarah Cluff and Senior Civil Engineer Bradley Holder: gave the staff presentation.
Rick Gittings, applicant representative: gave the applicant presentation.

OPEN PUBLIC COMMENTS

Ann Sullivan, a resident expressed concerns regarding the proposed project, including the placement of high-density housing adjacent to the liquor store, limited green space due to steep site topography, potential traffic impacts and overall citywide cumulative effects, and the need for more diverse or accessible housing types. She also suggested that the City pause additional development until existing new housing reaches higher occupancy levels.

Planning Commissioner discussions: The Commissioners discussed the project's overall suitability for the site, noting its thoughtful design, appropriate amenities, and consistency with City planning and zoning requirements. They highlighted the project's strengths as a well-designed urban infill development with proximity to transit, adequate parking, and no requests for development waivers. Commissioners acknowledged the concerns raised by the public regarding growth, infrastructure, and cumulative development impacts, clarifying that the property already had existing entitlements and that the decision before them involved a transition from previously approved apartments to for-sale condominiums. Commissioners also encouraged residents to remain informed and continue engaging in the planning process by attending Planning Commission meetings, City Council hearings, and upcoming community workshops related to the General Plan and housing initiatives.

Applicant response: The applicant representative clarified that the new fire station will be constructed before project completion, that the traffic study evaluated a broader network beyond the immediate project area, and that the project addresses ongoing regional housing demand while improving a long-vacant site.

Action:
COMMISSIONER BARNETT MOTIONED TO APPROVE RESOLUTION PC 26-5188 FOR GP25-0001, RESOLUTION PC 26-5189 FOR R25-0001, RESOLUTION PC 26-5190 FOR MFSDP25-0001, RESOLUTION PC 26-5191 FOR TSM25-0001 AND ADOPT ADDENDUM TO PREVIOUSLY ADOPTED MITIGATED NEGATIVE DECLARATION ND22-008. MOTION SECONDED BY COMMISSIONER KILDOO. MOTION CARRIED BY THE FOLLOWING VOTE.

AYES:	COMMISSIONERS:	BARNETT, CAVANAUGH, KILDOO, SAULSBERRY, CARROLL, GUERRERO, SMITH
NOES:	COMMISSIONERS:	NONE
ABSENT:	COMMISSIONERS:	NONE
ABSTAIN:	COMMISSIONERS:	NONE

CLOSED PUBLIC COMMENTS

DISCUSSION ITEM: None

PLANNING DIVISION DIRECTOR COMMENTS: Planning Director Joe Farace reported on recent City Council actions, including approval of the Davia Village specific plan amendments on March 10, 2026, and noted upcoming projects scheduled for late spring and early summer.

PLANNING COMMISSIONERS COMMENTS: Commissioners discussed the City's ongoing progress toward meeting Housing Element goals, the importance of making rezoning information more accessible to residents, and encouraged continued community participation in public workshops and future General Plan update efforts.

ADJOURNMENT

At 7:29 p.m. Chair Saulsberry adjourned the meeting.

LIONEL SAULSBERRY , CHAIRPERSON
CITY OF SAN MARCOS PLANNING COMMISSION

ATTEST:

SONG LEBARON, SR. MANAGEMENT ANALYST
CITY OF SAN MARCOS PLANNING COMMISSION

Staff Report

File #:26-2879

MEETING DATE:
May 2026

SUBJECT:

SAN DIEGO ASSOCIATION OF GOVERNMENTS REPORT (MAYOR JONES)

Recommendation
Note and File

Attachment(s)

Staff Report

File #:26-2880

MEETING DATE:
May 2026

SUBJECT:

LEAGUE OF CALIFORNIA CITIES REPORT (COUNCILMEMBER MUSGROVE)

Recommendation
Note and File

Attachment(s)

File #:26-2881

MEETING DATE:
May 2026

SUBJECT:

NORTH COUNTY TRANSIT DISTRICT REPORT (DEPUTY MAYOR SANNELLA)

Recommendation
Note and File.

Attachment(s)

Staff Report

File #:26-2882

MEETING DATE:
May 2026

SUBJECT:

NORTH COUNTY DISPATCH JOINT POWERS AUTHORITY REPORT (COUNCILMEMBER LEBLANG)

Recommendation
Note and File

Attachment

Staff Report

File #:26-2883

MEETING DATE:
May 2026

SUBJECT:

CLEAN ENERGY ALLIANCE REPORT (COUNCILMEMBER NUÑEZ)

Recommendation
Note and File

Attachment(s)

File #:26-2884

MEETING DATE:
May 2026

SUBJECT:

CITY COUNCIL BUSINESS VISITS

Recommendation
Note and File

Attachment(s)