



ATTACHMENT D

ENVIRONMENTAL IMPACT REPORT

APPENDIX L

SWQMP

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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: Rilling Enterprises Capalina Apartments

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

Robert D. Dentino, RCE

Print Name

EXCEL ENGINEERING

Company

Date

Engineer's Seal:

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PDP SWQMP PROJECT OWNER'S CERTIFICATION PAGE

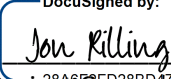
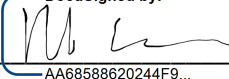
Project Name: Rilling Enterprises Capalina Apartments

Permit Application Number:

PROJECT OWNER'S CERTIFICATION

This PDP SWQMP has been prepared for Capalina SMA, LLC by Excel Engineering. 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.

DocuSigned by:  28A673FD28BD47B... Project Owner's Signature	DocuSigned by:  AA68588620244F9...
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Jon Rilling

Rob Honer

Print Name

Capalina SMA, LLC

Company

1/18/2023

1/18/2023

Date

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SUBMITTAL RECORD

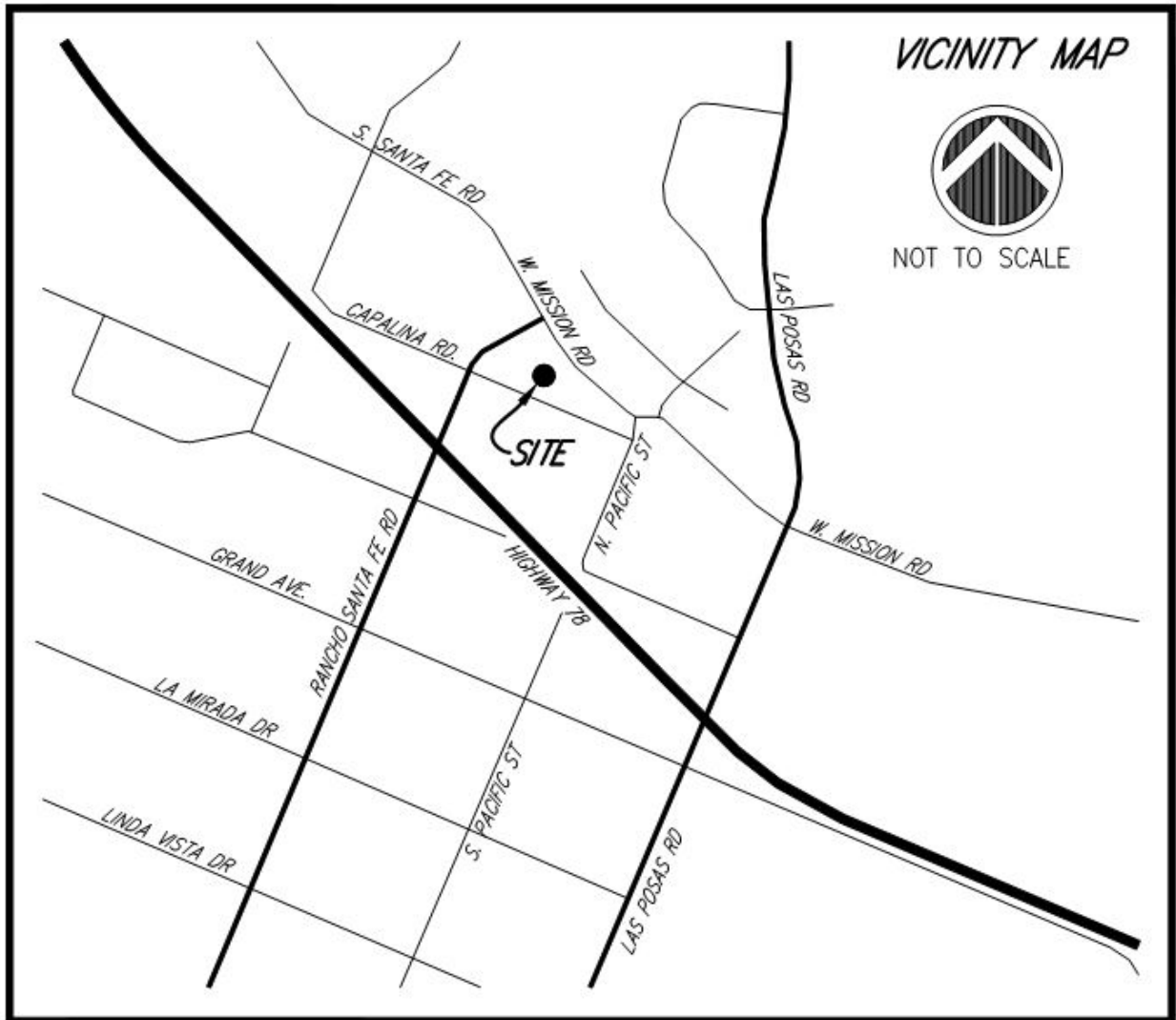
Use this Table to keep a record of submittals of this PDP SWQMP. Each time the PDP SWQMP is re-submitted, provide the date and status of the project. In column 4 summarize the changes that have been made or indicate if response to plancheck comments is included. When applicable, insert response to plancheck comments behind this page.

Submittal Number	Date	Project Status	Summary of Changes
1	10/04/2022	☒ Preliminary Design / Planning/ CEQA ☐ Final Design	Initial Submittal
2	01/18/2023	☒ Preliminary Design / Planning/ CEQA ☐ Final Design	Red line comments
3	04/06/2023	☒ Preliminary Design / Planning/ CEQA ☐ Final Design	Red line comments
4	06/12/2023	☒ Preliminary Design / Planning/ CEQA ☐ Final Design	Red line comments

PROJECT VICINITY MAP

Project Name: RILLING ENTERPRISES CAPALINA APARTMENTS

Permit Application Number:



Project Vicinity Map

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: RILLING ENTERPRISES CAPALINA APARTMENTS

Description: Apartments with parking lots on a 2.51 acre site

Permit Application Number (if applicable):

Date:10/04/2022

Project Address: Capalina Road, San Marcos, CA 92069

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 <u>not</u> a "development project" (e.g., the project includes <i>only</i> 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	<u>Only</u> Standard Project requirements apply, including <u>Standard Project SWQMP</u> . STOP.
	☒ PDP	Standard and PDP requirements apply, including <u>PDP SWQMP</u> . Go to Step 3 on the following page.
	☐ Exception to PDP definitions	<u>Standard Project</u> requirements apply, <u>and any additional requirements specific to the type of project</u> . Provide discussion and list any additional requirements below. Prepare <u>Standard Project SWQMP</u> . STOP.

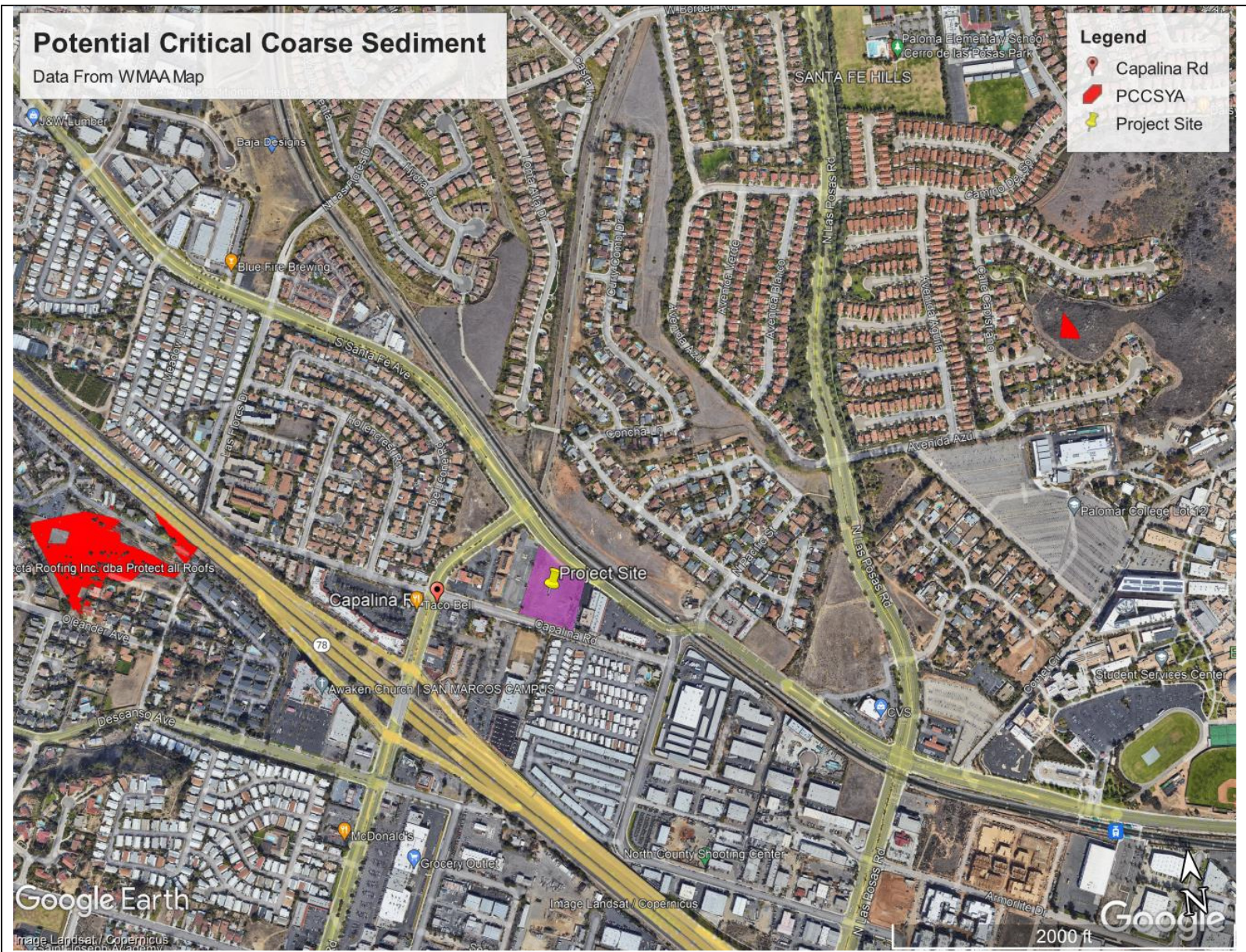
Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:

Step 3 (PDPs only). Please answer the list of questions in this section to determine if hydromodification requirements apply 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.



The map above shows potential critical course sediment areas. No potential critical coarse sediment yield areas nearby that will influence the project.

Project Type Determination Checklist			Form I-2 [March 15, 2016]
Project Information			
Project Name/Description: RILLING ENTERPRISES CAPALINA APARTMENTS			
Permit Application Number (if applicable):			Date: 10/04/2022
Project Address: Capalina Road, San Marcos, CA 92069			
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: <u>100155</u> ft ² (<u>2.3</u>) 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.

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). <i>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.</i>
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. <i>Note: See BMP Design Manual Section 1.4.2 for additional guidance.</i>

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 not 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: 0 ft² (A)

The total proposed newly created or replaced impervious area is _____ ft² (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

Site Information Checklist For PDPs		Form I-3B (PDPs) [March 15, 2016]
Project Summary Information		
Project Name	RILLING ENTERPRISES CAPALINA APARTMENTS	
Project Address	Capalina Road, San Marcos, CA 92069	
Assessor's Parcel Number(s) (APN(s))	219-115-33	
Permit Application Number	GPA22-0003	
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)	The project is located in the Richland Hydrologic Sub Area of the San Marcos Hydrologic Area of the CARLSBAD Hydrologic Unit (904.52).	
Parcel Area (total area of Assessor's Parcel(s) associated with the project)	<u>2.51</u> Acres (<u>109335.6</u> Square Feet)	
Area to be Disturbed by the Project (Project Area)	<u>2.69</u> Acres (<u>117090.14</u> Square Feet)	
Project Proposed Impervious Area (subset of Project Area)	<u>2.3</u> Acres (<u>100155</u> Square Feet)	
Project Proposed Pervious Area (subset of Project Area)	<u>0.39</u> Acres (<u>17034.681</u> Square Feet)	
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Parcel Area.		

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:

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:

The existing site is currently undeveloped. The project is fronts on West Mission Road to the north and Capalina Road to the south. The property drains primarily by overland flow to West Mission Road then easterly along West Mission Roads curb and getter to an existing storm drain system located at North Pacific Street.

The proposed development northerly of the right of way of Capalina Road drains to the north (West Mission Road) with the drainage leaving the site in two outlets to the existing curb and gutter along West Mission Road which flow to discharge point 1 at the projects northeasterly corner. The site improvements within the right of way of Capalina Road and consist of road widening, curb and gutter, driveway aprons and right of way improvements drains easterly to discharge point 2.

Downstream of the two discharge points, surface runoff continues easterly to the existing storm drain inlets located at North Pacific Street, the projects POC.

The pre-development discharges a peak 100-year flow of 5.627 CFS to Discharge Point 1, 1.571 CFS to Discharge Point 2, total 7.198 CFS to POC.

Description of Proposed Site Development

Project Description / Proposed Land Use and/or Activities:

The proposed project is a multifamily residential facility containing two buildings and associated surface parking and supporting utilities.

List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):

The proposed impervious areas of the project will include the residential units, the associated parking areas and driveway areas, the associated landscape flatwork (sidewalks) and the paved access road up to the upper areas of the site.

List/describe proposed pervious features of the project (e.g., landscape areas):

The pervious features of the site include all the landscape areas and the remaining natural areas with graded slopes.

Does the project include grading and changes to site topography?

☒ Yes

☐ No

Description / Additional Information:

The grading will occur to facilitate the construction of the residential units, associated site improvements, and relatively slope areas around the site. The maximum cut and fill slopes have a gradient of about 2:1 (horizontal : vertical).

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:

This proposed project is a multifamily residential facility containing two buildings and associated surface parking and supporting utilities. Two biofiltration basins are proposed to mitigate the storm water quality for the project (BMP-A and BMP-B). BMP-A is located near the northeast corner of the site and BMP-B is located near the northwest corner of the site. The biofiltration basins will collect the storm water runoff from the building and proposed parking lots and convey the storm water through storage tanks, storm drain systems and curb and gutters to POC.

At the center of the project site, the proposed impervious area runoff is routed northerly to BMP-A then through the proposed 18 inches storm drain to the proposed 48 inches storage pipe system. After detention in said storage pipe system the system outflow through a 12 inches storm drain to discharge point 1, which is located at the northeast corner of the project site. BMP-A also has an emergency overflow which exits with a 12 inches storm drain to the same discharge point 1.

At the northwest part of the project site, surface runoff follows the proposed grades through curb cuts to BMP-B. BMP-B then drains through a 12 inches storm drain to a curb outlet at West Mission Road. These flows confluence with the existing surface flow along West Mission Road and drains easterly along the curb and gutter to the discharge point 1.

The south portion of the project site, The Capalina Road proposed improvements, drain easterly along the proposed curb and gutter, to discharge point 2, located at the southeast corner of the project site. After runoff leaves discharge point 1 and the discharge point 2, the drainage follows the existing curb and gutter to the east to the inlet in North Pacific Street, the project's POC.

The results of Q100 runoff is summarized in the table below, please refer to the hydrology report for the detailed calculations.

Summary of Q100 Runoff

	PRE			POST			POST MITIGATION		
	Discharge Point 1	Discharge Point 2	POC	Discharge Point 1	Discharge Point 2	POC	Discharge Point 1	Discharge Point 2	POC
Q (CFS)	5.627	1.571	7.198	18.158	2.978	21.136	4.184	2.978	7.162
Tc (MIN)	11.112	5.23	11.112	4.77	4.6	4.77	5.677	4.61	5.677
A (ACRE)	2.7	0.398	3.098	2.675	0.423	3.098	2.673	0.423	3.096

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):

The project is located in the Richland Hydrologic Sub Area of the San Marcos Hydrologic Area of the CARLSBAD Hydrologic Unit (904.52). The project discharges to a public storm drain system which discharges to an un-named tributary which discharges to the San Marcos Creek which discharges to the Batiquitos Lagoon which discharges to 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
San Marcos Creek	DDE, Phosphorus, Sediment Toxicity, Selenium	
Lake San Marcos	Ammonia (N), Nutrients	
Batiquitos Lagoon	Pathogen	

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	
Nutrients		X	
Heavy Metals	X		
Organic Compounds	X		
Trash & Debris		X	
Oxygen Demanding Substances		P(1)	
Oil & Grease		P(2)	
Bacteria & Viruses		P	
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 is one POC at the North Pacific Street of the property. Water flows from biofiltration basins and storage tank to the street at this point.

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)

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.

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.

Source Control BMP Checklist for All Development Projects (Standard Projects and Priority Development Projects)		Form I-4 [March 15, 2016]	
Project Identification			
Project Name: RILLING ENTERPRISES CAPALINA APARTMENTS			
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: There are no proposed outdoor material storage areas for this project.			
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: There are no proposed outdoor material work areas for this project.			

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, 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.			

Site Design BMP Checklist for All Development Projects (Standard Projects and Priority Development Projects)		Form I-5 [March 15, 2016]	
Project Identification			
Project Name: RILLING ENTERPRISES CAPALINA APARTMENTS			
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: There are no significant areas of level vegetation to implement this BMP. All impervious areas are directed to a biofiltration pond.			

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:			

Summary of PDP Structural BMPs	Form I-6 (PDPs) [March 15, 2016]
Project Identification	
Project Name: RILLING ENTERPRISES CAPALINA APARTMENTS	
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. <i>Step 1, the project was divided up and evaluated at the DMA scale. Each DMA area was classified as Self-Treating, Self-Retaining, Self-Mitigating or Draining to a Best Management Practice (BMP).</i> <i>Step 2, For the DMAs that drain to BMPs, the appropriate runoff factors were applied to each area and the required Design Capture Volume (DCV) of each sub area calculated. For this project, Harvest and reuse is not considered feasible.</i> <i>Step 3, due to the impermeability of the underlying soils, (soil type C & D), infiltration BMPs are not feasible.</i> <i>Step 3A&B for the no infiltration condition leads to section 5.5.3 which is the Biofiltration BMP category. The various sizing methods included in Appendix B.5 were followed and the entire DCV can be treated within the proposed BMPs.</i> <i>Step 4, each Biofiltration area is sized in accordance with the fact sheet BF-1 found in appendix E of the BMP design manual. This project requires hydromodification controls, so the Biofiltration units accomplish both storm water treatment and flow control mitigation in an integrated design.</i> (Continue on page 2 as necessary.)	

(Page reserved for continuation of description of general strategy for structural BMP implementation at the site)

BMP-A is sized for both hydrology and hydromodification control and the minimum area of the BMP is provided in the BMP summary table on DMA exhibit. Sizing of BMP-C is in the drainage study with it's storage curve.

Both of BMP-A storage curve and BMP-C storage curve are imported as inputs data in the routing software: HEC-HMS. The results of HEC-HMS simulation and hydrograph can be found in Attachments of drainage study.

All surface water from DMA-1 drains to BMP-A, then flows through a catch basin at the southern end of BMP-A to act as a control structure to divert water to BMP-C. The purpose of this structure is for additional hydromodification flow control separate from typical biofiltration flow modeling. Once water is in BMP-C flows will be detained behind weir plate 2 in BMP-C. This first portion of bmp-c is the first two 48-inch storage pipes. BMP-C then discharges into an additional 48-inch pipe that will be used only for hydromodification purposes. This weir 1 at the end of the second storage pipe will serve as another flow control structure to implements hydrology detention.

BMP-A also has emergency flow control structure to the north of the basin. Overflows will use the emergency flow control structure drains to existing curb & gutter located at the north side of the project.

BMP-D is green street vegetated swale located at the south side of the project site, Capalina Road. Surface runoff in DMA-3 drains to BMP-D through proposed 6 inches curb cut. Green street infrastructure reduces stormwater runoff and helps improve water quality. Green streets provide source control of stormwater by biofiltration, and limit stormwater transport and pollutant conveyance to the collection system through storage layer and filter media. Per County of San Diego 2020 BMP Manual, green streets restore predevelopment hydrology to the extent possible by slowing the runoff down and allowing for infiltration; and provide environmentally enhanced roads.

DMA-4 is being classified as self-mitigating area.

Structural BMP Summary Information
(Copy this page as needed to provide information for each individual proposed structural BMP)

Structural BMP ID No. **BMP-A**

Construction Plan Sheet No. SHEET 7

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)

The Engineer of Work
 Robert Dentino
 Excel Engineering
 440 State Place
 Escondido, CA 92029

Who will be the final owner of this BMP?

Project Home Owner's Association

Who will maintain this BMP into perpetuity?

Project Home Owner's Association

What is the funding mechanism for maintenance?

Project Home Owner's Association

Structural BMP Summary Information
(Copy this page as needed to provide information for each individual proposed structural BMP)

Structural BMP ID No. **BMP-B**

Construction Plan Sheet No. SHEET 7

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)

The Engineer of Work
 Robert Dentino
 Excel Engineering
 440 State Place
 Escondido, CA 92029

Who will be the final owner of this BMP?

Project Home Owner's Association

Who will maintain this BMP into perpetuity?

Project Home Owner's Association

What is the funding mechanism for maintenance?

Project Home Owner's Association

Structural BMP Summary Information (Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP-C (Storage Pipe)	
Construction Plan Sheet No. SHEET 7	
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) Hydromodification and Hydrology Detention	
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) Hydromodification and Hydrology Detention	
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)	The Engineer of Work Robert Dentino Excel Engineering 440 State Place Escondido, CA 92029
Who will be the final owner of this BMP?	Project Home Owner's Association
Who will maintain this BMP into perpetuity?	Project Home Owner's Association
What is the funding mechanism for maintenance?	Project Home Owner's Association

Structural BMP Summary Information
(Copy this page as needed to provide information for each individual proposed structural BMP)

Structural BMP ID No. **BMP-D (Vegetated Swale)**

Construction Plan Sheet No. SHEET 7

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)
 Hydromodification and Hydrology Detention

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)

Green street infrastructure reduces stormwater runoff and helps improve water quality. Green streets provide source control of stormwater by biofiltration, and limit stormwater transport and pollutant conveyance to the collection system through storage layer and filter media. Per County of San Diego 2020 BMP Manual, green streets restore predevelopment hydrology to the extent possible by slowing the runoff down and allowing for infiltration; and provide environmentally enhanced roads.

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)

The Engineer of Work
 Robert Dentino
 Excel Engineering
 440 State Place
 Escondido, CA 92029

Who will be the final owner of this BMP?

City of San Marcos

Who will maintain this BMP into perpetuity?

City of San Marcos

What is the funding mechanism for maintenance?

City of San Marcos

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

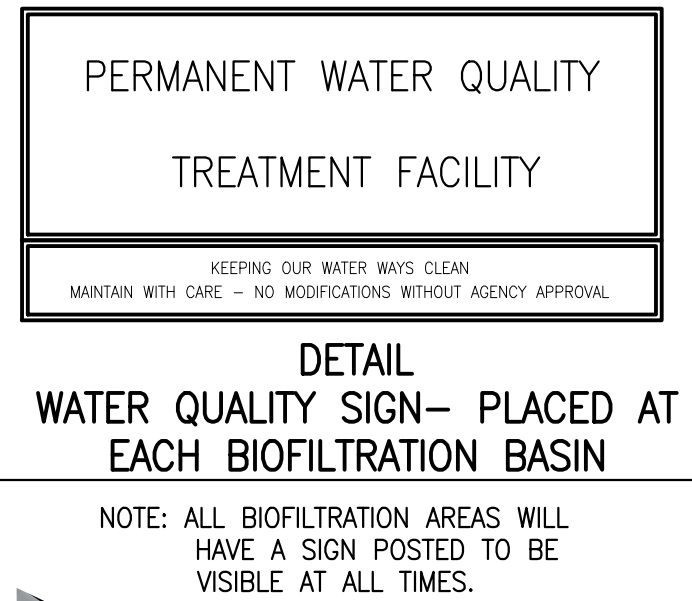
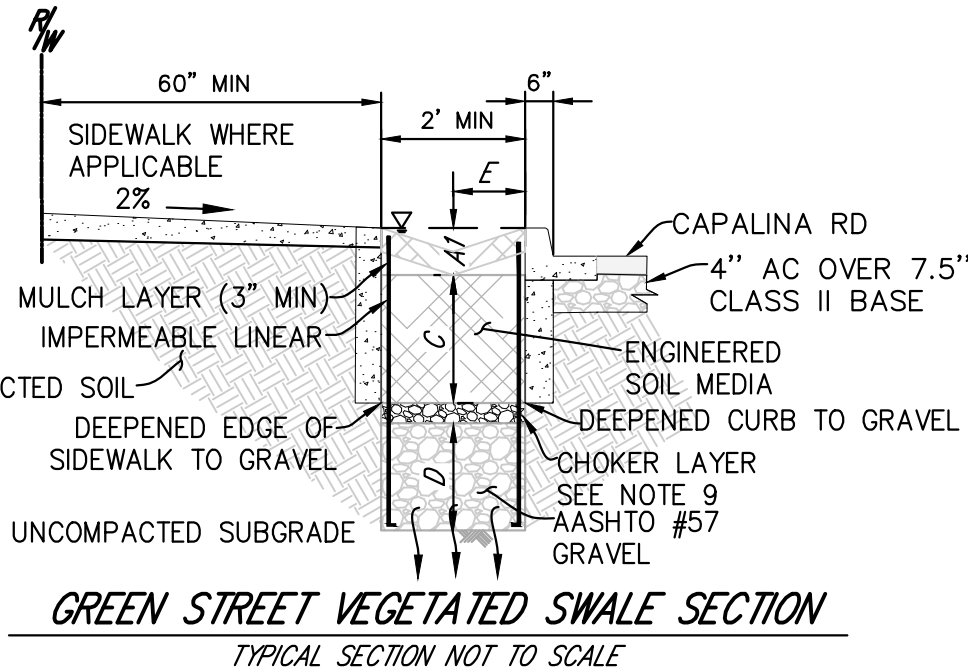
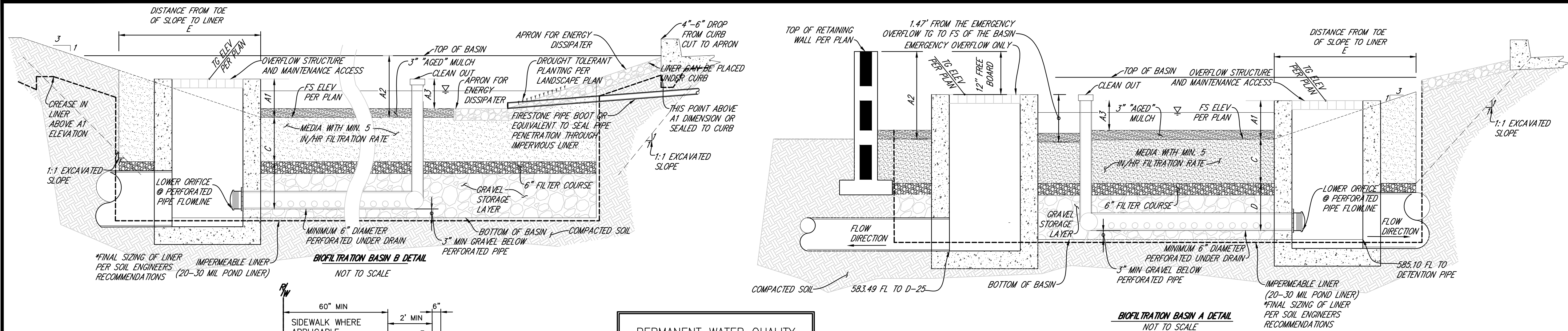
Attachment 1A

DMA Exhibit

Use this checklist to ensure the required information has been included on the DMA Exhibit:

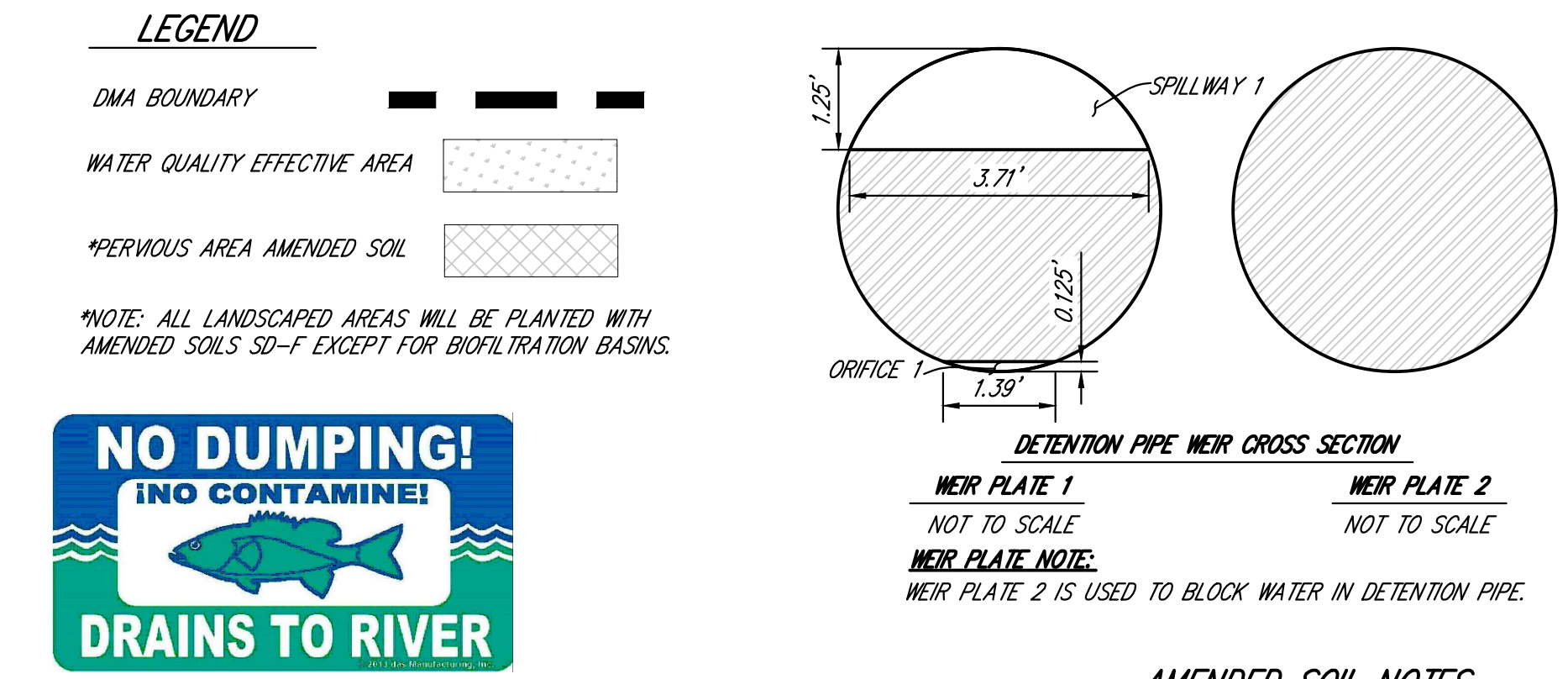
The DMA Exhibit must identify:

- ☒ 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)



EXISTING SITE FEATURES

- THE APPROXIMATE DEPTH TO GROUNDWATER IS GREATER THAN 20 FEET.
- THERE ARE NO NATURAL HYDROLOGIC FEATURES ON THE SITE.
- BASED ON WATERSHED MAPPING OF POTENTIAL CRITICAL COARSE SEDIMENT YIELD AREAS (CCSYA), THERE ARE NO CCSYA LOCATED WITHIN THE PROJECT BOUNDARY OR TRIBUTARY TO THE RUNOFF BYPASSED AROUND THE SITE.
- THE SITE PROPOSES TO CONNECT THE EXISTING CURB & GUTTER LOCATED ON MISSION ROAD ON THE NORTH SIDE OF THE PROJECT.



DETAIL

"NO DUMPING" AT CATCH BASINS

NOTE: ALL CATCH BASINS WITH GRATES SHALL BE STENCILED WITH CITY REQUIRED ITEM PER ABOVE DETAIL. (DAS MANUFACTURING #500 OR EQUIVALENT).

	SUMMARY OF PERVIOUS AND IMPERVIOUS AREA	
	PERVIOUS AREA (SF)	IMPERVIOUS AREA (SF)
DMA-1	13,897	81,594
DMA-2	1,850	5,901
DMA-3	1,287	34,286
DMA-4	1	4,853

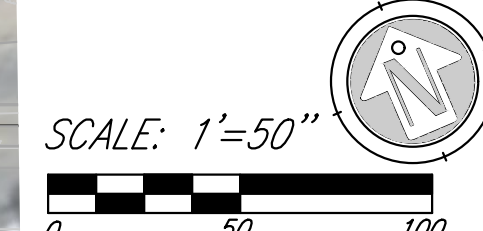
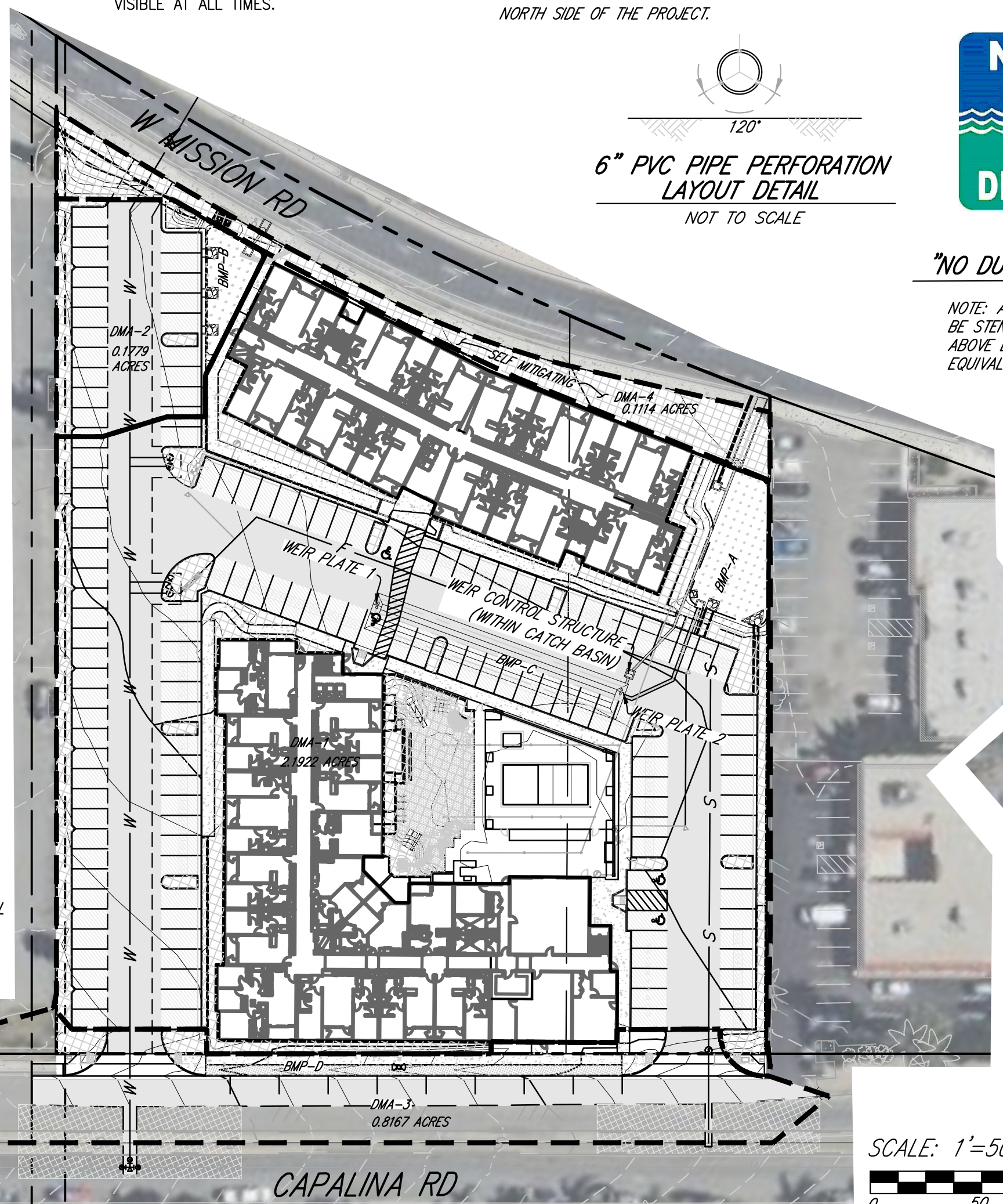
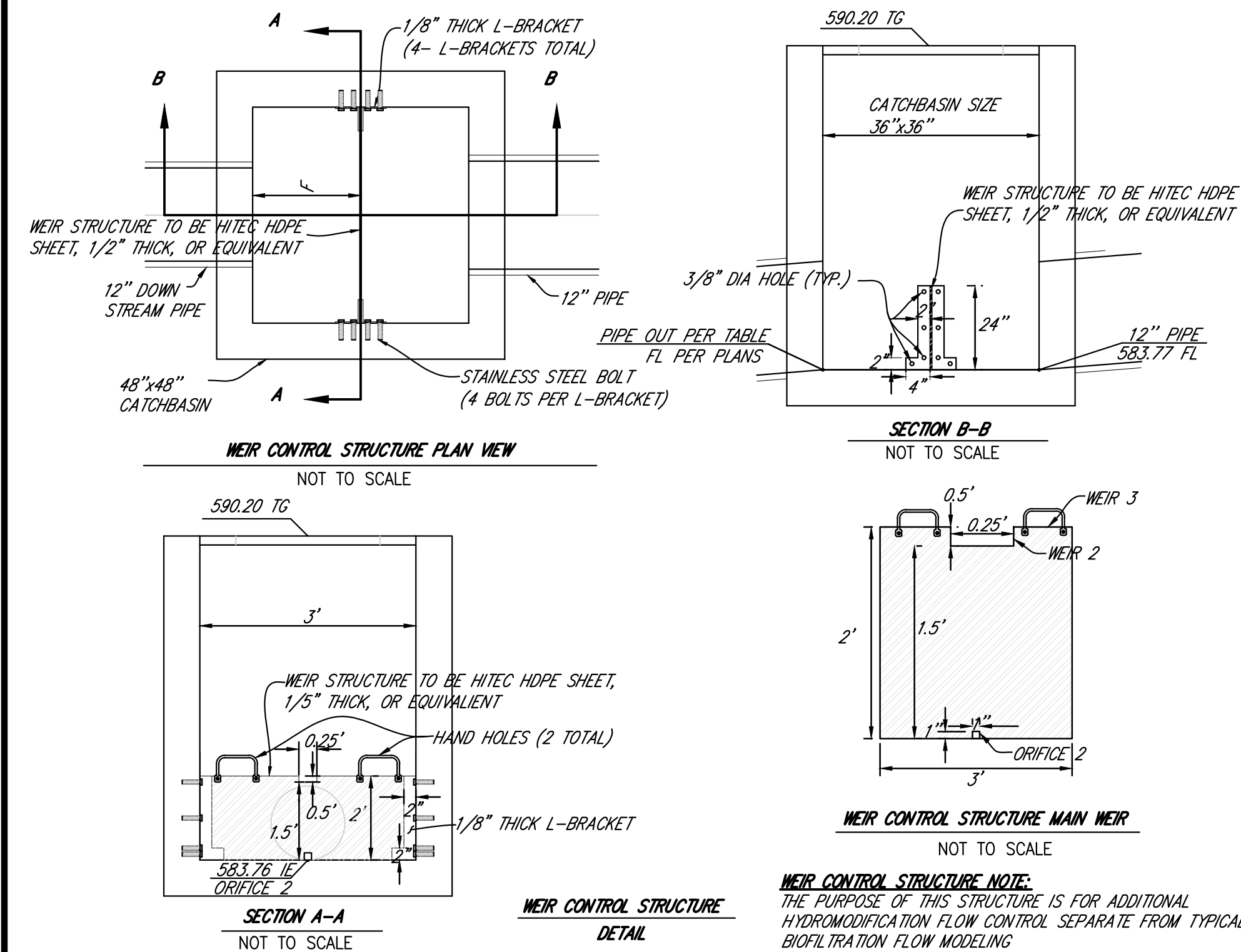
AMENDED SOIL NOTES

SOIL IS AMENDED WITH 2 INCHES OF MEDIA MIXED INTO THE TOP 6 INCHES OF IN-SITU SOILS. AS NEEDED, TO PROMOTE PLANT GROWTH (OPTIONAL). FOR ENHANCED POLLUTANT CONTROL, 2 FEET OF MEDIA CAN BE USED IN PLACE OF IN-SITU SOILS.

HYDROLOGIC SOIL GROUP

THE HYDROLOGIC SOIL GROUP FOR THIS SITE IS TYPE C AND TYPE D.

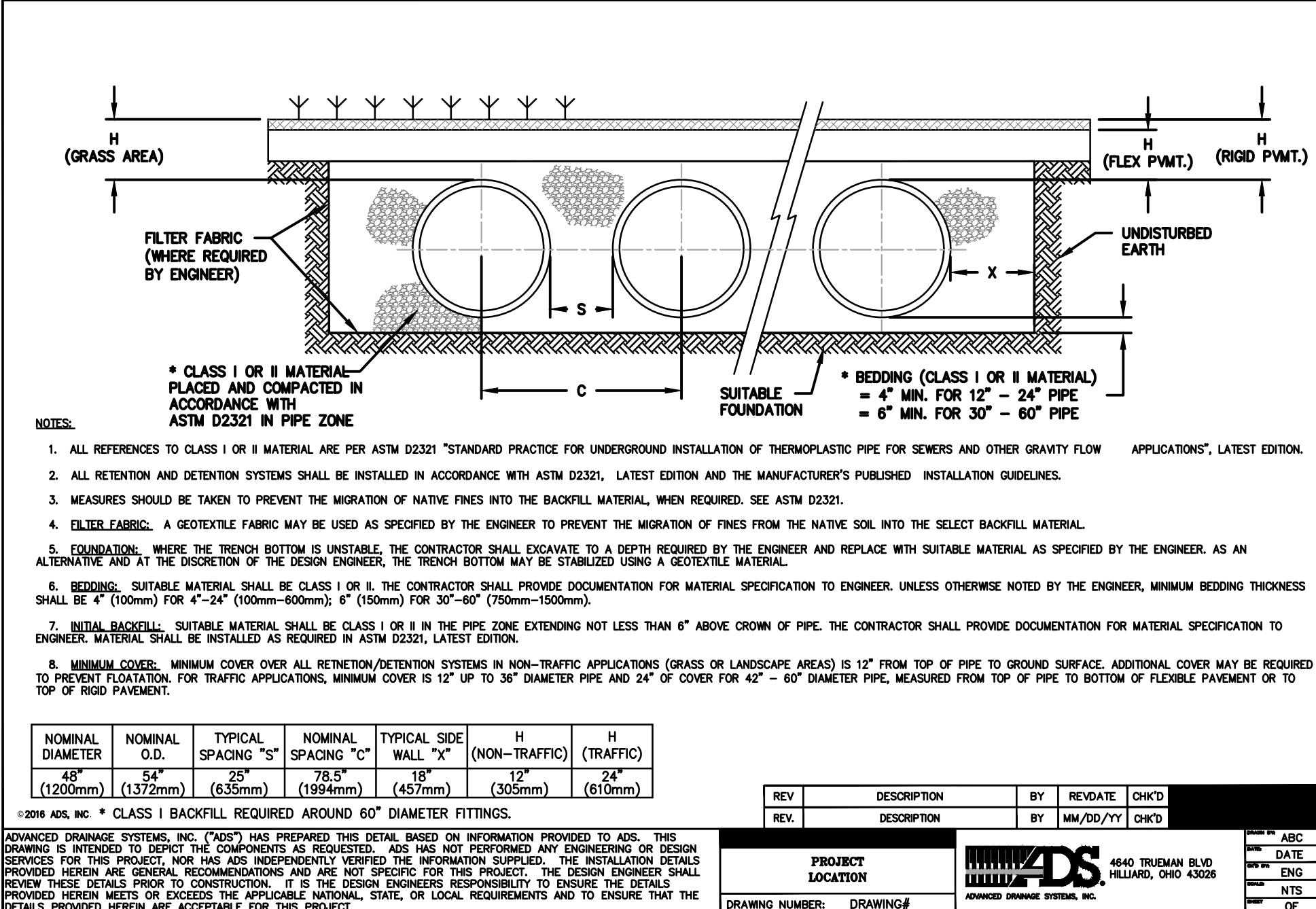
- VERIFICATION OF OVERALL DIMENSIONS PRIOR TO PLACEMENT OF MATERIALS.
 - PLACEMENT OF THE LINER, IF REQUIRED; AND SEAMS OR PENETRATIONS.
 - PLACEMENT OF THE GRAVEL, FILTER MATERIALS, AND FILTER MEDIA.
 - ALL INLET AND OUTLET STRUCTURES INCLUDING UNDERDRAINS, IF REQUIRED.
 - CONTRACTOR SHALL TAKE PICTURES AT EACH STAGE OF INSTALLATION AND SUBMITTED TO ENGINEER FOR VERIFICATION OF INSTALL.
- INSPECTOR SHALL BE GIVEN A MINIMUM OF 48 HOURS PRIOR TO INSPECTION. UPON COMPLETION THE INSPECTOR SHALL PROVIDE A CERTIFICATION TO THE ENGINEER OF WORK.
- PROPOSED MATERIALS, SUCH AS AGGREGATE, FILTER MATERIAL, AND FILTER MEDIA SHALL BE SUBMITTED TO THE ENGINEER OF WORK FOR APPROVAL.



SOURCE CONTROL			
	SOURCE CONTROL REQUIREMENT	NODE	IMPLEMENTATION
SC-1	PREVENTION OF ILLICIT DISCHARGES	SC-1	EFFECTIVE IRRIGATION WILL BE IMPLEMENTED AND VEHICLE WASHING IS PROHIBITED
SC-2	STORM DRAIN STENCILING OR SIGNAGE	SC-2	STENCIL EVERY INLET WITH PROHIBITIVE WORDS: "NO DUMPING! DRAINS TO WATERWAYS" AND "NO CONTAMINE" IN SPANISH.
SC-5	PROTECT TRASH STORAGE	SC-5	TRASH ENCLOSURE WILL BE PROTECTED BY LID OR BE WALLED WITH ROOF TO AVOID STORMWATER GET CONTAMINATED

STRUCTURAL BIO-BASIN SUMMARY TABLE															
DMA NAME	DMA TYPE	BMP NAME	TYPE OF BMP	EFFECTIVE AREA (SQFT)	A1 (INCH) WATER QUALITY+ MULCH*	A2 (INCH) TOP OF BASIN	A3 (INCH) CLEAN OUT	B (INCH) UPPER ORIFICE	C (INCH) MEDIA	D (INCH) GRAVEL	E (FT) OFFSET	BOX RISER OVERFLOW STRUCTURE SIZE (INCHES)	ORIFICES DIAMETER (INCH) UPPER LOWER	IMPERMEABLE LINER ?	
DMA-1	DRAINS TO BMP	BMP-A	BIOFILTRATION	2238	9	32.52	6	-	18	12	3.75	36x36	-	1.375	YES
DMA-2	DRAINS TO BMP	BMP-B	BIOFILTRATION	962	9	21	6	-	18	12	2.25	36x36	-	0.82	YES
DMA-3	DRAINS TO BMP	BMP-D	GREEN STREET VEGETATED SWALE	839	6	12	-	-	18	12	1.5	-	-	-	SIDES ONLY
DMA-4	SELF MITIGATING	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*NOTE: WATER QUALITY PONDING = A1- 3" OF MULCH (MULCH WILL BE CONSISTED OF NUTRIENT SENSITIVE MATERIAL SUCH AS COCONUT COIR PER BF-2)



NOTES:

- ALL REFERENCES TO CLASS I OR II MATERIAL ARE PER ASTM D2321 "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION.
- ALL RETENTION AND DETENTION SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, LATEST EDITION AND THE MANUFACTURER'S PUBLISHED INSTALLATION GUIDELINES.
- MEASURES SHOULD BE TAKEN TO PREVENT THE MIGRATION OF NATIVE FINES INTO THE BACKFILL MATERIAL, WHEN REQUIRED. SEE ASTM D2321.
- FILTER FABRIC: A GEOTEXTILE FABRIC MAY BE USED AS SPECIFIED BY THE ENGINEER TO PREVENT THE MIGRATION OF FINES FROM THE NATIVE SOIL INTO THE SELECT BACKFILL MATERIAL.
- FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
- BEDDING: SUITABLE MATERIAL SHALL BE CLASS I OR II. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-1500mm).
- INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I OR II IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
- MINIMUM COVER: MINIMUM COVER OVER ALL RETENTION/DETENTION SYSTEMS IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATATION FOR TRAFFIC APPLICATIONS. MINIMUM COVER IS 12" UP TO 36" DIAMETER PIPE AND 24" OF COVER FOR 42" - 60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

NOMINAL DIAMETER	NOMINAL O.D.	TYPICAL SPACING "S"	NOMINAL SPACING "C"	TYPICAL SIDE WALL "X"	H (NON-TRAFFIC)	H (TRAFFIC)
48" (1200mm)	54"	25" (635mm)	78.5" (1994mm)	18" (457mm)	12" (305mm)	24" (610mm)

©2019 ADS, INC. * CLASS I BACKFILL REQUIRED AROUND 60" DIAMETER FITTINGS.

ADVANCED DRAINAGE SYSTEMS, INC. (ADS) HAS PREPARED THIS DESIGN BASED ON INFORMATION PROVIDED TO ADS. THIS DRAWING IS INTENDED TO DEPICT THE COMPONENTS AS REQUESTED. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT NOR HAS ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE DESIGN ENGINEER SHALL PROVIDE HEREIN GENERAL RECOMMENDATIONS AND ARE NOT SPECIFIC FOR THIS PROJECT. THE DESIGN ENGINEER SHALL PROVIDE HEREIN DETAILS PRIOR TO CONSTRUCTION. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEET OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

REV.	DESCRIPTION	BY	REVISIT	CHK'D
1	DESCRIPTION	BY	MM/20/YY	OK'D

PROJECT LOCATION: 4640 TREMAM BLVD, HILLIARD, OHIO 43026

DRAWING NUMBER: DRAWING#

ADVANCED DRAINAGE SYSTEMS, INC.

DATE: 05/19/2023

BY: ENG

NTS

OF

RILLING ENTERPRISES CAPALINA APARTMENTS DMA EXHIBIT

Attachment 1B

Tabular Summary of DMA's

Tabular summary of DMA is provided in Attachment 1E since Automated Worksheet B.1 is being used.

Attachment 1C

Harvest and Use Feasibility Screening Checklist

Harvest and Use Feasibility Checklist		Form I-7
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. Flushing: $(148 \text{ employees}) \times (9.3 \text{ gal/emp}) = 1376.4 \text{ gallons}$ $(1376.4 \text{ gal})(1.5 \text{ days}) / (7.48 \text{ gal/cu. ft.}) = 276 \text{ cu. ft.}$ Irrigation: 36-hr Mod. Water per Table B.3-3 = $(1,470 \text{ gal days/acre})(0.298 \text{ acres}) / (7.48 \text{ gal/cu foot}) = 58.56 \text{ cu ft.}$ Total Demand = 334.56 cu. ft.		
3. Calculate the DCV using worksheet B-2.1. DCV = <u>5451</u> (cubic feet) DCV = 5451 0.25xDCV=1062.75		
3a. Is the 36 hour demand greater than or equal to the DCV? ☐ Yes / ☒ No  	3b. Is the 36 hour demand greater than 0.25DCV but less than the full DCV? ☐ Yes / ☒ No  	3c. Is the 36 hour demand less than 0.25DCV? ☒ 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.
Is harvest and use feasible based on further evaluation? ☐ Yes, refer to Appendix E to select and size harvest and use BMPs. ☒ No, select alternate BMPs.		

Attachment 1D

Categorization of Infiltration Feasibility Condition

Categorization of Infiltration Feasibility Condition		Worksheet I-8	
<u>Part 1 - Full Infiltration Feasibility Screening Criteria</u> 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.	☐	☒
Provide basis: Site specific infiltration testing has not been performed for this site. However, according to the "Preliminary Geotechnical Investigation and Grading Plan Review for Capalina Apartments Development" Report No. 2203-09-B-3 by AGS dated December 12, 2022, the earth materials present at the site include surficial deposits of undocumented artificial fill and topsoil/alluvium consisting of clayey sands and sandy clays overlying Santiago Formation interbedded silty sandstone, clayey sandstone, and sandy claystone. Also, the proposed basin bottoms will be in design fill conditions. Fill derived from onsite materials is expected to have negligible infiltration rates. Based on our previous experience with similar materials, the estimated infiltration rate of the topsoil/alluvium, compacted fill, and Santiago Formation will be on the order of 0.1 inches per hour or less.			
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.	☐	☒
Provide basis: Estimated infiltration rates at the project site are below 0.5 inches/hour; as such this screening question does not control the feasibility of infiltration at the project site and is not applicable.			

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.	☐	☒
Provide basis: Estimated infiltration rates at the project site are below 0.5 inches/hour. Infiltration at a rate greater than 0.5 inches/hour is not considered feasible for this project. As such, this screening question does not control the feasibility of infiltration at the project site.			
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.	☐	☒
Provide basis: Estimated infiltration rates are less than 0.5 inches/hour. Infiltration at a rate greater than 0.5 inches/hour is not considered feasible for this project. As such, this screening question does not control the feasibility of infiltration at the project site. Final determination should be made by the project design engineer.			

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	No, Proceed to part 2
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**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 the 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.	☒	☐
Provide basis: The estimated infiltration rate for the site is 0.1 inches per hour or less (below 0.5 inches/hour). In addition, the subsurface soils encountered are relatively dense and the bottom of the basins will be located in design fill. Infiltration at the project site is anticipated to be "Partial" infiltration. It is anticipated that over the lifetime of the development the infiltration rates will further diminish. It is our current understanding that an 'appreciable' infiltration rate is interpreted to be an infiltration rate of 0.01 in/hr or greater. Therefore, in consideration of the current interpretation, the project site locally does allow for infiltration in an 'appreciable' rate or volume.			
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.	☐	☒
Provide basis: Infiltration is not considered feasible within the tested areas without significantly increasing the risk of geotechnical hazards such a lateral flow and/or groundwater mounding, which would impact future onsite structures and existing offsite improvements, including nearby residences, roadways and utility trenches. Additionally, expansive soils have been identified onsite and test results presented in AGS's 12-12-22 report show expansion potentials of the upper soils that range from "very low" to "medium". On nearby sites, highly expansive beds have been identified in the Santiago Formation and may be present in the underlying formational materials. The onsite expansive soils will be subject to volume changes with the introduction of water. It is anticipated that the infiltration surface will be situated within the fill materials on Santiago Formation materials. Based on our previous experience in the project area, the formational soils/bedrock underlying the site are considered to have low to negligible permeability when saturated and are anticipated to diminish over time.			

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.	☒	☐
Provide basis: Partial infiltration can be allowed without posing significant risk for groundwater related concerns, if the basin is located at least ten (10) vertically above seasonal high groundwater. Groundwater is not expected to be located within 10 feet of the proposed infiltration surfaces onsite nor is expected to rise to within 10 feet of the infiltration surface.			
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.	☒	☐
Provide basis: Based on the project location and site conditions, it is not anticipated that allowing infiltration onsite will violate downstream water rights. Final determination should be made by the project design engineer.			
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.	No Infiltration	

**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 the City Engineer to substantiate findings*

Attachment 1E

Pollutant Control BMP Design
Worksheets & Calculations

Automated Worksheet B.1: Calculation of Design Capture Volume (V2.0)

Category	#	Description	<i>i</i>	<i>ii</i>	<i>iii</i>	Units
Standard Drainage Basin Inputs	1	Drainage Basin ID or Name	DMA-1	DMA-2	DMA-3	unitless
	2	85th Percentile 24-hr Storm Depth	0.69	0.69	0.69	inches
	3	Impervious Surfaces <u>Not Directed to Dispersion Area</u> (C=0.90)	81,594	5,976	34,286	sq-ft
	4	Semi-Pervious Surfaces <u>Not Serving as Dispersion Area</u> (C=0.30)				sq-ft
	5	Engineered Pervious Surfaces <u>Not Serving as Dispersion Area</u> (C=0.10)	13,897	1,775	1,287	sq-ft
	6	Natural Type A Soil <u>Not Serving as Dispersion Area</u> (C=0.10)				sq-ft
	7	Natural Type B Soil <u>Not Serving as Dispersion Area</u> (C=0.14)				sq-ft
	8	Natural Type C Soil <u>Not Serving as Dispersion Area</u> (C=0.23)				sq-ft
	9	Natural Type D Soil <u>Not Serving as Dispersion Area</u> (C=0.30)				sq-ft
Dispersion Area, Tree Well & Rain Barrel Inputs (Optional)	10	Does Tributary Incorporate Dispersion, Tree Wells, and/or Rain Barrels?	No	No	No	yes/no
	11	Impervious Surfaces Directed to Dispersion Area per SD-B (Ci=0.90)				sq-ft
	12	Semi-Pervious Surfaces Serving as Dispersion Area per SD-B (Ci=0.30)				sq-ft
	13	Engineered Pervious Surfaces Serving as Dispersion Area per SD-B (Ci=0.10)				sq-ft
	14	Natural Type A Soil Serving as Dispersion Area per SD-B (Ci=0.10)				sq-ft
	15	Natural Type B Soil Serving as Dispersion Area per SD-B (Ci=0.14)				sq-ft
	16	Natural Type C Soil Serving as Dispersion Area per SD-B (Ci=0.23)				sq-ft
	17	Natural Type D Soil Serving as Dispersion Area per SD-B (Ci=0.30)				sq-ft
	18	Number of Tree Wells Proposed per SD-A				#
	19	Average Mature Tree Canopy Diameter				ft
	20	Number of Rain Barrels Proposed per SD-E				#
Initial Runoff Factor Calculation	21	Average Rain Barrel Size				gal
	22	Total Tributary Area	95,491	7,751	35,573	sq-ft
	23	Initial Runoff Factor for Standard Drainage Areas	0.78	0.72	0.87	unitless
	24	Initial Runoff Factor for Dispersed & Dispersion Areas	0.00	0.00	0.00	unitless
	25	Initial Weighted Runoff Factor	0.78	0.72	0.87	unitless
Dispersion Area Adjustments	26	Initial Design Capture Volume	4,283	321	1,780	cubic-feet
	27	Total Impervious Area Dispersed to Pervious Surface	0	0	0	sq-ft
	28	Total Pervious Dispersion Area	0	0	0	sq-ft
	29	Ratio of Dispersed Impervious Area to Pervious Dispersion Area	n/a	n/a	n/a	ratio
	30	Adjustment Factor for Dispersed & Dispersion Areas	1.00	1.00	1.00	ratio
	31	Runoff Factor After Dispersion Techniques	0.78	0.72	0.87	unitless
Tree & Barrel Adjustments	32	Design Capture Volume After Dispersion Techniques	4,283	321	1,780	cubic-feet
	33	Total Tree Well Volume Reduction	0	0	0	cubic-feet
Results	34	Total Rain Barrel Volume Reduction	0	0	0	cubic-feet
	35	Final Adjusted Runoff Factor	0.78	0.72	0.87	unitless
	36	Final Effective Tributary Area	74,483	5,581	30,949	sq-ft
	37	Initial Design Capture Volume Retained by Site Design Elements	0	0	0	cubic-feet
	38	Final Design Capture Volume Tributary to BMP	4,283	321	1,780	cubic-feet
No Warning Messages						

Automated Worksheet B.3: BMP Performance (V2.0)

Category	#	Description	<i>i</i>	<i>ii</i>	<i>iii</i>	Units
BMP Inputs	1	Drainage Basin ID or Name	DMA-1	DMA-2	DMA-3	sq-ft
	2	Design Infiltration Rate Recommended	0.000	0.000	0.250	in/hr
	3	Design Capture Volume Tributary to BMP	4,283	321	1,780	cubic-feet
	4	Is BMP Vegetated or Unvegetated?	Vegetated	Vegetated	Vegetated	unitless
	5	Is BMP Impermeably Lined or Unlined?	Lined	Lined	Unlined	unitless
	6	Does BMP Have an Underdrain?	Underdrain	Underdrain	No Underdrain	unitless
	7	Does BMP Utilize Standard or Specialized Media?	Standard	Standard	Standard	unitless
	8	Provided Surface Area	2,238	962	839	sq-ft
	9	Provided Surface Ponding Depth	6	6	6	inches
	10	Provided Soil Media Thickness	21	21	18	inches
	11	Provided Gravel Thickness (Total Thickness)	12	12	12	inches
	12	Underdrain Offset	3	3		inches
	13	Diameter of Underdrain or Hydromod Orifice (Select Smallest)	1.38	0.82		inches
	14	Specialized Soil Media Filtration Rate				in/hr
	15	Specialized Soil Media Pore Space for Retention				unitless
	16	Specialized Soil Media Pore Space for Biofiltration				unitless
Retention Calculations	17	Specialized Gravel Media Pore Space				unitless
	18	Volume Infiltrated Over 6 Hour Storm	0	0	105	cubic-feet
	19	Ponding Pore Space Available for Retention	0.00	0.00	1.00	unitless
	20	Soil Media Pore Space Available for Retention	0.05	0.05	0.25	unitless
	21	Gravel Pore Space Available for Retention (Above Underdrain)	0.00	0.00	0.40	unitless
	22	Gravel Pore Space Available for Retention (Below Underdrain)	0.40	0.40	0.40	unitless
	23	Effective Retention Depth	2.25	2.25	15.30	inches
	24	Fraction of DCV Retained (Independent of Drawdown Time)	0.10	0.56	0.66	ratio
	25	Calculated Retention Storage Drawdown Time	120	120	61	hours
	26	Efficacy of Retention Processes	0.12	0.51	0.70	ratio
Biofiltration Calculations	27	Volume Retained by BMP (Considering Drawdown Time)	517	162	1,247	cubic-feet
	28	Design Capture Volume Remaining for Biofiltration	3,766	159	533	cubic-feet
	29	Max Hydromod Flow Rate through Underdrain	0.0858	0.0304	0.0000	cfs
	30	Max Soil Filtration Rate Allowed by Underdrain Orifice	1.66	1.37	0.00	in/hr
	31	Soil Media Filtration Rate per Specifications	5.00	5.00	5.00	in/hr
	32	Soil Media Filtration Rate to be used for Sizing	1.66	1.37	0.00	in/hr
	33	Depth Biofiltered Over 6 Hour Storm	9.94	8.19	0.00	inches
	34	Ponding Pore Space Available for Biofiltration	1.00	1.00	0.00	unitless
	35	Soil Media Pore Space Available for Biofiltration	0.20	0.20	0.00	unitless
	36	Gravel Pore Space Available for Biofiltration (Above Underdrain)	0.40	0.40	0.00	unitless
	37	Effective Depth of Biofiltration Storage	13.80	13.80	0.00	inches
	38	Drawdown Time for Surface Ponding	4	4	24	hours
	39	Drawdown Time for Effective Biofiltration Depth	8	10	0	hours
	40	Total Depth Biofiltered	23.74	21.99	0.00	inches
	41	Option 1 - Biofilter 1.50 DCV: Target Volume	5,648	238	800	cubic-feet
	42	Option 1 - Provided Biofiltration Volume	4,427	238	0	cubic-feet
Result	43	Option 2 - Store 0.75 DCV: Target Volume	2,824	119	400	cubic-feet
	44	Option 2 - Provided Storage Volume	2,574	119	0	cubic-feet
	45	Portion of Biofiltration Performance Standard Satisfied	0.91	1.00	0.00	ratio
	46	Do Site Design Elements and BMPs Satisfy Annual Retention Requirements?	Yes	Yes	Yes	yes/no
	47	Overall Portion of Performance Standard Satisfied (BMP Efficacy Factor)	1.00	1.00	0.70	ratio
	48	Deficit of Effectively Treated Stormwater	0	0	-534	cubic-feet

Attention!

- BMPs sized at <3% of the effective tributary areas must be accompanied by Reduced Size BMP Maintenance calculations (see last tab).

-This BMP does not fully satisfy the performance standards for pollutant control for the drainage area.

See next sheet for Reduced Size BMP Maintenance

Automated Worksheet B.4: Reduced Size BMP Maintenance Interval (V2.0)

Category	#	Description	<i>iii</i>	Units
Drainage Basin Info	1	Drainage Basin ID or Name	DMA-3	unitless
	2	Final Effective Tributary Area	30,949	sq-ft
	3	Provided BMP Surface Area	839	sq-ft
Biofiltration Clogging Inputs	4	Average Annual Precipitation	14.0	inches
	5	Load to Clog (default =2.0)	2.0	lb/sq-ft
	6	TSS Pretreatment Efficacy		yes/no
	7	Percentage "Commercial"		percentage
	8	Percentage "Education"		percentage
	9	Percentage "Industrial"		percentage
	10	Percentage "Low Traffic Areas"		percentage
	11	Percentage "Multi-Family Residential"		percentage
	12	Percentage "Roof Areas"		percentage
	13	Percentage "Single Family Residential"		percentage
	14	Percentage "Transportation"	100%	percentage
	15	Percentage "Vacant/Open Space"		percentage
	16	Percentage "Steep Hillslopes"		percentage
Result	17	Total Percentage of Above Land Uses	100%	percentage
	18	Average TSS Concentration for Tributary After Pretreatment	70	mg/L
	19	Average Annual Runoff Volume	36,107	cubic-feet
	20	Average Annual TSS Load	158	lb/yr
	21	Available Sediment Storage within BMP	1,678	lb
	22	Anticipated Major Maintenance Frequency	10.6	years
No Warning Messages				

BMP meets 10 year minimum
maintenance threshold

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:

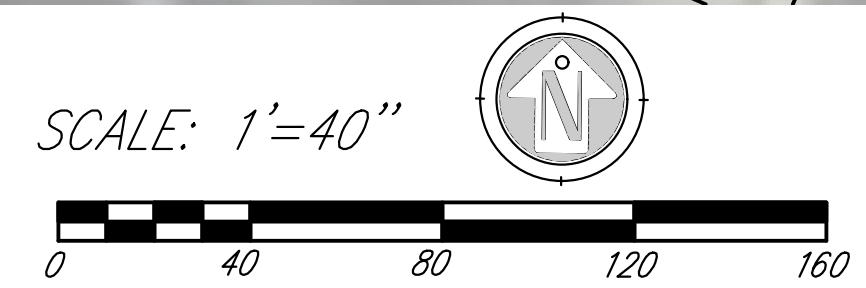
Attachment Sequence	Contents	Checklist
Attachment 2a	Hydromodification Management Exhibit (Required)	☒ Included See Hydromodification Management Exhibit Checklist on the back of this Attachment cover sheet.
Attachment 2b	Management of Critical Coarse Sediment Yield Areas (WMAA Exhibit is required, additional 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

Attachment 2A:
Hydromodification Management Exhibit

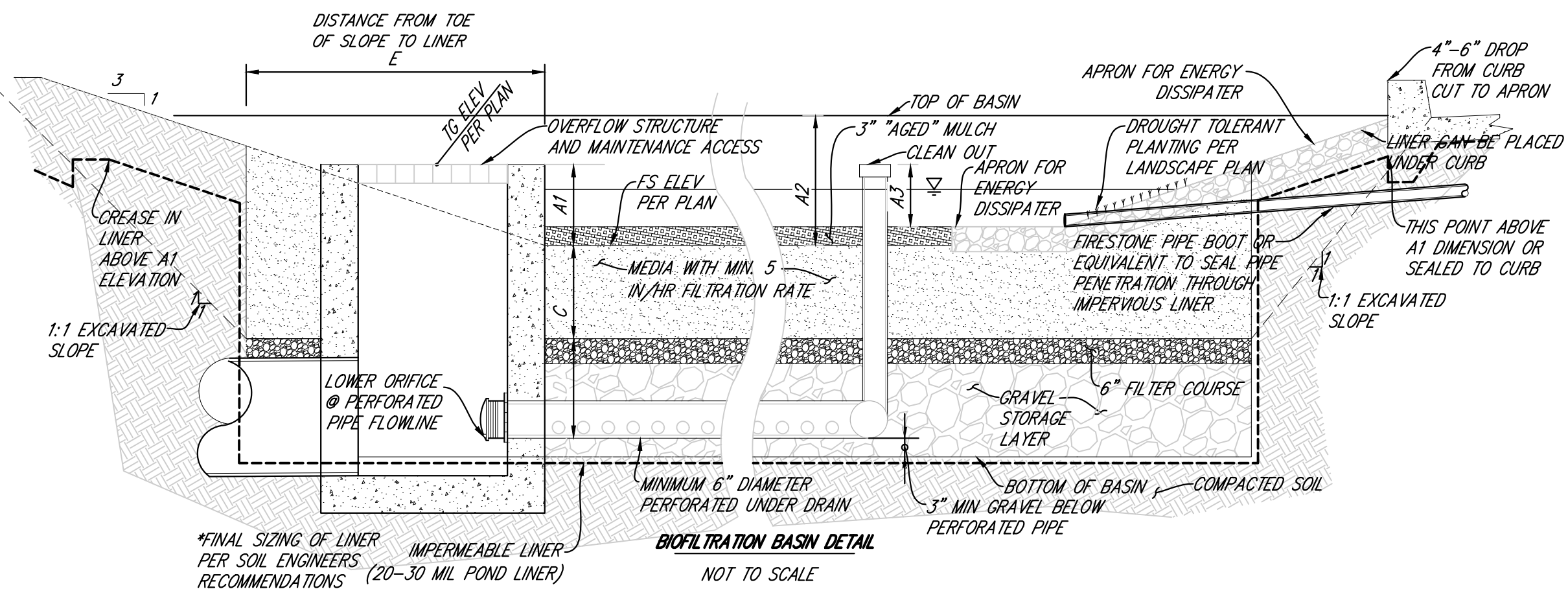
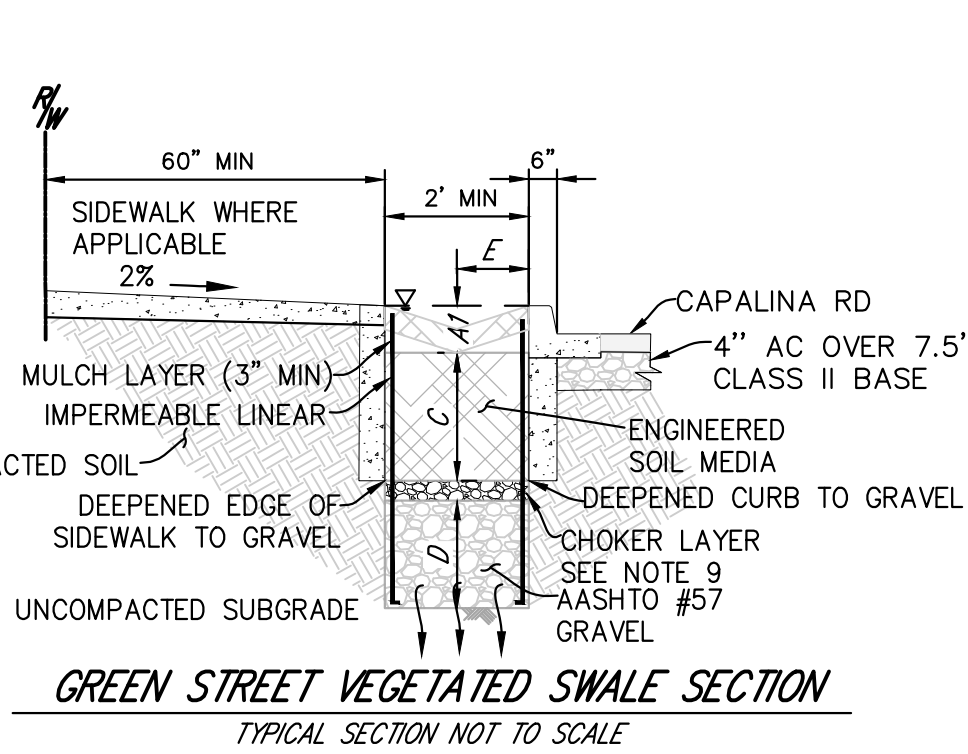
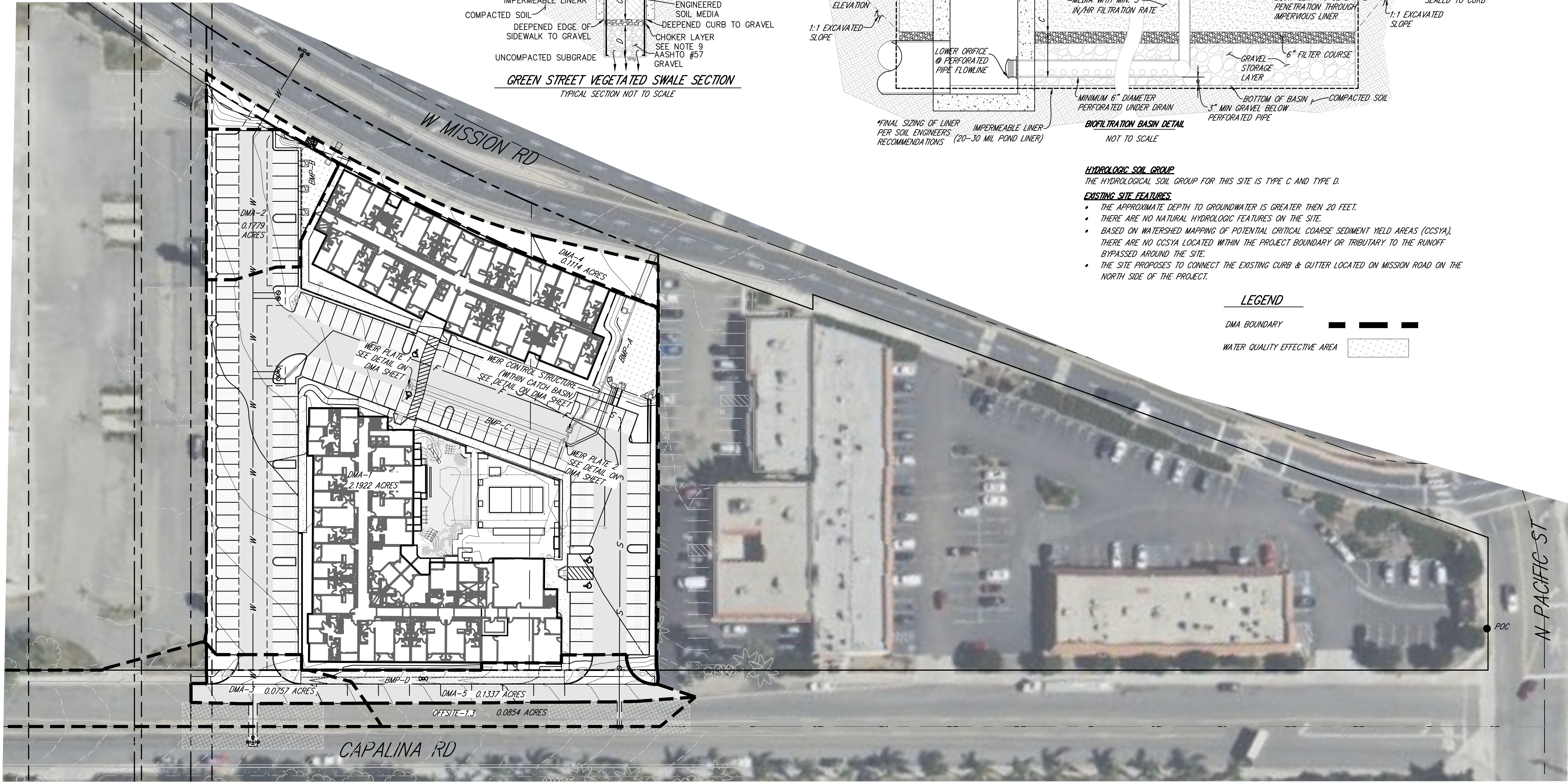
Use this checklist to ensure the required information has been included on the Hydromodification Management Exhibit:

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)



RILLING ENTERPRISES CAPALINA
APARTMENTS PRE DEVELOPMENT
HYDROMODIFICATION EXHIBIT



HYDROLOGIC SOIL GROUP

THE HYDROLOGICAL SOIL GROUP FOR THIS SITE IS TYPE C AND TYPE D.

EXISTING SITE FEATURES

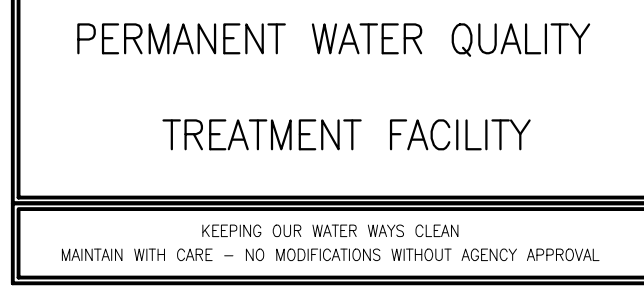
- THE APPROXIMATE DEPTH TO GROUNDWATER IS GREATER THAN 20 FEET.
- THERE ARE NO NATURAL HYDROLOGIC FEATURES ON THE SITE.
- BASED ON WATERSHED MAPPING OF POTENTIAL CRITICAL COARSE SEDIMENT YIELD AREAS (CCSYA), THERE ARE NO CCSYA LOCATED WITHIN THE PROJECT BOUNDARY OR TRIBUTARY TO THE RUNOFF BYPASSED AROUND THE SITE.
- THE SITE PROPOSES TO CONNECT THE EXISTING CURB & GUTTER LOCATED ON MISSION ROAD ON THE NORTH SIDE OF THE PROJECT.

LEGEND



WATER QUALITY BASIN INSTALLATION NOTES:

1. 3 INCHES OF COCONUT COIR.
2. AN UNDERDRAIN CLEANOUT WITH A MINIMUM 6-INCH DIAMETER AND LOCKABLE CAP IS PLACED EVERY 250 TO 300 FEET AS REQUIRED BASED ON UNDERDRAIN LENGTH.
3. VEGETATION USED SHOULD BE SUITABLE FOR THE CLIMATE PER LANDSCAPE PLANS
4. FILTER COARSE IS A MINIMUM OF 6 INCHES PROVIDED IN TWO SEPARATE 3 INCH LAYERS. THE TOP LAYER SHALL BE MADE OF ASTM C33 CHOKER SAND AND THE BOTTOM LAYER BE OF ASTM NO. 8 AGGREGATE. MARKERS STAKES SHALL BE USED TO ENSURE UNIFORM LIFT THICKNESS.
5. AASHTO NO. 57 STONE OR CLASS 2 PERMEABLE PER CAL TRANS SPECIFICATION 68-1.025 IS RECOMMENDED FOR THE AGGREGATE STORAGE LAYER. WASHED, OPEN-GRADED CRUSHED ROCK MAY BE USED, HOWEVER, A 4 INCH MINIMUM WASHED PEA GRAVEL FILTER COURSE LAYER AT THE TOP OF THE CRUSHED ROCK IS REQUIRED.
6. IMPERMEABLE LINER SHALL BE INSTALLED WHEN THE BIOFILTRATION BASIN IS WITHIN 10 FEET OF RETAINING WALLS OR BUILDING FOUNDATIONS, OR AS RECOMMENDED BY THE SOILS ENGINEER, OR REQUIRED BY THESE PLANS. IMPERMEABLE LINER SHALL BE 30 MIL THICK (PER COUNTY OF SAN DIEGO GREEN STREETS DESIGN STANDARD DRAWING GS-3.00 AND COUNTY GREEN STREETS SUPPLEMENT TO CAL TRANS SPECIFICATIONS 20-11.08B) CONFIGURED TO ENTIRELY ENCOMPASS THE SIDES OF THE WATER QUALITY BASIN.
7. IMPERMEABLE LINER BE CONSTRUCTED IN COMPLIANCE WITH THE COUNTY OF SAN DIEGO GREEN STREETS SUPPLEMENT TO CAL TRANS SPECIFICATIONS 20-11.08B.
8. BIOFILTRATION SOIL MEDIA LAYER (BSM) SHALL CONSIST OF 60% TO 80% BY VOLUME SAND, UP TO 20% BY VOLUME TOPSOIL, AND UP TO 20% BY VOLUME COMPOST (PER CITY OF SAN MARCOS BMP DESIGN MANUAL FEBRUARY 2023 APPENDIX F.3 SECTION 803-2 BLENDED BSM CRITERIA AND TESTING REQUIREMENTS). BSM SHALL BE LIGHTLY COMPACTED AND PLACED IN LOOSE LIFTS APPROXIMATELY 12 INCHES TO ENSURE REASONABLE SETTLEMENT WITHOUT EXCESSIVE COMPACTION (PER CITY OF SAN MARCOS BMP DESIGN MANUAL FEBRUARY 2023 APPENDIX F.3 SECTION 803-6 DELIVERY, STORAGE, HANDLING, AND PAYMENT). BSM PERMEABILITY REQUIRES 8-24 INCHES/HOUR FOR BMPs WITHOUT OUTLET CONTROL; 15-80 INCHES/HOUR FOR BMPs WITH OUTLET CONTROL; TESTING IS REQUIRED TO DEMONSTRATE (PER CITY OF SAN MARCOS BMP DESIGN MANUAL FEBRUARY 2023 APPENDIX F.3 SECTION 803-8 SUMMARY).
9. THE AGGREGATE STORAGE LAYER SHALL BE COMPACTED IN ACCORDANCE WITH SOILS ENGINEER'S RECOMMENDATIONS.
10. OVERFLOW STRUCTURE TO HAVE A MINIMUM OF 12 INCHES OF FREEBOARD.
11. ALL LINER INSTALLATIONS, FIELD WELDING OF SEAMS, AND OBSERVATION OF SOIL MIX PLACEMENT SHALL REQUIRE SPECIAL INSPECTION BY THE PROJECT GEOTECHNICAL ENGINEER OR OTHER QUALIFIED PERSON. A LETTER CERTIFYING PROPER INSTALLATION SHALL BE PROVIDED TO THE ENGINEER OF RECORD TO ACCEPTANCE OF THE FACILITIES.
12. SPECIAL INSPECTION SHALL BE REQUIRED FOR CONSTRUCTION OF ALL BIOFILTRATION BASINS. INSPECTION SHALL BE PERFORMED BY A QUALIFIED INDIVIDUAL (SUCH AS: ENGINEER OF RECORD, GSD). INSPECTION SHALL INCLUDE:
 - VERIFICATION OF OVERALL DIMENSIONS PRIOR TO PLACEMENT OF MATERIALS;
 - PLACEMENT OF THE LINER, IF REQUIRED; AND SEAMS OR PENETRATIONS
 - PLACEMENT OF THE GRAVEL, FILTER MATERIALS, AND FILTER MEDIA;
 - ALL INLET AND OUTLET STRUCTURES INCLUDING UNDERDRAINS, IF REQUIRED.
 - CONTRACTOR SHALL TAKE PICTURES AT EACH STAGE OF INSTALLATION AND SUBMITTED TO ENGINEER FOR VERIFICATION OF INSTALL.INSPECTOR SHALL BE GIVEN A MINIMUM OF 48 HOURS PRIOR TO INSPECTION. UPON COMPLETION THE INSPECTOR SHALL PROVIDE A CERTIFICATION TO THE ENGINEER OF WORK.
13. PROPOSED MATERIALS, SUCH AS AGGREGATE, FILTER MATERIAL, AND FILTER MEDIA SHALL BE SUBMITTED TO THE ENGINEER OF WORK FOR APPROVAL.



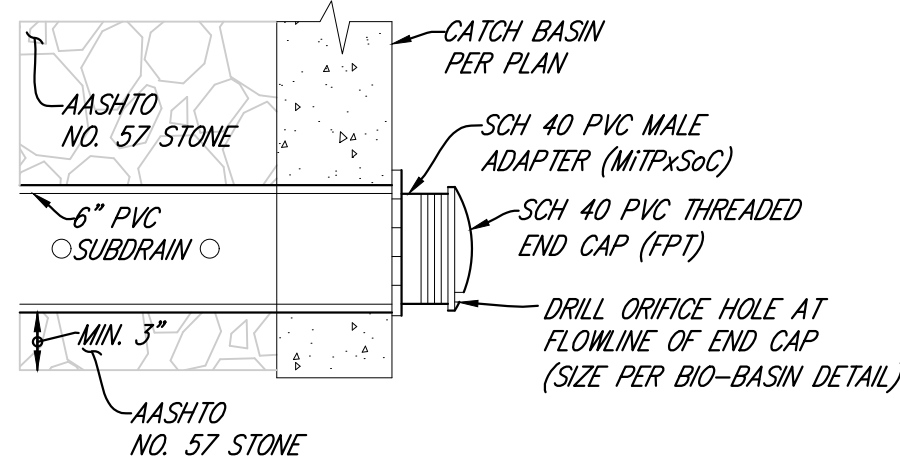
DETAIL WATER QUALITY SIGN- PLACED AT EACH BIOFILTRATION BASIN

NOTE: ALL BIOFILTRATION AREAS WILL HAVE A SIGN POSTED TO BE VISIBLE AT ALL TIMES.



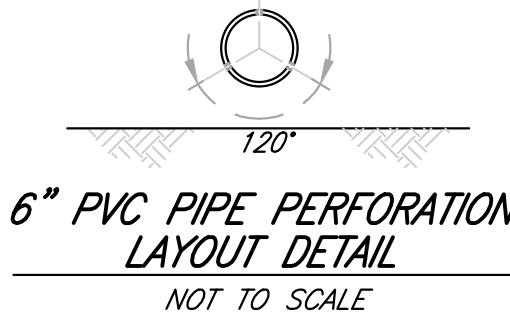
DETAIL "NO DUMPING" AT CATCH BASINS

NOTE: ALL CATCH BASINS WITH GRATES SHALL BE STENCILED WITH CITY REQUIRED ITEM PER ABOVE DETAIL (DAS MANUFACTURING #SDO OR EQUIVALENT).



LOWER ORIFICE DETAIL

NOT TO SCALE



6" PVC PIPE PERFORATION LAYOUT DETAIL

NOT TO SCALE

SCALE: 1"=40'



RILLING ENTERPRISES CAPALINA APARTMENTS HYDROMOD EXHIBIT

Attachment 2B:

Management of Critical Coarse Sediment Yield Areas

Attachment 2C:
Geomorphic Assessment of Receiving Channels

NOT PERFORMED

Attachment 2D:

Flow Control Facility Design

```

1  [TITLE]
2  ;;Project Title/Notes
3
4  [OPTIONS]
5  ;;Option      Value
6  FLOW_UNITS     CFS
7  INFILTRATION   GREEN_AMPT
8  FLOW_ROUTING   KINWAVE
9  LINK_OFFSETS   DEPTH
10 MIN_SLOPE       0
11 ALLOW_PONDING   YES
12 SKIP_STEADY_STATE NO
13
14 START_DATE      09/24/1964
15 START_TIME      00:00:00
16 REPORT_START_DATE 09/24/1964
17 REPORT_START_TIME 00:00:00
18 END_DATE        05/23/2008
19 END_TIME        23:00:00
20 SWEEP_START     01/01
21 SWEEP_END       12/31
22 DRY_DAYS        0
23 REPORT_STEP     01:00:00
24 WET_STEP        00:10:00
25 DRY_STEP        24:00:00
26 ROUTING_STEP    0:01:00
27 RULE_STEP       00:00:00
28
29 INERTIAL_DAMPING PARTIAL
30 NORMAL_FLOW_LIMITED BOTH
31 FORCE_MAIN_EQUATION H-W
32 VARIABLE_STEP    0.75
33 LENGTHENING_STEP 0
34 MIN_SURFAREA     12.557
35 MAX_TRIALS       8
36 HEAD_TOLERANCE   0.005
37 SYS_FLOW_TOL     5
38 LAT_FLOW_TOL     5
39 MINIMUM_STEP     0.5
40 THREADS          1
41
42 [EVAPORATION]
43 ;;Data Source   Parameters
44 ;;-----
45 MONTHLY         0.06   0.08   0.11   0.16   0.18   0.21   0.21   0.2   0.16   0.12   0.08   0.06
46 DRY_ONLY        NO
47
48 [RAINGAGES]
49 ;;Name          Format    Interval SCF      Source
50 ;;-----
51 Escondido       INTENSITY 1:00      1.0      TIMESERIES Escondido
52

```

```

53 [SUBCATCHMENTS]
54 ;;Name Rain Gage Outlet Area %Imperv Width %Slope CurbLen SnowPack
55 ;;-----
56 DMA-1 Escondido POC-1 2.4838 0 420 3.9 0
57 DMA-2 Escondido POC-1 0.1328 0 25.464 3.2 0
58 DMA-3 Escondido DMA-2 0.0742 0 25.464 3.2 0
59 OFFSITE-1.1 Escondido OFFSITE-1.2 0.1622 100 35 3.2 0
60 OFFSITE-1.2 Escondido POC-1 0.3597 100 35 3.2 0
61 OFFSITE-1.3 Escondido POC-1 0.0854 100 10 3.2 0
62
63 [SUBAREAS]
64 ;;Subcatchment N-Imperv N-Perv S-Imperv S-Perv PctZero RouteTo PctRouted
65 ;;-----
66 DMA-1 0.03 0.15 0.05 0.1 25 OUTLET
67 DMA-2 0.03 0.15 0.05 0.1 25 OUTLET
68 DMA-3 0.03 0.15 0.05 0.1 25 OUTLET
69 OFFSITE-1.1 0.03 0.15 0.05 0.1 25 OUTLET
70 OFFSITE-1.2 0.03 0.15 0.05 0.1 25 OUTLET
71 OFFSITE-1.3 0.03 0.15 0.05 0.1 25 OUTLET
72
73 [INFILTRATION]
74 ;;Subcatchment Suction Ksat IMD
75 ;;-----
76 DMA-1 9 0.01875 0.3
77 DMA-2 9 0.01875 0.33
78 DMA-3 6 0.075 0.32
79 OFFSITE-1.1 9 0.01875 0.33
80 OFFSITE-1.2 6 0.075 0.32
81 OFFSITE-1.3 9 0.01875 0.33
82
83 [OUTFALLS]
84 ;;Name Elevation Type Stage Data Gated Route To
85 ;;-----
86 POC-1 0 FREE NO
87
88 [TIMESERIES]
89 ;;Name Date Time Value
90 ;;-----
91 Escondido FILE "R:\_Storm\HydMOD\Rain gauge Data\Escondido\Escondido.prn"
92
93 [REPORT]
94 ;;Reporting Options
95 INPUT YES
96 CONTROLS YES
97 SUBCATCHMENTS ALL
98 NODES ALL
99 LINKS ALL
100
101 [TAGS]
102
103 [MAP]
104 DIMENSIONS 6262927.560 2031129.642 6269704.935 2035647.892

```

```

105 Units      Feet
106
107 [COORDINATES]
108 ;;Node      X-Coord      Y-Coord
109 ;;-----
110 POC-1        6265392.566    2034628.504
111
112 [VERTICES]
113 ;;Link      X-Coord      Y-Coord
114 ;;-----
115
116 [Polygons]
117 ;;Subcatchment X-Coord      Y-Coord
118 ;;-----
119 DMA-1        6265650.752    2033555.697
120 DMA-2        6265352.503    2032794.495
121 DMA-3        6264310.857    2032834.558
122 OFFSITE-1.1  6263652.038    2033462.216
123 OFFSITE-1.2  6264217.376    2033484.474
124 OFFSITE-1.3  6265632.946    2032638.693
125
126 [SYMBOLS]
127 ;;Gage      X-Coord      Y-Coord
128 ;;-----
129 Escondido    6264417.692    2034695.276
130
131

```

Element Count

Number of rain gages 1

Number of subcatchments ... 6

Number of nodes 1

Number of links 0

Number of pollutants 0

Number of land uses 0

Raingage Summary

Name	Data Source	Data Type	Recording Interval
Escondido	Escondido	INTENSITY	60 min.

Subcatchment Summary

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
DMA-1	2.48	420.00	0.00	3.9000	Escondido	POC-1
DMA-2	0.13	25.46	0.00	3.2000	Escondido	POC-1
DMA-3	0.07	25.46	0.00	3.2000	Escondido	DMA-2
OFFSITE-1.1	0.16	35.00	100.00	3.2000	Escondido	OFFSITE-1.2
OFFSITE-1.2	0.36	35.00	100.00	3.2000	Escondido	POC-1
OFFSITE-1.3	0.09	10.00	100.00	3.2000	Escondido	POC-1

Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
POC-1	OUTFALL	0.00	0.00	0.0	

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.

53 *****
54
55 *****
56 Analysis Options
57 *****
58 Flow Units CFS
59 Process Models:
60 Rainfall/Runoff YES
61 RDII NO
62 Snowmelt NO
63 Groundwater NO
64 Flow Routing NO
65 Water Quality NO
66 Infiltration Method GREEN_AMPT
67 Starting Date 09/24/1964 00:00:00
68 Ending Date 05/23/2008 23:00:00
69 Antecedent Dry Days 0.0
70 Report Time Step 01:00:00
71 Wet Time Step 00:10:00
72 Dry Time Step 00:00:00
73
74

75 *****
76 Control Actions Taken
77 *****
78
79

80 *****	Volume	Depth
81 Runoff Quantity Continuity	acre-feet	inches
82 *****	-----	-----
83 Total Precipitation	167.983	611.200
84 Evaporation Loss	10.928	39.762
85 Infiltration Loss	96.197	350.010
86 Surface Runoff	62.162	226.173
87 Final Storage	0.004	0.014
88 Continuity Error (%)	-0.779	
89		

90 *****	Volume	Volume
91 Flow Routing Continuity	acre-feet	10^6 gal
92 *****	-----	-----
93		
94 Dry Weather Inflow	0.000	0.000
95 Wet Weather Inflow	62.161	20.256
96 Groundwater Inflow	0.000	0.000
97 RDII Inflow	0.000	0.000
98 External Inflow	0.000	0.000
99 External Outflow	62.161	20.256
100 Flooding Loss	0.000	0.000
101 Evaporation Loss	0.000	0.000
102 Exfiltration Loss	0.000	0.000
103 Initial Stored Volume	0.000	0.000
104 Final Stored Volume	0.000	0.000

105 Continuity Error (%) 0.000
106
107
108 *****
109 Subcatchment Runoff Summary
110 *****
111
112

113
114
115 Subcatchment
CFS
116

117 DMA-1 611.20 0.00 28.19 425.20 0.00 163.23 163.23 11.01
2.00 0.267
118 DMA-2 611.20 29.65 27.10 430.89 0.00 188.00 188.00 0.68
0.16 0.293
119 DMA-3 611.20 0.00 6.06 552.91 0.00 53.06 53.06 0.11
0.06 0.087
120 OFFSITE-1.1 611.20 0.00 89.61 0.00 524.68 0.00 524.68 2.31
0.14 0.858
121 OFFSITE-1.2 611.20 236.59 96.21 0.00 753.71 0.00 753.71 7.36
0.46 0.889
122 OFFSITE-1.3 611.20 0.00 93.02 0.00 520.26 0.00 520.26 1.21
0.08 0.851
123
124
125 Analysis begun on: Thu Mar 30 17:55:39 2023
126 Analysis ended on: Thu Mar 30 17:56:07 2023
127 Total elapsed time: 00:00:28

22060-CAPALINA-POST DEVELOPMENT HYDROMODIFICATION .INP FILE

```
1  [TITLE]
2  ;;Project Title/Notes
3      Drawdown Time:  5 hours
4      Drawdown Time:  5 hours
5
6  [OPTIONS]
7  ;;Option          Value
8  FLOW_UNITS        CFS
9  INFILTRATION      GREEN_AMPT
10 FLOW_ROUTING       KINWAVE
11 LINK_OFFSETS      DEPTH
12 MIN_SLOPE         0
13 ALLOW_PONDING      YES
14 SKIP_STEADY_STATE NO
15
16 START_DATE        09/24/1964
17 START_TIME        00:00:00
18 REPORT_START_DATE 09/24/1964
19 REPORT_START_TIME 00:00:00
20 END_DATE          05/23/2008
21 END_TIME          23:00:00
22 SWEEP_START       01/01
23 SWEEP_END         12/31
24 DRY_DAYS          0
25 REPORT_STEP       01:00:00
26 WET_STEP          00:10:00
27 DRY_STEP          24:00:00
28 ROUTING_STEP      0:01:00
29 RULE_STEP         00:00:00
30
31 INERTIAL_DAMPING   PARTIAL
32 NORMAL_FLOW_LIMITED BOTH
33 FORCE_MAIN_EQUATION H-W
34 VARIABLE_STEP     0.75
35 LENGTHENING_STEP  0
36 MIN_SURFAREA      12.557
37 MAX_TRIALS        8
38 HEAD_TOLERANCE    0.005
39 SYS_FLOW_TOL      5
40 LAT_FLOW_TOL      5
41 MINIMUM_STEP      0.5
42 THREADS           1
43
44 [EVAPORATION]
45 ;;Data Source      Parameters
46 ;;-----
47 MONTHLY            0.06   0.08   0.11   0.16   0.18   0.21   0.21   0.2   0.16   0.12   0.08   0.06
48 DRY_ONLY           NO
49
50 [RAINGAGES]
51 ;;Name            Format   Interval SCF      Source
52 ;;-----
```

53	Escondido	INTENSITY	1:00	1.0	TIMESERIES Escondido				
54									
55	[SUBCATCHMENTS]								
56	;;Name	Rain Gage	Outlet	Area	%Imperv	Width	%Slope	Curblen	SnowPack
57	;;								
58	DMA-1	Escondido	BMP-A	2.140817	85.45	420	2.8	0	
59	DMA-2	Escondido	BMP-B	0.155847	77	25.464	1.5	0	
60	DMA-3	Escondido	BMP-D	0.0757	86	25.464	4	0	
61	BMP-B	Escondido	POC-1	0.022091368	0	15	0	0	
62	BMP-D	Escondido	POC-1	0.01927	0	7	0.5	0	
63	BMP-A	Escondido	Sto-BMP-A	0.05137741	0	15	0	0	
64	DMA-5	Escondido	BMP-D	0.1144	100	25.464	4	0	
65	DMA-4	Escondido	POC-1	0.1114	0	25.464	1.7	0	
66	OFFSITE-1.1	Escondido	OFFSITE-1.2	0.1622	100	35	3.2	0	
67	OFFSITE-1.2	Escondido	POC-1	0.3597	100	35	3.2	0	
68	OFFSITE-1.3	Escondido	POC-1	0.0854	100	10	3.2	0	
69									
70	[SUBAREAS]								
71	;;Subcatchment	N-Imperv	N-Perv	S-Imperv	S-Perv	PctZero	RouteTo	PctRouted	
72	;;								
73	DMA-1	0.012	0.04	0.05	0.1	25	OUTLET		
74	DMA-2	0.012	0.04	0.05	0.1	25	OUTLET		
75	DMA-3	0.012	0.04	0.05	0.1	25	OUTLET		
76	BMP-B	0.012	0.08	0.05	0.1	25	OUTLET		
77	BMP-D	0.012	0.06	0.05	0.1	25	OUTLET		
78	BMP-A	0.012	0.08	0.05	0.1	25	OUTLET		
79	DMA-5	0.012	0.04	0.05	0.1	25	OUTLET		
80	DMA-4	0.012	0.04	0.05	0.1	25	OUTLET		
81	OFFSITE-1.1	0.03	0.15	0.05	0.1	25	OUTLET		
82	OFFSITE-1.2	0.03	0.15	0.05	0.1	25	OUTLET		
83	OFFSITE-1.3	0.03	0.15	0.05	0.1	25	OUTLET		
84									
85	[INFILTRATION]								
86	;;Subcatchment	Suction	Ksat	IMD					
87	;;								
88	DMA-1	9	0.01875	0.3					
89	DMA-2	9	0.01875	0.33					
90	DMA-3	6	0.1	0.32					
91	BMP-B	9	0.01875	0.33					
92	BMP-D	9	0.01875	0.33					
93	BMP-A	9	0.01875	0.33					
94	DMA-5	9	0.01875	0.33					
95	DMA-4	9	0.025	0.33					
96	OFFSITE-1.1	9	0.01875	0.33					
97	OFFSITE-1.2	6	0.075	0.32					
98	OFFSITE-1.3	9	0.01875	0.33					
99									
100	[LID_CONTROLS]								
101	;;Name	Type/Layer	Parameters						
102	;;								
103	BMP-A	BC							
104	BMP-A	SURFACE	6	0	0	0	5		

149	Spillway1 YES	BMP-C	BMP-C.2	TRANSVERSE	2.75	3.33	NO	0	0
150	CatchBasin YES	Sto-BMP-A	BMP-C	TRANSVERSE	0	3.33	NO	0	0
151	EmergencyRiser YES	Sto-BMP-A	POC-1	TRANSVERSE	0.7	3.33	NO	0	0
152	Spillway3 YES	BMP-C.2	POC-1	TRANSVERSE	2	3.33	NO	0	0
153	Spillway2 YES	BMP-C.2	POC-1	TRANSVERSE	1.5	3.33	NO	0	0
154									
155	[XSECTIONS]								
156	;;Link	Shape	Geom1	Geom2	Geom3	Geom4	Barrels	Culvert	
157	;;								
158	Orfice1	RECT_CLOSED	0.125	0.9338	0	0			
159	Orifice2	RECT_CLOSED	0.08333	0.08333	0	0			
160	Spillway1	RECT_OPEN	2.49	3.7	0	0			
161	CatchBasin	RECT_OPEN	1.72	16	0	0			
162	EmergencyRiser	RECT_OPEN	1.02	9	0	0			
163	Spillway3	RECT_OPEN	2	3	0	0			
164	Spillway2	RECT_OPEN	0.5	0.25	0	0			
165									
166	[CURVES]								
167	;;Name	Type	X-Value	Y-Value					
168	;;								
169	BMP-C	Storage	0	0					
170	BMP-C		0.4	800					
171	BMP-C		0.8	585					
172	BMP-C		1.2	1100					
173	BMP-C		1.6	755					
174	BMP-C		2	1185					
175	BMP-C		2.4	755					
176	BMP-C		2.8	1100					
177	BMP-C		3.2	585					
178	BMP-C		3.6	800					
179	BMP-C		4	5					
180	;								
181	Sto-BMP-A	Storage	0	1322.89					
182	Sto-BMP-A		0.22	1363.64					
183	Sto-BMP-A		0.47	1411.48					
184	Sto-BMP-A		0.72	1461.03					
185	Sto-BMP-A		0.97	1567.97					
186	Sto-BMP-A		1.22	2317.37					
187	Sto-BMP-A		1.47	4634.59					
188	Sto-BMP-A		1.72	7511.9					
189	;								
190	BMP-C.2	Storage	0	0					
191	BMP-C.2		0.4	367					
192	BMP-C.2		0.8	268					
193	BMP-C.2		1.2	507					
194	BMP-C.2		1.6	348					

```

195 BMP-C.2 2 542
196 BMP-C.2 2.4 348
197 BMP-C.2 2.8 502
198 BMP-C.2 3.2 273
199 BMP-C.2 3.6 362
200 BMP-C.2 4 4
201
202 [TIMESERIES]
203 ;;Name Date Time Value
204 ;;-----
205 Escondido FILE "R:\_Storm\HydMOD\Rain gauge Data\Escondido\Escondido.prn"
206
207 [REPORT]
208 ;;Reporting Options
209 INPUT YES
210 CONTROLS YES
211 SUBCATCHMENTS ALL
212 NODES ALL
213 LINKS ALL
214
215 [TAGS]
216
217 [MAP]
218 DIMENSIONS 6262927.560 2031129.642 6269704.935 2035647.892
219 Units Feet
220
221 [COORDINATES]
222 ;;Node X-Coord Y-Coord
223 ;;-----
224 POC-1 6265392.566 2034628.504
225 BMP-C 6266219.543 2033015.380
226 Sto-BMP-A 6266100.351 2034285.740
227 BMP-C.2 6265585.591 2033692.312
228
229 [VERTICES]
230 ;;Link X-Coord Y-Coord
231 ;;-----
232 Orifice2 6265402.927 2034132.855
233 Spillway1 6265596.336 2033052.987
234 Spillway3 6265585.591 2034401.478
235 Spillway2 6265542.611 2033960.935
236 Spillway2 6265472.769 2034240.304
237
238 [Polygons]
239 ;;Subcatchment X-Coord Y-Coord
240 ;;-----
241 DMA-1 6266736.912 2033342.026
242 DMA-2 6265223.410 2033600.212
243 DMA-3 6264711.490 2035167.132
244 BMP-B 6265210.055 2034089.875
245 BMP-D 6264684.781 2034646.309
246 BMP-A 6266736.912 2034049.811

```

247	DMA-5	6264689.232	2034263.482
248	DMA-4	6266011.321	2034606.246
249	OFFSITE-1.1	6263732.165	2035362.997
250	OFFSITE-1.2	6264822.777	2035371.900
251	OFFSITE-1.3	6265428.178	2035216.099
252			
253	[SYMBOLS]		
254	;;Gage	X-Coord	Y-Coord
255	;;-----	-----	-----
256	Escondido	6264417.692	2034695.276
257			
258			

Drawdown Time: 5 hours

Drawdown Time: 5 hours

Element Count

Number of rain gages 1

Number of subcatchments ... 11

Number of nodes 4

Number of links 7

Number of pollutants 0

Number of land uses 0

Raingage Summary

Name	Data Source	Data Type	Recording Interval
Escondido	Escondido	INTENSITY	60 min.

Subcatchment Summary

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
DMA-1	2.14	420.00	85.45	2.8000	Escondido	BMP-A
DMA-2	0.16	25.46	77.00	1.5000	Escondido	BMP-B
DMA-3	0.08	25.46	86.00	4.0000	Escondido	BMP-D
BMP-B	0.02	15.00	0.00	0.0000	Escondido	POC-1
BMP-D	0.02	7.00	0.00	0.5000	Escondido	POC-1
BMP-A	0.05	15.00	0.00	0.0000	Escondido	Sto-BMP-A
DMA-5	0.11	25.46	100.00	4.0000	Escondido	BMP-D
DMA-4	0.11	25.46	0.00	1.7000	Escondido	POC-1
OFFSITE-1.1	0.16	35.00	100.00	3.2000	Escondido	OFFSITE-1.2
OFFSITE-1.2	0.36	35.00	100.00	3.2000	Escondido	POC-1
OFFSITE-1.3	0.09	10.00	100.00	3.2000	Escondido	POC-1

LID Control Summary

Subcatchment	LID Control	No. of Units	Unit Area	Unit Width	% Area Covered	% Imperv Treated	% Perv Treated
--------------	-------------	--------------	-----------	------------	----------------	------------------	----------------

53	BMP-B	BMP-B	1	962.30	0.00	100.00	0.00	0.00
54	BMP-D	BMP-D	1	839.40	0.00	100.00	0.00	0.00
55	BMP-A	BMP-A	1	2238.00	0.00	100.00	0.00	0.00

56
57

58 *****
59 Node Summary
60 *****

61	Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
62	-----					
63	POC-1	OUTFALL	0.00	0.00	0.0	
64	BMP-C	STORAGE	0.00	4.00	0.0	
65	Sto-BMP-A	STORAGE	0.00	1.72	0.0	
66	BMP-C.2	STORAGE	0.00	4.00	0.0	

67
68
69

70 *****
71 Link Summary
72 *****

73	Name	From Node	To Node	Type	Length	%Slope	Roughness
74	-----						
75	Orfice1	BMP-C	BMP-C.2	ORIFICE			
76	Orifice2	BMP-C.2	POC-1	ORIFICE			
77	Spillway1	BMP-C	BMP-C.2	WEIR			
78	CatchBasin	Sto-BMP-A	BMP-C	WEIR			
79	EmergencyRiser	Sto-BMP-A	POC-1	WEIR			
80	Spillway3	BMP-C.2	POC-1	WEIR			
81	Spillway2	BMP-C.2	POC-1	WEIR			

82
83

84 *****
85 Cross Section Summary
86 *****

87	Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
88	-----							

89
90
91
92

93 *****
94 NOTE: The summary statistics displayed in this report are
95 based on results found at every computational time step,
96 not just on results from each reporting time step.
97 *****

98
99

100 Analysis Options
101 *****
102 Flow Units CFS
103 Process Models:
104 Rainfall/Runoff YES

105 RDII NO
 106 Snowmelt NO
 107 Groundwater NO
 108 Flow Routing YES
 109 Ponding Allowed YES
 110 Water Quality NO
 111 Infiltration Method GREEN_AMPT
 112 Flow Routing Method KINWAVE
 113 Starting Date 09/24/1964 00:00:00
 114 Ending Date 05/23/2008 23:00:00
 115 Antecedent Dry Days 0.0
 116 Report Time Step 01:00:00
 117 Wet Time Step 00:10:00
 118 Dry Time Step 00:00:00
 119 Routing Time Step 60.00 sec

120
121

122 *****
 123 Control Actions Taken
 124 *****

125
126

127 *****	Volume	Depth
128 Runoff Quantity Continuity	acre-feet	inches
129 *****	-----	-----
130 Initial LID Storage	0.016	0.059
131 Total Precipitation	167.988	611.200
132 Evaporation Loss	27.451	99.875
133 Infiltration Loss	21.465	78.096
134 Surface Runoff	52.994	192.810
135 LID Drainage	67.207	244.522
136 Final Storage	0.053	0.194
137 Continuity Error (%)	-0.693	

138
139

140 *****	Volume	Volume
141 Flow Routing Continuity	acre-feet	10^6 gal
142 *****	-----	-----
143 Dry Weather Inflow	0.000	0.000
144 Wet Weather Inflow	120.200	39.169
145 Groundwater Inflow	0.000	0.000
146 RDII Inflow	0.000	0.000
147 External Inflow	0.000	0.000
148 External Outflow	120.161	39.156
149 Flooding Loss	0.000	0.000
150 Evaporation Loss	0.000	0.000
151 Exfiltration Loss	0.000	0.000
152 Initial Stored Volume	0.000	0.000
153 Final Stored Volume	0.000	0.000
154 Continuity Error (%)	0.032	

155
156

157 *****
158 Highest Flow Instability Indexes
159 *****
160 All links are stable.
161
162
163 *****
164 Routing Time Step Summary
165 *****
166 Minimum Time Step : 60.00 sec
167 Average Time Step : 60.00 sec
168 Maximum Time Step : 60.00 sec
169 Percent in Steady State : 0.00
170 Average Iterations per Step : 1.00
171 Percent Not Converging : 0.00
172
173
174 *****
175 Subcatchment Runoff Summary
176 *****
177
178

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192

	Total Peak Precip Runoff in	Total Runoff Runon Coeff in	Total Evap in	Total Infil in	Imperv Runoff in	Perv Runoff in	Total Runoff in	Total Runoff 10^6 gal
Subcatchment CFS								
DMA-1 1.82 0.785	611.20	0.00	76.90	59.73	453.04	26.46	479.50	27.87
DMA-2 0.13 0.730	611.20	0.00	72.37	96.66	406.53	39.54	446.08	1.89
DMA-3 0.06 0.764	611.20	0.00	72.99	77.46	458.96	7.85	466.81	0.96
BMP-B 0.11 0.789	611.20	3146.85	792.84	0.00	0.00	0.00	2964.18	1.78
BMP-D 0.18 0.333	611.20	4985.91	742.82	2989.39	0.00	0.00	1863.22	0.97
BMP-A 1.84 0.955	611.20	19979.62	919.75	0.00	0.00	0.00	19665.70	27.44
DMA-5 0.10 0.869	611.20	0.00	85.57	0.00	530.97	0.00	530.97	1.65
DMA-4 0.09 0.222	611.20	0.00	18.14	459.30	0.00	135.64	135.64	0.41
OFFSITE-1.1 0.14 0.858	611.20	0.00	89.61	0.00	524.68	0.00	524.68	2.31
OFFSITE-1.2	611.20	236.59	96.21	0.00	753.71	0.00	753.71	7.36

193 0.46 0.889
OFFSITE-1.3 611.20 0.00 93.02 0.00 520.26 0.00 520.26 1.21
0.08 0.851

194
195
196 *****
197 LID Performance Summary
198 *****
199

200 -----
201
202 Total Evap Infil Surface Drain Initial Final Continuity
203 Subcatchment LID Control Inflow Loss Loss Outflow Outflow Storage Storage Error
204 in in in in in in in in %
205 -----
206 BMP-B BMP-B 3758.05 792.87 0.00 14.44 2949.84 2.10 2.93 0.00
207 BMP-D BMP-D 5597.11 742.85 2989.50 1863.29 0.00 2.10 3.54 0.00
208 BMP-A BMP-A 20590.82 919.78 0.00 5237.00 14429.42 2.10 6.76 -0.00

209 *****
210 Node Depth Summary
211 *****
212

213 -----
214 Average Maximum Maximum Time of Max Reported
215 Node Type Depth Depth HGL Occurrence Max Depth
216 Feet Feet Feet days hr:min Feet
217 -----
218 POC-1 OUTFALL 0.00 0.00 0.00 0 00:00 0.00
219 BMP-C STORAGE 0.00 2.92 2.92 10332 16:56 2.92
220 Sto-BMP-A STORAGE 0.00 0.10 0.10 10332 16:32 0.10
221 BMP-C.2 STORAGE 0.05 2.27 2.27 10332 16:56 2.27

222
223 *****
224 Node Inflow Summary
225 *****
226

227 -----
228
229 Maximum Maximum Time of Max Lateral Total Flow
230 Node Type Lateral Total Occurrence Inflow Inflow Balance
231 Inflow Inflow Occurrence Volume Volume Error
232 CFS CFS days hr:min 10^6 gal 10^6 gal Percent
233 -----
234 POC-1 OUTFALL 0.81 2.67 10332 16:56 11.7 39.2 0.000
235 BMP-C STORAGE 0.09 1.84 10332 16:32 20.1 27.4 0.005
236 Sto-BMP-A STORAGE 1.76 1.76 10332 16:51 7.31 7.31 0.014
237 BMP-C.2 STORAGE 0.00 1.85 10332 16:56 0 27.4 0.037

238
239 *****
240 Node Flooding Summary
241 *****
242

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
BMP-C	0.001	0	0	0	2.418	79	10332 16:55	1.85
Sto-BMP-A	0.000	0	0	0	0.139	3	10332 16:23	1.76
BMP-C.2	0.015	1	0	0	0.833	59	10332 16:55	1.86

Outfall Loading Summary

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
POC-1	5.34	0.07	2.67	39.153
System	5.34	0.07	2.67	39.153

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
Orfice1	ORIFICE	0.97	10332 16:56			0.00
Orifice2	ORIFICE	0.05	10332 16:56			0.00
Spillway1	WEIR	0.88	10332 16:56			0.00
CatchBasin	WEIR	1.76	10332 16:32			0.00
EmergencyRiser	WEIR	0.00	0 00:00			0.00
Spillway3	WEIR	1.39	10332 16:56			0.00
Spillway2	WEIR	0.42	10332 16:56			0.00

Conduit Surcharge Summary

```
295 *****
296
297 No conduits were surcharged.
298
299
300 Analysis begun on:  Fri Mar 31 10:56:28 2023
301 Analysis ended on:  Fri Mar 31 10:57:26 2023
302 Total elapsed time: 00:00:58
```

STATISTICS ANALYSIS OF THE SWMM FILES FOR:

DISCHARGE NODE: POC-1

ANALYSIS DETAILS

Stream Susceptibility to Channel Erosion: High
Low Flow Threshold = $(0.1)Q_2 = (0.1)1.500 = Q_{lf} = 0.1500$ (cfs)
Flow Control Upper Limit = $Q_{10} = 2.100$ (cfs)
Assumed time between storms (hours): 24

PRE-DEVELOPMENT SWMM FILE

SWMM file name: V:\22\22060\Engineering\Storm-TM\Working Files\Hydmod\working files after 2nd pcc\22060-Pre-Development.out
SWMM file time stamp: 3/30/2023 5:56:07 PM
Selected Node to Analyze: POC-1

POST-DEVELOPMENT MITIGATED SWMM FILE

SWMM file name: V:\22\22060\Engineering\Storm-TM\Working Files\Hydmod\working files after 2nd pcc\22060-Post-Development-1.out
SWMM file time stamp: 3/31/2023 10:57:26 AM
Selected Node to Analyze: POC-1

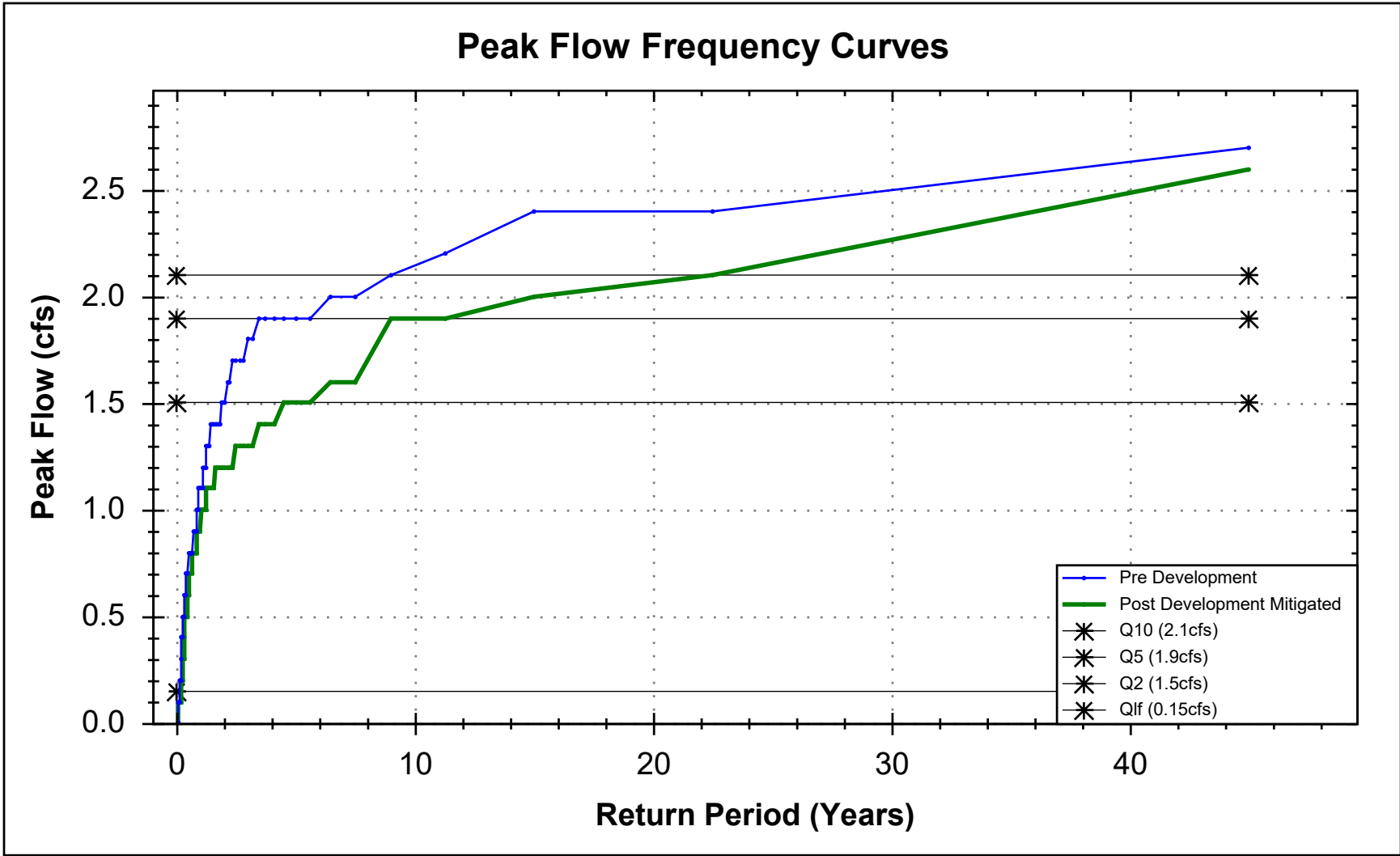
MITIGATED CONDITIONS RESULTS

For the Mitigated Conditions:

Peak Flow Conditions PASS
Flow Duration Conditions PASS

The Mitigated Conditions peak flow frequency curve is composed of 372 points. Of the points, 1 point(s) are above the flow control upper limit ($Q_{10} = 2.1$ (cfs)), 121 point(s) are below the low flow threshold value ($Q_{lf} = 0.15$ (cfs)). Of the points within the flow control range (Q_{lf} to Q_{10}), 250 point(s) have a lower peak flow rate than pre-development conditions. These points all pass. There are no points that failed, therefore the peak flow requirements have been met.

The Mitigated Conditions flow duration curve is composed of 100 flow bins (points). Each point represents the number of hours where the discharge was equal to or greater than the discharge value, but less than the next greater discharge value. Within the flow control range, comparing the post-development flow duration curve to the pre-development flow duration curve, 100 post-development curve point(s) have a lower flow duration than pre-development conditions. These points all pass. There are no points that failed, therefore the flow duration requirements have been met.



Compare Post-Development Curve to Pre-Development Curve							
Flow Control Upper Limit: 2.1 (cfs)							
Flow Control Lower Limit: 0.15 (cfs)							
post-development SWMM file: V:\22\22060\Engineering\Storm-TM\Working Files\Hydmod\working files after 2nd pcc\22060-Post-Development-1.out							
post-development time stamp: 3/31/2023 10:57:26 AM							
Compared to:							
pre-development SWMM file: V:\22\22060\Engineering\Storm-TM\Working Files\Hydmod\working files after 2nd pcc\22060-Pre-Development.out							
pre-development time stamp: 3/30/2023 5:56:07 PM							
Post PT #	Rtn Prd (yrs)	Post Dev Q (cfs)	Pre Dev Q (cfs)	Qpost < Qpre	Qpost > Qpre	Qpost > 110% Qpre	Pass/Fail
0	45.00	2.60	2.70	FALSE	FALSE	FALSE	Pass- Qpost Above Q10 (2.1 (cfs))
1	22.50	2.10	2.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
2	15.00	2.00	2.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
3	11.30	1.90	2.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
4	9.00	1.90	2.10	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
5	7.50	1.60	2.00	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
6	6.40	1.60	2.00	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
7	5.60	1.50	1.90	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
8	5.00	1.50	1.90	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
9	4.50	1.50	1.90	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
10	4.10	1.40	1.90	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
11	3.80	1.40	1.90	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
12	3.50	1.40	1.90	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
13	3.20	1.30	1.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
14	3.00	1.30	1.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
15	2.80	1.30	1.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
16	2.60	1.30	1.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
17	2.50	1.30	1.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
18	2.40	1.20	1.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
19	2.30	1.20	1.60	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
20	2.10	1.20	1.60	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
21	2.00	1.20	1.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
22	2.00	1.20	1.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
23	1.90	1.20	1.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
24	1.80	1.20	1.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
25	1.70	1.20	1.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
26	1.70	1.20	1.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
27	1.60	1.20	1.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
28	1.60	1.10	1.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
29	1.50	1.10	1.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
30	1.50	1.10	1.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
31	1.40	1.10	1.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre

Post PT #	Rtn Prd (yrs)	Post Dev Q (cfs)	Pre Dev Q (cfs)	Qpost < Qpre	Qpost > Qpre	Qpost > 110% Qpre	Pass/Fail
32	1.40	1.10	1.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
33	1.30	1.10	1.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
34	1.30	1.10	1.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
35	1.30	1.10	1.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
36	1.20	1.00	1.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
37	1.20	1.00	1.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
38	1.20	1.00	1.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
39	1.10	1.00	1.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
40	1.10	1.00	1.10	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
41	1.10	1.00	1.10	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
42	1.00	1.00	1.10	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
43	1.00	1.00	1.10	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
44	1.00	0.90	1.10	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
45	1.00	0.90	1.10	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
46	1.00	0.90	1.10	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
47	0.90	0.90	1.10	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
48	0.90	0.90	1.00	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
49	0.90	0.90	1.00	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
50	0.90	0.90	1.00	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
51	0.90	0.90	1.00	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
52	0.80	0.90	1.00	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
53	0.80	0.90	1.00	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
54	0.80	0.80	0.90	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
55	0.80	0.80	0.90	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
56	0.80	0.80	0.90	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
57	0.80	0.80	0.90	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
58	0.80	0.80	0.90	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
59	0.80	0.80	0.90	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
60	0.70	0.80	0.90	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
61	0.70	0.80	0.90	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
62	0.70	0.80	0.90	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
63	0.70	0.80	0.90	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
64	0.70	0.80	0.90	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
65	0.70	0.80	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
66	0.70	0.80	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
67	0.70	0.80	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
68	0.70	0.70	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
69	0.60	0.70	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
70	0.60	0.70	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
71	0.60	0.70	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
72	0.60	0.70	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
73	0.60	0.70	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre

Post PT #	Rtn Prd (yrs)	Post Dev Q (cfs)	Pre Dev Q (cfs)	Qpost < Qpre	Qpost > Qpre	Qpost > 110% Qpre	Pass/Fail
74	0.60	0.70	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
75	0.60	0.70	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
76	0.60	0.70	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
77	0.60	0.70	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
78	0.60	0.70	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
79	0.60	0.70	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
80	0.60	0.70	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
81	0.50	0.60	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
82	0.50	0.60	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
83	0.50	0.60	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
84	0.50	0.60	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
85	0.50	0.60	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
86	0.50	0.60	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
87	0.50	0.60	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
88	0.50	0.60	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
89	0.50	0.60	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
90	0.50	0.60	0.80	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
91	0.50	0.60	0.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
92	0.50	0.60	0.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
93	0.50	0.60	0.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
94	0.50	0.60	0.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
95	0.50	0.60	0.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
96	0.50	0.60	0.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
97	0.50	0.60	0.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
98	0.50	0.60	0.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
99	0.50	0.60	0.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
100	0.40	0.60	0.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
101	0.40	0.60	0.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
102	0.40	0.60	0.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
103	0.40	0.60	0.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
104	0.40	0.50	0.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
105	0.40	0.50	0.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
106	0.40	0.50	0.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
107	0.40	0.50	0.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
108	0.40	0.50	0.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
109	0.40	0.50	0.70	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
110	0.40	0.50	0.60	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
111	0.40	0.50	0.60	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
112	0.40	0.50	0.60	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
113	0.40	0.50	0.60	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
114	0.40	0.50	0.60	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
115	0.40	0.50	0.60	TRUE	FALSE	FALSE	Pass- Qpost < Qpre

Post PT #	Rtn Prd (yrs)	Post Dev Q (cfs)	Pre Dev Q (cfs)	Qpost < Qpre	Qpost > Qpre	Qpost > 110% Qpre	Pass/Fail
116	0.40	0.50	0.60	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
117	0.40	0.50	0.60	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
118	0.40	0.50	0.60	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
119	0.40	0.50	0.60	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
120	0.40	0.50	0.60	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
121	0.40	0.50	0.60	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
122	0.40	0.50	0.60	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
123	0.40	0.50	0.60	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
124	0.40	0.50	0.60	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
125	0.40	0.50	0.60	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
126	0.40	0.40	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
127	0.40	0.40	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
128	0.30	0.40	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
129	0.30	0.40	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
130	0.30	0.40	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
131	0.30	0.40	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
132	0.30	0.40	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
133	0.30	0.40	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
134	0.30	0.40	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
135	0.30	0.40	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
136	0.30	0.40	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
137	0.30	0.40	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
138	0.30	0.40	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
139	0.30	0.40	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
140	0.30	0.40	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
141	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
142	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
143	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
144	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
145	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
146	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
147	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
148	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
149	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
150	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
151	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
152	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
153	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
154	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
155	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
156	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
157	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre

Post PT #	Rtn Prd (yrs)	Post Dev Q (cfs)	Pre Dev Q (cfs)	Qpost < Qpre	Qpost > Qpre	Qpost > 110% Qpre	Pass/Fail
158	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
159	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
160	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
161	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
162	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
163	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
164	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
165	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
166	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
167	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
168	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
169	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
170	0.30	0.30	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
171	0.30	0.20	0.50	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
172	0.30	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
173	0.30	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
174	0.30	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
175	0.30	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
176	0.30	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
177	0.30	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
178	0.30	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
179	0.30	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
180	0.20	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
181	0.20	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
182	0.20	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
183	0.20	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
184	0.20	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
185	0.20	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
186	0.20	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
187	0.20	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
188	0.20	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
189	0.20	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
190	0.20	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
191	0.20	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
192	0.20	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
193	0.20	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
194	0.20	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
195	0.20	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
196	0.20	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
197	0.20	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
198	0.20	0.20	0.40	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
199	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre

Post PT #	Rtn Prd (yrs)	Post Dev Q (cfs)	Pre Dev Q (cfs)	Qpost < Qpre	Qpost > Qpre	Qpost > 110% Qpre	Pass/Fail
200	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
201	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
202	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
203	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
204	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
205	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
206	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
207	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
208	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
209	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
210	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
211	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
212	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
213	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
214	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
215	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
216	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
217	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
218	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
219	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
220	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
221	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
222	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
223	0.20	0.20	0.30	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
224	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
225	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
226	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
227	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
228	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
229	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
230	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
231	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
232	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
233	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
234	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
235	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
236	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
237	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
238	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
239	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
240	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
241	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre

Post PT #	Rtn Prd (yrs)	Post Dev Q (cfs)	Pre Dev Q (cfs)	Qpost < Qpre	Qpost > Qpre	Qpost > 110% Qpre	Pass/Fail
242	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
243	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
244	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
245	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
246	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
247	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
248	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
249	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
250	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass- Qpost < Qpre
251	0.20	0.10	0.20	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
252	0.20	0.10	0.20	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
253	0.20	0.10	0.20	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
254	0.20	0.10	0.20	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
255	0.20	0.10	0.20	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
256	0.20	0.10	0.20	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
257	0.20	0.10	0.20	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
258	0.20	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
259	0.20	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
260	0.20	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
261	0.20	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
262	0.20	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
263	0.20	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
264	0.20	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
265	0.20	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
266	0.20	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
267	0.20	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
268	0.20	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
269	0.20	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
270	0.20	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
271	0.20	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
272	0.20	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
273	0.20	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
274	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
275	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
276	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
277	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
278	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
279	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
280	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
281	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
282	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
283	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))

Post PT #	Rtn Prd (yrs)	Post Dev Q (cfs)	Pre Dev Q (cfs)	Qpost < Qpre	Qpost > Qpre	Qpost > 110% Qpre	Pass/Fail
284	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
285	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
286	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
287	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
288	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
289	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
290	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
291	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
292	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
293	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
294	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
295	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
296	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
297	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
298	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
299	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
300	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
301	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
302	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
303	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
304	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
305	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
306	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
307	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
308	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
309	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
310	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
311	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
312	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
313	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
314	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
315	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
316	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
317	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
318	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
319	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
320	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
321	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
322	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
323	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
324	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))
325	0.10	0.10	0.10	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 cfs))

[illegible]

Post PT #	Rtn Prd (yrs)	Post Dev Q (cfs)	Pre Dev Q (cfs)	Qpost < Qpre	Qpost > Qpre	Qpost > 110% Qpre	Pass/Fail
368	0.10	0.00	0.00	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 (cfs))
369	0.10	0.00	0.00	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 (cfs))
370	0.10	0.00	0.00	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 (cfs))
371	0.10	0.00	0.00	FALSE	FALSE	FALSE	Pass- Qpost Below Qlf (0.15 (cfs))

SWMM.out file name: V:\22\22060\Engineering\Storm-TM\Working Files\Hydmod\working files after 2nd pcc\22060-Pre-Development.out

SWMM.out time stamp: 3/30/2023 5:56:07 PM

Q10: 2.100 (cfs)

Q5: 1.900 (cfs)

Q2: 1.500 (cfs)

Peak Flow Statistics Table Values

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
1	1993/01/06 02:00:00	1993/01/10 22:00:00	117	2.7	0.10%	45
2	1971/02/23 04:00:00	1971/02/23 19:00:00	16	2.4	0.20%	22.5
3	1986/02/14 23:00:00	1986/02/16 06:00:00	32	2.4	0.30%	15
4	1995/01/23 21:00:00	1995/01/26 05:00:00	57	2.2	0.40%	11.25
5	1995/01/03 07:00:00	1995/01/05 16:00:00	58	2.1	0.60%	9
6	1983/12/24 19:00:00	1983/12/27 22:00:00	76	2	0.70%	7.5
7	1998/02/14 02:00:00	1998/02/20 21:00:00	164	2	0.80%	6.43
8	1966/12/03 05:00:00	1966/12/07 03:00:00	95	1.9	0.90%	5.63
9	1967/11/19 03:00:00	1967/11/23 12:00:00	106	1.9	1.00%	5
10	1978/01/14 14:00:00	1978/01/16 17:00:00	52	1.9	1.10%	4.5
11	1978/03/16 18:00:00	1978/03/18 17:00:00	48	1.9	1.20%	4.09
12	1983/02/26 12:00:00	1983/03/04 12:00:00	145	1.9	1.30%	3.75
13	2007/08/26 07:00:00	2007/08/26 11:00:00	5	1.9	1.40%	3.46
14	1981/02/08 17:00:00	1981/02/10 11:00:00	43	1.8	1.50%	3.21
15	1988/04/19 23:00:00	1988/04/22 08:00:00	58	1.8	1.70%	3
16	1967/04/11 08:00:00	1967/04/12 07:00:00	24	1.7	1.80%	2.81
17	1972/11/14 12:00:00	1972/11/14 18:00:00	7	1.7	1.90%	2.65
18	1983/11/24 23:00:00	1983/11/25 06:00:00	8	1.7	2.00%	2.5
19	2007/01/29 22:00:00	2007/01/31 16:00:00	43	1.7	2.10%	2.37
20	1969/01/24 04:00:00	1969/01/27 00:00:00	69	1.6	2.20%	2.25
21	1980/01/27 20:00:00	1980/01/30 23:00:00	76	1.6	2.30%	2.14
22	1998/01/09 02:00:00	1998/01/11 04:00:00	51	1.5	2.40%	2.05
23	2004/10/17 08:00:00	2004/10/21 07:00:00	96	1.5	2.50%	1.96
24	2005/01/07 04:00:00	2005/01/12 05:00:00	122	1.5	2.70%	1.88
25	1965/11/21 22:00:00	1965/11/23 09:00:00	36	1.4	2.80%	1.8
26	1967/12/18 14:00:00	1967/12/20 12:00:00	47	1.4	2.90%	1.73
27	1980/02/13 12:00:00	1980/02/21 13:00:00	194	1.4	3.00%	1.67
28	1991/03/19 00:00:00	1991/03/21 11:00:00	60	1.4	3.10%	1.61
29	1992/02/15 05:00:00	1992/02/16 01:00:00	21	1.4	3.20%	1.55
30	1993/01/12 14:00:00	1993/01/19 03:00:00	158	1.4	3.30%	1.5
31	1993/02/07 12:00:00	1993/02/10 01:00:00	62	1.4	3.40%	1.45
32	1998/02/03 02:00:00	1998/02/04 23:00:00	46	1.4	3.50%	1.41
33	1974/12/04 03:00:00	1974/12/04 18:00:00	16	1.3	3.60%	1.36
34	1980/03/02 20:00:00	1980/03/03 21:00:00	26	1.3	3.80%	1.32
35	1985/11/24 15:00:00	1985/11/25 23:00:00	33	1.3	3.90%	1.29
36	2007/11/30 07:00:00	2007/12/01 05:00:00	23	1.3	4.00%	1.25
37	1970/03/04 21:00:00	1970/03/05 04:00:00	8	1.2	4.10%	1.22
38	1979/01/05 07:00:00	1979/01/06 11:00:00	29	1.2	4.20%	1.18
39	1981/03/19 20:00:00	1981/03/20 12:00:00	17	1.2	4.30%	1.15

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
40	2004/10/27 02:00:00	2004/10/28 13:00:00	36	1.2	4.40%	1.13
41	1969/02/05 03:00:00	1969/02/06 21:00:00	43	1.1	4.50%	1.1
42	1978/02/05 00:00:00	1978/02/07 01:00:00	50	1.1	4.60%	1.07
43	1978/12/16 22:00:00	1978/12/19 15:00:00	66	1.1	4.80%	1.05
44	1980/01/07 14:00:00	1980/01/13 04:00:00	135	1.1	4.90%	1.02
45	1981/12/30 07:00:00	1982/01/02 13:00:00	79	1.1	5.00%	1
46	1982/03/17 18:00:00	1982/03/20 11:00:00	66	1.1	5.10%	0.98
47	2003/02/25 02:00:00	2003/02/28 19:00:00	90	1.1	5.20%	0.96
48	2004/02/26 01:00:00	2004/02/28 00:00:00	48	1.1	5.30%	0.94
49	1977/05/08 10:00:00	1977/05/10 03:00:00	42	1	5.40%	0.92
50	1979/01/17 06:00:00	1979/01/18 20:00:00	39	1	5.50%	0.9
51	1982/12/22 18:00:00	1982/12/23 04:00:00	11	1	5.60%	0.88
52	1993/11/14 06:00:00	1993/11/14 21:00:00	16	1	5.70%	0.87
53	1995/03/03 05:00:00	1995/03/06 07:00:00	75	1	5.90%	0.85
54	2006/04/04 18:00:00	2006/04/05 16:00:00	23	1	6.00%	0.83
55	1965/04/07 04:00:00	1965/04/12 05:00:00	122	0.9	6.10%	0.82
56	1970/11/28 20:00:00	1970/11/30 06:00:00	35	0.9	6.20%	0.8
57	1973/02/10 22:00:00	1973/02/13 04:00:00	55	0.9	6.30%	0.79
58	1976/04/14 11:00:00	1976/04/14 14:00:00	4	0.9	6.40%	0.78
59	1976/12/30 13:00:00	1976/12/31 16:00:00	28	0.9	6.50%	0.76
60	1983/03/22 12:00:00	1983/03/24 20:00:00	57	0.9	6.60%	0.75
61	1985/11/29 06:00:00	1985/11/30 03:00:00	22	0.9	6.70%	0.74
62	1991/02/27 13:00:00	1991/03/01 16:00:00	52	0.9	6.90%	0.73
63	1992/02/06 08:00:00	1992/02/07 07:00:00	24	0.9	7.00%	0.71
64	1998/02/06 02:00:00	1998/02/09 20:00:00	91	0.9	7.10%	0.7
65	2003/02/11 02:00:00	2003/02/15 03:00:00	98	0.9	7.20%	0.69
66	1965/12/09 04:00:00	1965/12/11 02:00:00	47	0.8	7.30%	0.68
67	1967/01/22 16:00:00	1967/01/23 08:00:00	17	0.8	7.40%	0.67
68	1967/01/24 15:00:00	1967/01/25 04:00:00	14	0.8	7.50%	0.66
69	1970/02/28 13:00:00	1970/03/02 10:00:00	46	0.8	7.60%	0.65
70	1970/12/16 22:00:00	1970/12/22 12:00:00	135	0.8	7.70%	0.64
71	1973/01/16 15:00:00	1973/01/17 02:00:00	12	0.8	7.80%	0.63
72	1974/01/04 17:00:00	1974/01/09 20:00:00	124	0.8	8.00%	0.63
73	1974/03/06 19:00:00	1974/03/08 17:00:00	47	0.8	8.10%	0.62
74	1976/02/03 17:00:00	1976/02/10 15:00:00	167	0.8	8.20%	0.61
75	1976/03/01 08:00:00	1976/03/03 11:00:00	52	0.8	8.30%	0.6
76	1976/09/09 19:00:00	1976/09/10 23:00:00	29	0.8	8.40%	0.59
77	1979/03/01 07:00:00	1979/03/01 23:00:00	17	0.8	8.50%	0.58
78	1981/02/28 15:00:00	1981/03/02 19:00:00	53	0.8	8.60%	0.58
79	1983/01/27 07:00:00	1983/01/29 08:00:00	50	0.8	8.70%	0.57
80	1991/03/25 06:00:00	1991/03/27 20:00:00	63	0.8	8.80%	0.56
81	1991/12/29 15:00:00	1991/12/30 07:00:00	17	0.8	9.00%	0.56
82	1992/01/02 23:00:00	1992/01/08 02:00:00	124	0.8	9.10%	0.55
83	1994/02/17 11:00:00	1994/02/19 05:00:00	43	0.8	9.20%	0.54
84	1994/03/24 21:00:00	1994/03/25 18:00:00	22	0.8	9.30%	0.54
85	1995/02/13 10:00:00	1995/02/15 17:00:00	56	0.8	9.40%	0.53
86	1995/03/11 02:00:00	1995/03/12 04:00:00	27	0.8	9.50%	0.52

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
87	1996/11/21 16:00:00	1996/11/23 07:00:00	40	0.8	9.60%	0.52
88	1998/02/22 02:00:00	1998/02/25 18:00:00	89	0.8	9.70%	0.51
89	2003/04/13 15:00:00	2003/04/16 02:00:00	60	0.8	9.80%	0.51
90	2004/02/21 15:00:00	2004/02/23 11:00:00	45	0.8	9.90%	0.5
91	2005/01/03 04:00:00	2005/01/05 05:00:00	50	0.8	10.10%	0.5
92	1965/11/14 07:00:00	1965/11/18 18:00:00	108	0.7	10.20%	0.49
93	1965/12/12 06:00:00	1965/12/13 12:00:00	31	0.7	10.30%	0.48
94	1965/12/29 08:00:00	1965/12/30 02:00:00	19	0.7	10.40%	0.48
95	1966/11/07 14:00:00	1966/11/07 23:00:00	10	0.7	10.50%	0.47
96	1969/01/13 17:00:00	1969/01/14 16:00:00	24	0.7	10.60%	0.47
97	1972/12/04 12:00:00	1972/12/04 23:00:00	12	0.7	10.70%	0.46
98	1975/03/08 08:00:00	1975/03/11 17:00:00	82	0.7	10.80%	0.46
99	1978/11/13 21:00:00	1978/11/14 15:00:00	19	0.7	10.90%	0.46
100	1980/03/06 00:00:00	1980/03/06 17:00:00	18	0.7	11.00%	0.45
101	1982/03/15 12:00:00	1982/03/16 03:00:00	16	0.7	11.20%	0.45
102	1986/11/17 18:00:00	1986/11/18 06:00:00	13	0.7	11.30%	0.44
103	1987/01/04 13:00:00	1987/01/07 12:00:00	72	0.7	11.40%	0.44
104	1988/01/17 03:00:00	1988/01/18 01:00:00	23	0.7	11.50%	0.43
105	1988/12/24 20:00:00	1988/12/26 04:00:00	33	0.7	11.60%	0.43
106	1992/02/12 18:00:00	1992/02/13 10:00:00	17	0.7	11.70%	0.43
107	1994/02/07 02:00:00	1994/02/08 10:00:00	33	0.7	11.80%	0.42
108	1996/01/31 04:00:00	1996/02/01 16:00:00	37	0.7	11.90%	0.42
109	2005/02/18 04:00:00	2005/02/23 16:00:00	133	0.7	12.00%	0.41
110	2005/12/31 16:00:00	2006/01/03 02:00:00	59	0.7	12.20%	0.41
111	1968/03/07 21:00:00	1968/03/08 16:00:00	20	0.6	12.30%	0.41
112	1969/01/18 22:00:00	1969/01/22 02:00:00	77	0.6	12.40%	0.4
113	1969/02/22 02:00:00	1969/02/26 09:00:00	104	0.6	12.50%	0.4
114	1970/03/08 07:00:00	1970/03/08 22:00:00	16	0.6	12.60%	0.4
115	1971/12/24 15:00:00	1971/12/26 03:00:00	37	0.6	12.70%	0.39
116	1973/03/08 08:00:00	1973/03/08 23:00:00	16	0.6	12.80%	0.39
117	1976/11/11 22:00:00	1976/11/12 14:00:00	17	0.6	12.90%	0.39
118	1983/03/20 20:00:00	1983/03/21 06:00:00	11	0.6	13.00%	0.38
119	1983/11/20 09:00:00	1983/11/21 13:00:00	29	0.6	13.10%	0.38
120	1986/02/07 19:00:00	1986/02/08 22:00:00	28	0.6	13.30%	0.38
121	1987/11/04 15:00:00	1987/11/05 19:00:00	29	0.6	13.40%	0.37
122	1987/12/16 12:00:00	1987/12/17 20:00:00	33	0.6	13.50%	0.37
123	1998/03/25 02:00:00	1998/04/02 17:00:00	208	0.6	13.60%	0.37
124	2001/01/10 20:00:00	2001/01/12 17:00:00	46	0.6	13.70%	0.36
125	2003/03/15 02:00:00	2003/03/17 18:00:00	65	0.6	13.80%	0.36
126	2004/02/02 23:00:00	2004/02/04 09:00:00	35	0.6	13.90%	0.36
127	1964/11/17 13:00:00	1964/11/18 02:00:00	14	0.5	14.00%	0.35
128	1965/12/14 14:00:00	1965/12/16 13:00:00	48	0.5	14.10%	0.35
129	1967/03/13 11:00:00	1967/03/14 01:00:00	15	0.5	14.30%	0.35
130	1968/04/01 19:00:00	1968/04/02 13:00:00	19	0.5	14.40%	0.35
131	1971/05/07 18:00:00	1971/05/08 05:00:00	12	0.5	14.50%	0.34
132	1971/05/28 01:00:00	1971/05/29 04:00:00	28	0.5	14.60%	0.34
133	1971/12/27 13:00:00	1971/12/28 19:00:00	31	0.5	14.70%	0.34

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
134	1972/11/11 01:00:00	1972/11/11 12:00:00	12	0.5	14.80%	0.34
135	1972/11/16 08:00:00	1972/11/17 14:00:00	31	0.5	14.90%	0.33
136	1973/01/18 20:00:00	1973/01/19 06:00:00	11	0.5	15.00%	0.33
137	1973/03/11 11:00:00	1973/03/12 08:00:00	22	0.5	15.10%	0.33
138	1973/11/22 19:00:00	1973/11/23 05:00:00	11	0.5	15.20%	0.33
139	1975/04/08 02:00:00	1975/04/09 18:00:00	41	0.5	15.40%	0.32
140	1976/04/11 19:00:00	1976/04/13 06:00:00	36	0.5	15.50%	0.32
141	1977/08/16 14:00:00	1977/08/17 23:00:00	34	0.5	15.60%	0.32
142	1978/03/11 17:00:00	1978/03/15 11:00:00	91	0.5	15.70%	0.32
143	1979/03/17 05:00:00	1979/03/17 11:00:00	7	0.5	15.80%	0.32
144	1979/03/27 03:00:00	1979/03/29 12:00:00	58	0.5	15.90%	0.31
145	1980/03/10 14:00:00	1980/03/10 23:00:00	10	0.5	16.00%	0.31
146	1982/02/09 16:00:00	1982/02/11 00:00:00	33	0.5	16.10%	0.31
147	1982/11/09 13:00:00	1982/11/11 04:00:00	40	0.5	16.20%	0.31
148	1982/11/29 15:00:00	1982/11/30 22:00:00	32	0.5	16.40%	0.3
149	1983/02/05 17:00:00	1983/02/08 14:00:00	70	0.5	16.50%	0.3
150	1983/03/17 04:00:00	1983/03/19 02:00:00	47	0.5	16.60%	0.3
151	1983/04/29 02:00:00	1983/05/01 10:00:00	57	0.5	16.70%	0.3
152	1985/11/11 03:00:00	1985/11/12 11:00:00	33	0.5	16.80%	0.3
153	1986/03/08 15:00:00	1986/03/14 05:00:00	135	0.5	16.90%	0.29
154	1986/03/15 20:00:00	1986/03/17 16:00:00	45	0.5	17.00%	0.29
155	1986/04/06 05:00:00	1986/04/06 22:00:00	18	0.5	17.10%	0.29
156	1986/09/23 20:00:00	1986/09/26 09:00:00	62	0.5	17.20%	0.29
157	1988/11/25 05:00:00	1988/11/26 15:00:00	35	0.5	17.30%	0.29
158	1988/12/21 01:00:00	1988/12/21 11:00:00	11	0.5	17.50%	0.29
159	1990/01/13 03:00:00	1990/01/17 16:00:00	110	0.5	17.60%	0.28
160	1992/12/07 08:00:00	1992/12/08 02:00:00	19	0.5	17.70%	0.28
161	1994/02/20 12:00:00	1994/02/21 00:00:00	13	0.5	17.80%	0.28
162	1994/04/28 00:00:00	1994/04/28 03:00:00	4	0.5	17.90%	0.28
163	1995/03/23 09:00:00	1995/03/24 07:00:00	23	0.5	18.00%	0.28
164	1996/12/09 15:00:00	1996/12/12 00:00:00	58	0.5	18.10%	0.27
165	1997/01/12 13:00:00	1997/01/14 03:00:00	39	0.5	18.20%	0.27
166	2002/12/20 02:00:00	2002/12/22 00:00:00	47	0.5	18.30%	0.27
167	2004/03/02 00:00:00	2004/03/03 11:00:00	36	0.5	18.50%	0.27
168	2004/12/28 06:00:00	2004/12/31 21:00:00	88	0.5	18.60%	0.27
169	2006/03/10 13:00:00	2006/03/11 17:00:00	29	0.5	18.70%	0.27
170	2008/01/05 01:00:00	2008/01/07 10:00:00	58	0.5	18.80%	0.27
171	2008/02/03 06:00:00	2008/02/04 05:00:00	24	0.5	18.90%	0.26
172	2008/02/22 02:00:00	2008/02/22 16:00:00	15	0.5	19.00%	0.26
173	1965/03/31 14:00:00	1965/04/05 15:00:00	122	0.4	19.10%	0.26
174	1973/03/20 08:00:00	1973/03/22 05:00:00	46	0.4	19.20%	0.26
175	1978/03/30 14:00:00	1978/04/01 01:00:00	36	0.4	19.30%	0.26
176	1978/04/07 01:00:00	1978/04/08 12:00:00	36	0.4	19.40%	0.26
177	1979/01/31 00:00:00	1979/02/02 19:00:00	68	0.4	19.60%	0.25
178	1979/02/21 01:00:00	1979/02/22 01:00:00	25	0.4	19.70%	0.25
179	1980/01/18 04:00:00	1980/01/19 04:00:00	25	0.4	19.80%	0.25
180	1982/01/20 03:00:00	1982/01/21 18:00:00	40	0.4	19.90%	0.25

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
181	1989/03/25 09:00:00	1989/03/26 13:00:00	29	0.4	20.00%	0.25
182	1992/03/02 01:00:00	1992/03/03 20:00:00	44	0.4	20.10%	0.25
183	1992/12/29 12:00:00	1992/12/30 00:00:00	13	0.4	20.20%	0.25
184	1993/01/31 01:00:00	1993/01/31 06:00:00	6	0.4	20.30%	0.25
185	1993/02/18 13:00:00	1993/02/20 23:00:00	59	0.4	20.40%	0.24
186	1993/03/28 02:00:00	1993/03/28 06:00:00	5	0.4	20.60%	0.24
187	1995/01/07 16:00:00	1995/01/08 12:00:00	21	0.4	20.70%	0.24
188	1995/01/10 16:00:00	1995/01/12 23:00:00	56	0.4	20.80%	0.24
189	1995/04/18 08:00:00	1995/04/19 14:00:00	31	0.4	20.90%	0.24
190	1995/12/20 17:00:00	1995/12/20 22:00:00	6	0.4	21.00%	0.24
191	1996/01/21 18:00:00	1996/01/22 14:00:00	21	0.4	21.10%	0.24
192	1996/02/25 09:00:00	1996/02/26 14:00:00	30	0.4	21.20%	0.23
193	2000/02/21 02:00:00	2000/02/23 03:00:00	50	0.4	21.30%	0.23
194	2000/10/29 20:00:00	2000/10/30 03:00:00	8	0.4	21.40%	0.23
195	2001/11/24 02:00:00	2001/11/25 04:00:00	27	0.4	21.50%	0.23
196	2002/11/08 02:00:00	2002/11/10 19:00:00	66	0.4	21.70%	0.23
197	2003/12/24 23:00:00	2003/12/26 00:00:00	26	0.4	21.80%	0.23
198	2006/02/27 19:00:00	2006/02/28 15:00:00	21	0.4	21.90%	0.23
199	2008/02/14 11:00:00	2008/02/14 19:00:00	9	0.4	22.00%	0.23
200	1969/02/18 09:00:00	1969/02/20 07:00:00	47	0.3	22.10%	0.23
201	1969/03/12 21:00:00	1969/03/13 21:00:00	25	0.3	22.20%	0.22
202	1969/03/21 13:00:00	1969/03/21 23:00:00	11	0.3	22.30%	0.22
203	1975/12/11 23:00:00	1975/12/12 23:00:00	25	0.3	22.40%	0.22
204	1978/01/30 07:00:00	1978/01/31 07:00:00	25	0.3	22.50%	0.22
205	1978/09/05 17:00:00	1978/09/06 01:00:00	9	0.3	22.70%	0.22
206	1978/11/21 18:00:00	1978/11/21 23:00:00	6	0.3	22.80%	0.22
207	1979/10/19 22:00:00	1979/10/21 14:00:00	41	0.3	22.90%	0.22
208	1981/02/25 05:00:00	1981/02/26 03:00:00	23	0.3	23.00%	0.22
209	1981/11/28 06:00:00	1981/11/29 13:00:00	32	0.3	23.10%	0.22
210	1983/02/24 09:00:00	1983/02/25 03:00:00	19	0.3	23.20%	0.21
211	1983/12/03 15:00:00	1983/12/04 05:00:00	15	0.3	23.30%	0.21
212	1985/12/02 12:00:00	1985/12/03 16:00:00	29	0.3	23.40%	0.21
213	1986/12/06 03:00:00	1986/12/07 11:00:00	33	0.3	23.50%	0.21
214	1987/12/04 21:00:00	1987/12/05 03:00:00	7	0.3	23.60%	0.21
215	1990/06/09 07:00:00	1990/06/10 11:00:00	29	0.3	23.80%	0.21
216	1992/03/20 16:00:00	1992/03/23 15:00:00	72	0.3	23.90%	0.21
217	1993/02/23 19:00:00	1993/02/24 10:00:00	16	0.3	24.00%	0.21
218	1997/01/25 15:00:00	1997/01/27 11:00:00	45	0.3	24.10%	0.21
219	1998/04/11 02:00:00	1998/04/12 20:00:00	43	0.3	24.20%	0.21
220	1998/05/12 02:00:00	1998/05/13 19:00:00	42	0.3	24.30%	0.21
221	2002/03/17 20:00:00	2002/03/18 06:00:00	11	0.3	24.40%	0.2
222	2005/02/11 01:00:00	2005/02/13 09:00:00	57	0.3	24.50%	0.2
223	2005/03/22 19:00:00	2005/03/23 02:00:00	8	0.3	24.60%	0.2
224	2005/04/28 07:00:00	2005/04/29 03:00:00	21	0.3	24.80%	0.2
225	2006/03/28 02:00:00	2006/03/29 10:00:00	33	0.3	24.90%	0.2
226	1964/12/27 07:00:00	1964/12/29 10:00:00	52	0.2	25.00%	0.2
227	1965/02/06 00:00:00	1965/02/07 04:00:00	29	0.2	25.10%	0.2

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
228	1965/11/24 19:00:00	1965/11/25 18:00:00	24	0.2	25.20%	0.2
229	1967/04/21 12:00:00	1967/04/22 07:00:00	20	0.2	25.30%	0.2
230	1969/01/28 01:00:00	1969/01/29 00:00:00	24	0.2	25.40%	0.2
231	1970/03/06 19:00:00	1970/03/07 04:00:00	10	0.2	25.50%	0.2
232	1970/03/11 10:00:00	1970/03/12 07:00:00	22	0.2	25.60%	0.19
233	1970/10/03 14:00:00	1970/10/03 18:00:00	5	0.2	25.70%	0.19
234	1972/12/07 04:00:00	1972/12/09 06:00:00	51	0.2	25.90%	0.19
235	1973/02/27 23:00:00	1973/02/28 09:00:00	11	0.2	26.00%	0.19
236	1973/03/04 00:00:00	1973/03/07 04:00:00	77	0.2	26.10%	0.19
237	1974/04/02 01:00:00	1974/04/02 13:00:00	13	0.2	26.20%	0.19
238	1974/10/28 05:00:00	1974/10/29 17:00:00	37	0.2	26.30%	0.19
239	1975/02/09 06:00:00	1975/02/10 06:00:00	25	0.2	26.40%	0.19
240	1975/04/05 21:00:00	1975/04/06 23:00:00	27	0.2	26.50%	0.19
241	1976/04/15 15:00:00	1976/04/15 23:00:00	9	0.2	26.60%	0.19
242	1976/10/22 20:00:00	1976/10/23 17:00:00	22	0.2	26.70%	0.19
243	1977/01/03 12:00:00	1977/01/04 04:00:00	17	0.2	26.90%	0.19
244	1977/03/24 11:00:00	1977/03/25 15:00:00	29	0.2	27.00%	0.18
245	1977/12/25 11:00:00	1977/12/29 19:00:00	105	0.2	27.10%	0.18
246	1978/01/10 17:00:00	1978/01/11 00:00:00	8	0.2	27.20%	0.18
247	1978/03/22 04:00:00	1978/03/23 16:00:00	37	0.2	27.30%	0.18
248	1979/03/18 14:00:00	1979/03/21 09:00:00	68	0.2	27.40%	0.18
249	1980/03/25 22:00:00	1980/03/26 04:00:00	7	0.2	27.50%	0.18
250	1980/12/04 13:00:00	1980/12/05 05:00:00	17	0.2	27.60%	0.18
251	1981/03/04 07:00:00	1981/03/05 18:00:00	36	0.2	27.70%	0.18
252	1982/03/28 18:00:00	1982/03/28 21:00:00	4	0.2	27.80%	0.18
253	1982/04/01 14:00:00	1982/04/03 11:00:00	46	0.2	28.00%	0.18
254	1985/12/09 16:00:00	1985/12/11 11:00:00	44	0.2	28.10%	0.18
255	1987/10/22 16:00:00	1987/10/23 07:00:00	16	0.2	28.20%	0.18
256	1991/01/09 09:00:00	1991/01/09 19:00:00	11	0.2	28.30%	0.18
257	1994/03/19 02:00:00	1994/03/20 11:00:00	34	0.2	28.40%	0.18
258	1994/04/25 15:00:00	1994/04/26 23:00:00	33	0.2	28.50%	0.17
259	1994/12/24 05:00:00	1994/12/25 10:00:00	30	0.2	28.60%	0.17
260	1995/03/21 09:00:00	1995/03/21 18:00:00	10	0.2	28.70%	0.17
261	1995/04/16 06:00:00	1995/04/17 01:00:00	20	0.2	28.80%	0.17
262	1995/12/23 10:00:00	1995/12/23 15:00:00	6	0.2	29.00%	0.17
263	1996/02/27 21:00:00	1996/02/28 01:00:00	5	0.2	29.10%	0.17
264	1997/04/03 17:00:00	1997/04/04 13:00:00	21	0.2	29.20%	0.17
265	2000/02/13 02:00:00	2000/02/14 19:00:00	42	0.2	29.30%	0.17
266	2001/12/21 02:00:00	2001/12/22 04:00:00	27	0.2	29.40%	0.17
267	2002/12/16 02:00:00	2002/12/17 20:00:00	43	0.2	29.50%	0.17
268	2006/03/20 04:00:00	2006/03/21 08:00:00	29	0.2	29.60%	0.17
269	2006/05/22 04:00:00	2006/05/22 13:00:00	10	0.2	29.70%	0.17
270	2007/12/07 04:00:00	2007/12/08 23:00:00	44	0.2	29.80%	0.17
271	2008/01/23 19:00:00	2008/01/24 11:00:00	17	0.2	29.90%	0.17
272	1964/09/24 14:00:00	1964/09/24 16:00:00	3	0.1	30.10%	0.17
273	1964/10/15 09:00:00	1964/10/15 17:00:00	9	0.1	30.20%	0.17
274	1964/11/09 12:00:00	1964/11/10 21:00:00	34	0.1	30.30%	0.16

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
275	1964/11/12 03:00:00	1964/11/12 08:00:00	6	0.1	30.40%	0.16
276	1965/01/24 06:00:00	1965/01/24 13:00:00	8	0.1	30.50%	0.16
277	1965/03/11 07:00:00	1965/03/11 18:00:00	12	0.1	30.60%	0.16
278	1966/02/06 10:00:00	1966/02/08 03:00:00	42	0.1	30.70%	0.16
279	1966/10/04 00:00:00	1966/10/05 17:00:00	42	0.1	30.80%	0.16
280	1966/10/10 12:00:00	1966/10/10 16:00:00	5	0.1	30.90%	0.16
281	1967/03/04 00:00:00	1967/03/04 13:00:00	14	0.1	31.00%	0.16
282	1967/03/31 10:00:00	1967/04/02 08:00:00	47	0.1	31.20%	0.16
283	1967/04/04 16:00:00	1967/04/04 21:00:00	6	0.1	31.30%	0.16
284	1967/04/18 19:00:00	1967/04/19 22:00:00	28	0.1	31.40%	0.16
285	1967/08/31 02:00:00	1967/08/31 09:00:00	8	0.1	31.50%	0.16
286	1967/11/30 16:00:00	1967/12/01 00:00:00	9	0.1	31.60%	0.16
287	1967/12/13 10:00:00	1967/12/13 17:00:00	8	0.1	31.70%	0.16
288	1967/12/16 13:00:00	1967/12/17 06:00:00	18	0.1	31.80%	0.16
289	1968/01/27 07:00:00	1968/01/28 11:00:00	29	0.1	31.90%	0.16
290	1968/02/13 09:00:00	1968/02/14 02:00:00	18	0.1	32.00%	0.16
291	1968/03/18 13:00:00	1968/03/18 17:00:00	5	0.1	32.20%	0.16
292	1968/07/09 21:00:00	1968/07/10 00:00:00	4	0.1	32.30%	0.15
293	1968/11/15 06:00:00	1968/11/15 22:00:00	17	0.1	32.40%	0.15
294	1968/12/19 14:00:00	1968/12/20 14:00:00	25	0.1	32.50%	0.15
295	1968/12/25 18:00:00	1968/12/26 14:00:00	21	0.1	32.60%	0.15
296	1969/02/15 18:00:00	1969/02/16 00:00:00	7	0.1	32.70%	0.15
297	1969/02/28 22:00:00	1969/03/01 05:00:00	8	0.1	32.80%	0.15
298	1969/03/10 02:00:00	1969/03/11 12:00:00	35	0.1	32.90%	0.15
299	1969/04/05 20:00:00	1969/04/05 23:00:00	4	0.1	33.00%	0.15
300	1969/11/06 18:00:00	1969/11/07 05:00:00	12	0.1	33.10%	0.15
301	1969/11/10 00:00:00	1969/11/10 05:00:00	6	0.1	33.30%	0.15
302	1969/12/08 19:00:00	1969/12/09 04:00:00	10	0.1	33.40%	0.15
303	1970/01/11 14:00:00	1970/01/12 08:00:00	19	0.1	33.50%	0.15
304	1970/01/16 16:00:00	1970/01/16 23:00:00	8	0.1	33.60%	0.15
305	1970/02/10 01:00:00	1970/02/11 09:00:00	33	0.1	33.70%	0.15
306	1970/04/30 09:00:00	1970/04/30 11:00:00	3	0.1	33.80%	0.15
307	1970/11/25 23:00:00	1970/11/26 14:00:00	16	0.1	33.90%	0.15
308	1970/12/09 05:00:00	1970/12/09 15:00:00	11	0.1	34.00%	0.15
309	1971/01/02 04:00:00	1971/01/02 22:00:00	19	0.1	34.10%	0.15
310	1971/01/12 19:00:00	1971/01/13 03:00:00	9	0.1	34.30%	0.15
311	1971/02/16 16:00:00	1971/02/17 13:00:00	22	0.1	34.40%	0.15
312	1971/03/13 06:00:00	1971/03/13 20:00:00	15	0.1	34.50%	0.14
313	1971/04/14 11:00:00	1971/04/14 17:00:00	7	0.1	34.60%	0.14
314	1971/04/15 22:00:00	1971/04/16 11:00:00	14	0.1	34.70%	0.14
315	1971/04/23 07:00:00	1971/04/23 11:00:00	5	0.1	34.80%	0.14
316	1971/10/16 04:00:00	1971/10/17 14:00:00	35	0.1	34.90%	0.14
317	1971/12/03 00:00:00	1971/12/04 05:00:00	30	0.1	35.00%	0.14
318	1971/12/07 01:00:00	1971/12/07 06:00:00	6	0.1	35.10%	0.14
319	1971/12/22 05:00:00	1971/12/23 07:00:00	27	0.1	35.20%	0.14
320	1971/12/31 04:00:00	1971/12/31 10:00:00	7	0.1	35.40%	0.14
321	1972/01/09 09:00:00	1972/01/10 04:00:00	20	0.1	35.50%	0.14

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
322	1972/04/30 04:00:00	1972/04/30 12:00:00	9	0.1	35.60%	0.14
323	1972/05/19 04:00:00	1972/05/20 15:00:00	36	0.1	35.70%	0.14
324	1972/10/19 03:00:00	1972/10/20 18:00:00	40	0.1	35.80%	0.14
325	1973/01/04 01:00:00	1973/01/04 21:00:00	21	0.1	35.90%	0.14
326	1973/01/09 10:00:00	1973/01/10 05:00:00	20	0.1	36.00%	0.14
327	1973/02/03 13:00:00	1973/02/04 00:00:00	12	0.1	36.10%	0.14
328	1973/02/06 01:00:00	1973/02/06 06:00:00	6	0.1	36.20%	0.14
329	1973/03/13 12:00:00	1973/03/14 00:00:00	13	0.1	36.40%	0.14
330	1973/04/30 05:00:00	1973/04/30 13:00:00	9	0.1	36.50%	0.14
331	1973/11/17 06:00:00	1973/11/18 14:00:00	33	0.1	36.60%	0.14
332	1973/12/01 15:00:00	1973/12/01 19:00:00	5	0.1	36.70%	0.14
333	1974/01/01 04:00:00	1974/01/02 01:00:00	22	0.1	36.80%	0.14
334	1974/01/20 17:00:00	1974/01/21 02:00:00	10	0.1	36.90%	0.14
335	1974/03/02 10:00:00	1974/03/03 16:00:00	31	0.1	37.00%	0.13
336	1974/03/27 09:00:00	1974/03/27 13:00:00	5	0.1	37.10%	0.13
337	1974/12/28 06:00:00	1974/12/29 14:00:00	33	0.1	37.20%	0.13
338	1975/01/30 18:00:00	1975/01/31 01:00:00	8	0.1	37.30%	0.13
339	1975/02/03 09:00:00	1975/02/05 12:00:00	52	0.1	37.50%	0.13
340	1975/03/05 14:00:00	1975/03/06 18:00:00	29	0.1	37.60%	0.13
341	1975/03/14 02:00:00	1975/03/14 14:00:00	13	0.1	37.70%	0.13
342	1975/03/22 08:00:00	1975/03/22 13:00:00	6	0.1	37.80%	0.13
343	1975/11/27 17:00:00	1975/11/29 01:00:00	33	0.1	37.90%	0.13
344	1976/11/27 04:00:00	1976/11/27 09:00:00	6	0.1	38.00%	0.13
345	1977/01/06 19:00:00	1977/01/07 11:00:00	17	0.1	38.10%	0.13
346	1977/01/28 17:00:00	1977/01/28 23:00:00	7	0.1	38.20%	0.13
347	1977/02/22 01:00:00	1977/02/22 05:00:00	5	0.1	38.30%	0.13
348	1977/03/16 12:00:00	1977/03/17 03:00:00	16	0.1	38.50%	0.13
349	1977/12/18 01:00:00	1977/12/18 11:00:00	11	0.1	38.60%	0.13
350	1977/12/23 03:00:00	1977/12/23 10:00:00	8	0.1	38.70%	0.13
351	1978/04/15 20:00:00	1978/04/16 01:00:00	6	0.1	38.80%	0.13
352	1978/11/10 18:00:00	1978/11/12 06:00:00	37	0.1	38.90%	0.13
353	1978/11/23 07:00:00	1978/11/23 16:00:00	10	0.1	39.00%	0.13
354	1979/01/09 08:00:00	1979/01/09 17:00:00	10	0.1	39.10%	0.13
355	1979/01/15 14:00:00	1979/01/16 02:00:00	13	0.1	39.20%	0.13
356	1979/02/14 03:00:00	1979/02/14 08:00:00	6	0.1	39.30%	0.13
357	1979/02/23 03:00:00	1979/02/23 11:00:00	9	0.1	39.40%	0.13
358	1979/11/07 19:00:00	1979/11/09 04:00:00	34	0.1	39.60%	0.13
359	1980/03/21 19:00:00	1980/03/22 03:00:00	9	0.1	39.70%	0.13
360	1980/04/22 15:00:00	1980/04/23 06:00:00	16	0.1	39.80%	0.13
361	1980/05/10 11:00:00	1980/05/10 14:00:00	4	0.1	39.90%	0.13
362	1980/12/07 11:00:00	1980/12/07 16:00:00	6	0.1	40.00%	0.12
363	1981/01/28 06:00:00	1981/01/30 23:00:00	66	0.1	40.10%	0.12
364	1981/03/26 22:00:00	1981/03/27 02:00:00	5	0.1	40.20%	0.12
365	1981/10/11 06:00:00	1981/10/11 10:00:00	5	0.1	40.30%	0.12
366	1981/11/26 18:00:00	1981/11/27 05:00:00	12	0.1	40.40%	0.12
367	1982/01/05 04:00:00	1982/01/05 18:00:00	15	0.1	40.60%	0.12
368	1982/01/10 18:00:00	1982/01/11 01:00:00	8	0.1	40.70%	0.12

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
369	1982/01/28 17:00:00	1982/01/29 03:00:00	11	0.1	40.80%	0.12
370	1982/03/26 21:00:00	1982/03/27 09:00:00	13	0.1	40.90%	0.12
371	1982/09/26 01:00:00	1982/09/26 19:00:00	19	0.1	41.00%	0.12
372	1982/11/19 02:00:00	1982/11/19 16:00:00	15	0.1	41.10%	0.12
373	1982/12/07 23:00:00	1982/12/10 01:00:00	51	0.1	41.20%	0.12
374	1983/01/19 04:00:00	1983/01/19 11:00:00	8	0.1	41.30%	0.12
375	1983/01/23 00:00:00	1983/01/23 08:00:00	9	0.1	41.40%	0.12
376	1983/01/24 18:00:00	1983/01/24 23:00:00	6	0.1	41.50%	0.12
377	1983/02/02 12:00:00	1983/02/02 23:00:00	12	0.1	41.70%	0.12
378	1983/03/06 03:00:00	1983/03/06 15:00:00	13	0.1	41.80%	0.12
379	1983/04/17 22:00:00	1983/04/18 07:00:00	10	0.1	41.90%	0.12
380	1983/04/20 01:00:00	1983/04/21 11:00:00	35	0.1	42.00%	0.12
381	1983/08/16 15:00:00	1983/08/16 19:00:00	5	0.1	42.10%	0.12
382	1983/10/01 04:00:00	1983/10/01 21:00:00	18	0.1	42.20%	0.12
383	1983/10/07 07:00:00	1983/10/07 13:00:00	7	0.1	42.30%	0.12
384	1983/11/11 22:00:00	1983/11/13 07:00:00	34	0.1	42.40%	0.12
385	1983/12/09 18:00:00	1983/12/10 00:00:00	7	0.1	42.50%	0.12
386	1984/04/06 06:00:00	1984/04/06 17:00:00	12	0.1	42.70%	0.12
387	1984/12/07 23:00:00	1984/12/08 05:00:00	7	0.1	42.80%	0.12
388	1984/12/14 14:00:00	1984/12/14 18:00:00	5	0.1	42.90%	0.12
389	1985/02/01 15:00:00	1985/02/03 19:00:00	53	0.1	43.00%	0.12
390	1985/02/09 05:00:00	1985/02/09 18:00:00	14	0.1	43.10%	0.12
391	1985/02/20 20:00:00	1985/02/21 00:00:00	5	0.1	43.20%	0.12
392	1985/03/02 13:00:00	1985/03/03 04:00:00	16	0.1	43.30%	0.12
393	1985/03/27 08:00:00	1985/03/28 12:00:00	29	0.1	43.40%	0.12
394	1985/09/18 08:00:00	1985/09/18 14:00:00	7	0.1	43.50%	0.11
395	1985/10/07 14:00:00	1985/10/07 17:00:00	4	0.1	43.60%	0.11
396	1985/10/09 12:00:00	1985/10/09 22:00:00	11	0.1	43.80%	0.11
397	1986/01/30 01:00:00	1986/02/01 00:00:00	48	0.1	43.90%	0.11
398	1986/07/19 12:00:00	1986/07/19 18:00:00	7	0.1	44.00%	0.11
399	1986/10/08 16:00:00	1986/10/11 09:00:00	66	0.1	44.10%	0.11
400	1987/02/23 13:00:00	1987/02/26 06:00:00	66	0.1	44.20%	0.11
401	1987/04/03 04:00:00	1987/04/04 02:00:00	23	0.1	44.30%	0.11
402	1987/10/12 18:00:00	1987/10/12 23:00:00	6	0.1	44.40%	0.11
403	1987/10/31 00:00:00	1987/11/01 01:00:00	26	0.1	44.50%	0.11
404	1987/11/02 03:00:00	1987/11/02 07:00:00	5	0.1	44.60%	0.11
405	1988/01/05 13:00:00	1988/01/05 22:00:00	10	0.1	44.80%	0.11
406	1988/02/01 01:00:00	1988/02/02 21:00:00	45	0.1	44.90%	0.11
407	1988/02/29 22:00:00	1988/03/02 05:00:00	32	0.1	45.00%	0.11
408	1988/04/14 18:00:00	1988/04/15 03:00:00	10	0.1	45.10%	0.11
409	1988/11/14 05:00:00	1988/11/14 13:00:00	9	0.1	45.20%	0.11
410	1989/01/05 17:00:00	1989/01/06 05:00:00	13	0.1	45.30%	0.11
411	1989/10/21 23:00:00	1989/10/22 08:00:00	10	0.1	45.40%	0.11
412	1990/01/02 01:00:00	1990/01/02 15:00:00	15	0.1	45.50%	0.11
413	1990/01/31 00:00:00	1990/01/31 07:00:00	8	0.1	45.60%	0.11
414	1990/02/04 11:00:00	1990/02/04 15:00:00	5	0.1	45.70%	0.11
415	1990/02/17 10:00:00	1990/02/19 10:00:00	49	0.1	45.90%	0.11

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
416	1990/03/11 01:00:00	1990/03/11 06:00:00	6	0.1	46.00%	0.11
417	1990/04/04 09:00:00	1990/04/05 14:00:00	30	0.1	46.10%	0.11
418	1990/05/28 04:00:00	1990/05/29 06:00:00	27	0.1	46.20%	0.11
419	1990/11/19 22:00:00	1990/11/20 09:00:00	12	0.1	46.30%	0.11
420	1990/11/26 02:00:00	1990/11/26 11:00:00	10	0.1	46.40%	0.11
421	1991/03/13 17:00:00	1991/03/15 23:00:00	55	0.1	46.50%	0.11
422	1991/10/26 20:00:00	1991/10/27 04:00:00	9	0.1	46.60%	0.11
423	1991/12/28 00:00:00	1991/12/28 07:00:00	8	0.1	46.70%	0.11
424	1992/02/09 23:00:00	1992/02/10 05:00:00	7	0.1	46.90%	0.11
425	1992/03/26 16:00:00	1992/03/26 22:00:00	7	0.1	47.00%	0.11
426	1992/12/17 22:00:00	1992/12/18 08:00:00	11	0.1	47.10%	0.11
427	1992/12/27 16:00:00	1992/12/28 08:00:00	17	0.1	47.20%	0.11
428	1993/03/26 00:00:00	1993/03/26 22:00:00	23	0.1	47.30%	0.11
429	1993/11/22 22:00:00	1993/11/23 07:00:00	10	0.1	47.40%	0.11
430	1993/12/11 16:00:00	1993/12/12 06:00:00	15	0.1	47.50%	0.11
431	1993/12/14 17:00:00	1993/12/15 12:00:00	20	0.1	47.60%	0.1
432	1994/01/25 00:00:00	1994/01/27 16:00:00	65	0.1	47.70%	0.1
433	1994/02/03 20:00:00	1994/02/05 07:00:00	36	0.1	47.80%	0.1
434	1994/03/06 05:00:00	1994/03/07 16:00:00	36	0.1	48.00%	0.1
435	1994/04/09 05:00:00	1994/04/09 16:00:00	12	0.1	48.10%	0.1
436	1994/11/10 11:00:00	1994/11/10 16:00:00	6	0.1	48.20%	0.1
437	1995/06/15 21:00:00	1995/06/17 15:00:00	43	0.1	48.30%	0.1
438	1996/03/04 17:00:00	1996/03/05 06:00:00	14	0.1	48.40%	0.1
439	1996/03/12 17:00:00	1996/03/14 10:00:00	42	0.1	48.50%	0.1
440	1996/04/18 00:00:00	1996/04/18 09:00:00	10	0.1	48.60%	0.1
441	1996/10/30 13:00:00	1996/10/30 20:00:00	8	0.1	48.70%	0.1
442	1997/01/05 09:00:00	1997/01/05 19:00:00	11	0.1	48.80%	0.1
443	1997/01/15 18:00:00	1997/01/16 00:00:00	7	0.1	49.00%	0.1
444	1997/01/23 03:00:00	1997/01/24 06:00:00	28	0.1	49.10%	0.1
445	1997/02/27 11:00:00	1997/02/28 05:00:00	19	0.1	49.20%	0.1
446	1997/12/06 02:00:00	1997/12/08 04:00:00	51	0.1	49.30%	0.1
447	1998/01/29 02:00:00	1998/01/30 04:00:00	27	0.1	49.40%	0.1
448	2000/02/17 02:00:00	2000/02/18 03:00:00	26	0.1	49.50%	0.1
449	2000/04/17 16:00:00	2000/04/18 11:00:00	20	0.1	49.60%	0.1
450	2001/01/26 11:00:00	2001/01/28 09:00:00	47	0.1	49.70%	0.1
451	2001/04/21 00:00:00	2001/04/21 15:00:00	16	0.1	49.80%	0.1
452	2001/05/29 15:00:00	2001/05/29 17:00:00	3	0.1	49.90%	0.1
453	2001/12/09 02:00:00	2001/12/10 04:00:00	27	0.1	50.10%	0.1
454	2002/03/07 11:00:00	2002/03/08 04:00:00	18	0.1	50.20%	0.1
455	2002/11/29 02:00:00	2002/11/30 18:00:00	41	0.1	50.30%	0.1
456	2003/05/03 02:00:00	2003/05/04 02:00:00	25	0.1	50.40%	0.1
457	2003/11/12 03:00:00	2003/11/12 15:00:00	13	0.1	50.50%	0.1
458	2004/01/28 05:00:00	2004/01/28 10:00:00	6	0.1	50.60%	0.1
459	2004/02/18 16:00:00	2004/02/18 21:00:00	6	0.1	50.70%	0.1
460	2004/04/01 22:00:00	2004/04/02 18:00:00	21	0.1	50.80%	0.1
461	2004/04/17 13:00:00	2004/04/17 17:00:00	5	0.1	50.90%	0.1
462	2004/11/21 05:00:00	2004/11/21 11:00:00	7	0.1	51.00%	0.1

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
463	2004/11/29 12:00:00	2004/11/29 15:00:00	4	0.1	51.20%	0.1
464	2004/12/04 14:00:00	2004/12/05 21:00:00	32	0.1	51.30%	0.1
465	2005/01/28 15:00:00	2005/01/29 08:00:00	18	0.1	51.40%	0.1
466	2005/03/04 15:00:00	2005/03/05 06:00:00	16	0.1	51.50%	0.1
467	2005/09/20 02:00:00	2005/09/20 05:00:00	4	0.1	51.60%	0.1
468	2005/10/16 16:00:00	2005/10/18 13:00:00	46	0.1	51.70%	0.1
469	2006/03/17 20:00:00	2006/03/19 03:00:00	32	0.1	51.80%	0.1
470	2006/04/14 13:00:00	2006/04/15 11:00:00	23	0.1	51.90%	0.1
471	2006/10/13 20:00:00	2006/10/14 15:00:00	20	0.1	52.00%	0.1
472	2006/12/09 22:00:00	2006/12/11 04:00:00	31	0.1	52.20%	0.1
473	2006/12/16 20:00:00	2006/12/17 11:00:00	16	0.1	52.30%	0.1
474	2007/02/12 22:00:00	2007/02/14 02:00:00	29	0.1	52.40%	0.1
475	2007/02/19 01:00:00	2007/02/19 19:00:00	19	0.1	52.50%	0.1
476	2007/02/28 05:00:00	2007/02/28 08:00:00	4	0.1	52.60%	0.1
477	2007/04/20 14:00:00	2007/04/20 18:00:00	5	0.1	52.70%	0.09
478	2007/12/20 22:00:00	2007/12/21 07:00:00	10	0.1	52.80%	0.09
479	2008/01/26 21:00:00	2008/01/28 16:00:00	44	0.1	52.90%	0.09
480	1964/11/26 12:00:00	1964/11/26 19:00:00	8	0	53.00%	0.09
481	1965/01/07 10:00:00	1965/01/07 17:00:00	8	0	53.10%	0.09
482	1965/03/07 01:00:00	1965/03/07 11:00:00	11	0	53.30%	0.09
483	1965/03/13 06:00:00	1965/03/13 12:00:00	7	0	53.40%	0.09
484	1965/03/15 02:00:00	1965/03/15 07:00:00	6	0	53.50%	0.09
485	1965/03/24 09:00:00	1965/03/24 19:00:00	11	0	53.60%	0.09
486	1965/05/23 02:00:00	1965/05/24 10:00:00	33	0	53.70%	0.09
487	1965/06/25 06:00:00	1965/06/25 09:00:00	4	0	53.80%	0.09
488	1965/09/05 18:00:00	1965/09/05 18:00:00	1	0	53.90%	0.09
489	1965/12/21 23:00:00	1965/12/23 01:00:00	27	0	54.00%	0.09
490	1965/12/31 09:00:00	1966/01/01 10:00:00	26	0	54.10%	0.09
491	1966/01/19 16:00:00	1966/01/20 04:00:00	13	0	54.30%	0.09
492	1966/02/10 15:00:00	1966/02/10 18:00:00	4	0	54.40%	0.09
493	1966/02/25 03:00:00	1966/02/25 06:00:00	4	0	54.50%	0.09
494	1966/03/02 10:00:00	1966/03/02 13:00:00	4	0	54.60%	0.09
495	1966/03/13 15:00:00	1966/03/13 18:00:00	4	0	54.70%	0.09
496	1966/03/24 19:00:00	1966/03/24 22:00:00	4	0	54.80%	0.09
497	1966/05/10 05:00:00	1966/05/10 07:00:00	3	0	54.90%	0.09
498	1966/09/30 00:00:00	1966/09/30 13:00:00	14	0	55.00%	0.09
499	1966/10/18 12:00:00	1966/10/18 15:00:00	4	0	55.10%	0.09
500	1967/01/31 04:00:00	1967/01/31 08:00:00	5	0	55.20%	0.09
501	1967/03/11 09:00:00	1967/03/11 12:00:00	4	0	55.40%	0.09
502	1967/03/29 06:00:00	1967/03/29 09:00:00	4	0	55.50%	0.09
503	1967/04/24 11:00:00	1967/04/24 13:00:00	3	0	55.60%	0.09
504	1967/04/28 19:00:00	1967/04/28 21:00:00	3	0	55.70%	0.09
505	1967/06/09 07:00:00	1967/06/09 09:00:00	3	0	55.80%	0.09
506	1967/06/13 12:00:00	1967/06/13 18:00:00	7	0	55.90%	0.09
507	1967/07/26 21:00:00	1967/07/26 23:00:00	3	0	56.00%	0.09
508	1967/09/02 21:00:00	1967/09/02 23:00:00	3	0	56.10%	0.09
509	1967/09/29 21:00:00	1967/09/30 03:00:00	7	0	56.20%	0.09

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
510	1967/11/28 10:00:00	1967/11/28 13:00:00	4	0	56.40%	0.09
511	1967/12/08 01:00:00	1967/12/08 05:00:00	5	0	56.50%	0.09
512	1968/01/10 05:00:00	1968/01/10 09:00:00	5	0	56.60%	0.09
513	1968/02/10 04:00:00	1968/02/10 07:00:00	4	0	56.70%	0.09
514	1968/03/13 22:00:00	1968/03/14 01:00:00	4	0	56.80%	0.09
515	1968/03/17 02:00:00	1968/03/17 05:00:00	4	0	56.90%	0.09
516	1968/05/12 05:00:00	1968/05/12 10:00:00	6	0	57.00%	0.09
517	1968/06/07 07:00:00	1968/06/07 09:00:00	3	0	57.10%	0.09
518	1968/09/13 11:00:00	1968/09/13 13:00:00	3	0	57.20%	0.09
519	1968/10/30 10:00:00	1968/10/30 13:00:00	4	0	57.30%	0.09
520	1968/12/01 11:00:00	1968/12/01 15:00:00	5	0	57.50%	0.09
521	1969/01/17 11:00:00	1969/01/17 15:00:00	5	0	57.60%	0.09
522	1969/04/03 02:00:00	1969/04/03 04:00:00	3	0	57.70%	0.09
523	1969/06/11 09:00:00	1969/06/11 14:00:00	6	0	57.80%	0.09
524	1969/06/17 09:00:00	1969/06/17 11:00:00	3	0	57.90%	0.09
525	1969/08/10 05:00:00	1969/08/10 07:00:00	3	0	58.00%	0.09
526	1969/09/07 00:00:00	1969/09/07 02:00:00	3	0	58.10%	0.09
527	1969/11/15 21:00:00	1969/11/16 00:00:00	4	0	58.20%	0.09
528	1969/12/26 10:00:00	1969/12/26 14:00:00	5	0	58.30%	0.09
529	1970/01/10 01:00:00	1970/01/10 05:00:00	5	0	58.50%	0.09
530	1970/01/15 02:00:00	1970/01/15 06:00:00	5	0	58.60%	0.09
531	1970/01/18 14:00:00	1970/01/18 18:00:00	5	0	58.70%	0.09
532	1970/12/02 15:00:00	1970/12/02 19:00:00	5	0	58.80%	0.09
533	1971/02/19 17:00:00	1971/02/20 10:00:00	18	0	58.90%	0.08
534	1971/05/03 09:00:00	1971/05/03 11:00:00	3	0	59.00%	0.08
535	1971/05/06 06:00:00	1971/05/06 13:00:00	8	0	59.10%	0.08
536	1971/06/02 12:00:00	1971/06/02 14:00:00	3	0	59.20%	0.08
537	1971/06/05 14:00:00	1971/06/05 16:00:00	3	0	59.30%	0.08
538	1971/10/22 13:00:00	1971/10/22 16:00:00	4	0	59.40%	0.08
539	1971/10/24 11:00:00	1971/10/25 16:00:00	30	0	59.60%	0.08
540	1971/10/30 10:00:00	1971/10/30 13:00:00	4	0	59.70%	0.08
541	1971/11/13 13:00:00	1971/11/13 16:00:00	4	0	59.80%	0.08
542	1971/11/15 16:00:00	1971/11/15 19:00:00	4	0	59.90%	0.08
543	1971/11/29 06:00:00	1971/11/29 09:00:00	4	0	60.00%	0.08
544	1972/02/05 08:00:00	1972/02/06 11:00:00	28	0	60.10%	0.08
545	1972/04/13 03:00:00	1972/04/13 10:00:00	8	0	60.20%	0.08
546	1972/04/21 09:00:00	1972/04/21 11:00:00	3	0	60.30%	0.08
547	1972/06/07 04:00:00	1972/06/07 06:00:00	3	0	60.40%	0.08
548	1972/06/10 02:00:00	1972/06/10 04:00:00	3	0	60.60%	0.08
549	1972/06/22 13:00:00	1972/06/22 15:00:00	3	0	60.70%	0.08
550	1972/09/06 05:00:00	1972/09/06 23:00:00	19	0	60.80%	0.08
551	1972/10/11 15:00:00	1972/10/11 18:00:00	4	0	60.90%	0.08
552	1972/10/17 09:00:00	1972/10/17 12:00:00	4	0	61.00%	0.08
553	1972/11/08 01:00:00	1972/11/08 04:00:00	4	0	61.10%	0.08
554	1973/01/25 21:00:00	1973/01/26 01:00:00	5	0	61.20%	0.08
555	1973/01/30 13:00:00	1973/01/30 17:00:00	5	0	61.30%	0.08
556	1973/02/07 15:00:00	1973/02/07 18:00:00	4	0	61.40%	0.08

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
557	1973/02/21 09:00:00	1973/02/21 12:00:00	4	0	61.50%	0.08
558	1973/03/27 03:00:00	1973/03/27 18:00:00	16	0	61.70%	0.08
559	1973/03/28 21:00:00	1973/03/29 00:00:00	4	0	61.80%	0.08
560	1973/04/21 10:00:00	1973/04/21 12:00:00	3	0	61.90%	0.08
561	1973/05/23 15:00:00	1973/05/23 17:00:00	3	0	62.00%	0.08
562	1973/05/28 10:00:00	1973/05/28 12:00:00	3	0	62.10%	0.08
563	1973/05/31 09:00:00	1973/05/31 11:00:00	3	0	62.20%	0.08
564	1973/11/24 19:00:00	1973/11/24 22:00:00	4	0	62.30%	0.08
565	1973/12/16 15:00:00	1973/12/16 19:00:00	5	0	62.40%	0.08
566	1973/12/20 14:00:00	1973/12/20 18:00:00	5	0	62.50%	0.08
567	1973/12/22 03:00:00	1973/12/22 07:00:00	5	0	62.70%	0.08
568	1974/02/18 16:00:00	1974/02/19 22:00:00	31	0	62.80%	0.08
569	1974/06/08 12:00:00	1974/06/08 14:00:00	3	0	62.90%	0.08
570	1974/11/01 23:00:00	1974/11/02 02:00:00	4	0	63.00%	0.08
571	1974/11/03 16:00:00	1974/11/03 19:00:00	4	0	63.10%	0.08
572	1975/02/14 05:00:00	1975/02/14 08:00:00	4	0	63.20%	0.08
573	1975/03/23 14:00:00	1975/03/23 17:00:00	4	0	63.30%	0.08
574	1975/03/25 10:00:00	1975/03/26 01:00:00	16	0	63.40%	0.08
575	1975/03/31 21:00:00	1975/04/01 07:00:00	11	0	63.50%	0.08
576	1975/04/17 03:00:00	1975/04/17 10:00:00	8	0	63.60%	0.08
577	1975/04/18 13:00:00	1975/04/18 15:00:00	3	0	63.80%	0.08
578	1975/04/23 15:00:00	1975/04/23 17:00:00	3	0	63.90%	0.08
579	1975/05/20 02:00:00	1975/05/20 04:00:00	3	0	64.00%	0.08
580	1975/06/07 14:00:00	1975/06/07 16:00:00	3	0	64.10%	0.08
581	1975/10/28 22:00:00	1975/10/29 01:00:00	4	0	64.20%	0.08
582	1975/12/20 00:00:00	1975/12/20 04:00:00	5	0	64.30%	0.08
583	1976/04/04 09:00:00	1976/04/05 02:00:00	18	0	64.40%	0.08
584	1976/09/03 17:00:00	1976/09/03 19:00:00	3	0	64.50%	0.08
585	1976/09/14 11:00:00	1976/09/14 13:00:00	3	0	64.60%	0.08
586	1977/01/21 15:00:00	1977/01/21 19:00:00	5	0	64.80%	0.08
587	1977/02/23 12:00:00	1977/02/24 04:00:00	17	0	64.90%	0.08
588	1977/04/02 01:00:00	1977/04/02 03:00:00	3	0	65.00%	0.08
589	1977/05/05 21:00:00	1977/05/05 23:00:00	3	0	65.10%	0.08
590	1977/05/12 19:00:00	1977/05/13 02:00:00	8	0	65.20%	0.08
591	1977/05/24 06:00:00	1977/05/24 11:00:00	6	0	65.30%	0.08
592	1977/08/12 11:00:00	1977/08/12 13:00:00	3	0	65.40%	0.08
593	1977/10/06 03:00:00	1977/10/06 06:00:00	4	0	65.50%	0.08
594	1977/11/06 02:00:00	1977/11/06 05:00:00	4	0	65.60%	0.08
595	1978/01/12 16:00:00	1978/01/12 20:00:00	5	0	65.70%	0.08
596	1978/01/26 10:00:00	1978/01/26 14:00:00	5	0	65.90%	0.08
597	1978/04/02 17:00:00	1978/04/02 19:00:00	3	0	66.00%	0.08
598	1978/04/26 09:00:00	1978/04/26 11:00:00	3	0	66.10%	0.08
599	1978/05/01 11:00:00	1978/05/01 13:00:00	3	0	66.20%	0.08
600	1978/09/07 12:00:00	1978/09/07 14:00:00	3	0	66.30%	0.08
601	1978/09/19 13:00:00	1978/09/19 15:00:00	3	0	66.40%	0.08
602	1979/01/29 09:00:00	1979/01/29 13:00:00	5	0	66.50%	0.08
603	1979/03/13 10:00:00	1979/03/13 13:00:00	4	0	66.60%	0.08

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
604	1979/03/15 22:00:00	1979/03/16 01:00:00	4	0	66.70%	0.08
605	1979/05/19 15:00:00	1979/05/19 17:00:00	3	0	66.90%	0.07
606	1979/08/13 15:00:00	1979/08/13 17:00:00	3	0	67.00%	0.07
607	1979/11/04 07:00:00	1979/11/04 10:00:00	4	0	67.10%	0.07
608	1979/11/05 14:00:00	1979/11/05 17:00:00	4	0	67.20%	0.07
609	1979/12/22 10:00:00	1979/12/22 14:00:00	5	0	67.30%	0.07
610	1980/01/15 10:00:00	1980/01/15 14:00:00	5	0	67.40%	0.07
611	1980/03/18 08:00:00	1980/03/18 22:00:00	15	0	67.50%	0.07
612	1980/04/21 04:00:00	1980/04/21 06:00:00	3	0	67.60%	0.07
613	1980/04/24 12:00:00	1980/04/24 14:00:00	3	0	67.70%	0.07
614	1980/04/28 17:00:00	1980/04/29 22:00:00	30	0	67.80%	0.07
615	1980/05/01 23:00:00	1980/05/02 01:00:00	3	0	68.00%	0.07
616	1980/10/26 10:00:00	1980/10/26 13:00:00	4	0	68.10%	0.07
617	1980/12/11 14:00:00	1980/12/11 18:00:00	5	0	68.20%	0.07
618	1981/01/11 17:00:00	1981/01/11 21:00:00	5	0	68.30%	0.07
619	1981/03/14 02:00:00	1981/03/14 05:00:00	4	0	68.40%	0.07
620	1981/04/02 06:00:00	1981/04/02 23:00:00	18	0	68.50%	0.07
621	1981/04/18 13:00:00	1981/04/19 11:00:00	23	0	68.60%	0.07
622	1981/05/16 11:00:00	1981/05/16 13:00:00	3	0	68.70%	0.07
623	1981/05/27 01:00:00	1981/05/27 03:00:00	3	0	68.80%	0.07
624	1981/10/01 02:00:00	1981/10/01 05:00:00	4	0	69.00%	0.07
625	1981/10/28 23:00:00	1981/10/29 02:00:00	4	0	69.10%	0.07
626	1981/12/21 04:00:00	1981/12/21 08:00:00	5	0	69.20%	0.07
627	1982/02/05 14:00:00	1982/02/05 17:00:00	4	0	69.30%	0.07
628	1982/02/08 03:00:00	1982/02/08 06:00:00	4	0	69.40%	0.07
629	1982/02/16 09:00:00	1982/02/16 12:00:00	4	0	69.50%	0.07
630	1982/03/02 19:00:00	1982/03/03 03:00:00	9	0	69.60%	0.07
631	1982/03/12 14:00:00	1982/03/12 17:00:00	4	0	69.70%	0.07
632	1982/03/31 02:00:00	1982/03/31 12:00:00	11	0	69.80%	0.07
633	1982/04/05 15:00:00	1982/04/05 17:00:00	3	0	69.90%	0.07
634	1982/05/11 08:00:00	1982/05/11 10:00:00	3	0	70.10%	0.07
635	1982/05/26 13:00:00	1982/05/26 15:00:00	3	0	70.20%	0.07
636	1982/09/16 13:00:00	1982/09/16 15:00:00	3	0	70.30%	0.07
637	1982/09/22 13:00:00	1982/09/22 15:00:00	3	0	70.40%	0.07
638	1982/10/26 10:00:00	1982/10/26 13:00:00	4	0	70.50%	0.07
639	1982/10/31 15:00:00	1982/10/31 18:00:00	4	0	70.60%	0.07
640	1982/12/29 19:00:00	1982/12/30 14:00:00	20	0	70.70%	0.07
641	1983/03/15 10:00:00	1983/03/15 13:00:00	4	0	70.80%	0.07
642	1983/04/10 23:00:00	1983/04/13 02:00:00	52	0	70.90%	0.07
643	1983/08/07 09:00:00	1983/08/07 11:00:00	3	0	71.00%	0.07
644	1983/08/18 09:00:00	1983/08/18 18:00:00	10	0	71.20%	0.07
645	1983/11/18 02:00:00	1983/11/18 05:00:00	4	0	71.30%	0.07
646	1983/12/22 11:00:00	1983/12/22 14:00:00	4	0	71.40%	0.07
647	1984/01/16 16:00:00	1984/01/17 01:00:00	10	0	71.50%	0.07
648	1984/03/24 13:00:00	1984/03/24 16:00:00	4	0	71.60%	0.07
649	1984/10/17 08:00:00	1984/10/17 10:00:00	3	0	71.70%	0.07
650	1984/11/13 10:00:00	1984/11/13 13:00:00	4	0	71.80%	0.07

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
651	1984/11/22 16:00:00	1984/11/22 19:00:00	4	0	71.90%	0.07
652	1984/11/24 16:00:00	1984/11/24 19:00:00	4	0	72.00%	0.07
653	1984/12/12 23:00:00	1984/12/13 02:00:00	4	0	72.20%	0.07
654	1984/12/16 04:00:00	1984/12/16 08:00:00	5	0	72.30%	0.07
655	1984/12/18 14:00:00	1984/12/19 22:00:00	33	0	72.40%	0.07
656	1985/01/09 13:00:00	1985/01/09 17:00:00	5	0	72.50%	0.07
657	1985/03/12 11:00:00	1985/03/12 14:00:00	4	0	72.60%	0.07
658	1985/04/21 14:00:00	1985/04/22 04:00:00	15	0	72.70%	0.07
659	1985/05/30 15:00:00	1985/05/30 18:00:00	4	0	72.80%	0.07
660	1985/06/02 22:00:00	1985/06/03 03:00:00	6	0	72.90%	0.07
661	1985/07/18 16:00:00	1985/07/18 17:00:00	2	0	73.00%	0.07
662	1985/08/10 14:00:00	1985/08/10 16:00:00	3	0	73.10%	0.07
663	1985/09/04 11:00:00	1985/09/04 14:00:00	4	0	73.30%	0.07
664	1985/10/22 00:00:00	1985/10/22 03:00:00	4	0	73.40%	0.07
665	1985/11/27 09:00:00	1985/11/27 12:00:00	4	0	73.50%	0.07
666	1986/01/02 15:00:00	1986/01/02 20:00:00	6	0	73.60%	0.07
667	1986/02/13 09:00:00	1986/02/13 12:00:00	4	0	73.70%	0.07
668	1986/02/18 22:00:00	1986/02/19 17:00:00	20	0	73.80%	0.07
669	1986/05/22 10:00:00	1986/05/22 11:00:00	2	0	73.90%	0.07
670	1986/07/22 14:00:00	1986/07/22 17:00:00	4	0	74.00%	0.07
671	1986/08/18 06:00:00	1986/08/18 08:00:00	3	0	74.10%	0.07
672	1986/09/18 11:00:00	1986/09/18 13:00:00	3	0	74.30%	0.07
673	1986/12/20 06:00:00	1986/12/20 16:00:00	11	0	74.40%	0.07
674	1986/12/30 16:00:00	1986/12/30 19:00:00	4	0	74.50%	0.07
675	1987/02/01 01:00:00	1987/02/01 04:00:00	4	0	74.60%	0.07
676	1987/02/13 19:00:00	1987/02/14 04:00:00	10	0	74.70%	0.07
677	1987/02/15 15:00:00	1987/02/15 18:00:00	4	0	74.80%	0.07
678	1987/03/06 12:00:00	1987/03/06 14:00:00	3	0	74.90%	0.07
679	1987/03/15 01:00:00	1987/03/15 03:00:00	3	0	75.00%	0.07
680	1987/03/21 16:00:00	1987/03/21 23:00:00	8	0	75.10%	0.07
681	1987/03/23 21:00:00	1987/03/23 23:00:00	3	0	75.20%	0.07
682	1987/05/01 01:00:00	1987/05/01 02:00:00	2	0	75.40%	0.07
683	1987/05/20 08:00:00	1987/05/20 10:00:00	3	0	75.50%	0.07
684	1987/07/18 00:00:00	1987/07/18 02:00:00	3	0	75.60%	0.07
685	1987/08/14 09:00:00	1987/08/14 10:00:00	2	0	75.70%	0.07
686	1987/09/01 01:00:00	1987/09/01 03:00:00	3	0	75.80%	0.07
687	1987/09/13 05:00:00	1987/09/13 07:00:00	3	0	75.90%	0.07
688	1987/10/07 09:00:00	1987/10/07 11:00:00	3	0	76.00%	0.07
689	1987/10/24 08:00:00	1987/10/24 10:00:00	3	0	76.10%	0.07
690	1987/10/28 19:00:00	1987/10/29 02:00:00	8	0	76.20%	0.07
691	1987/11/14 02:00:00	1987/11/14 06:00:00	5	0	76.40%	0.07
692	1987/11/17 21:00:00	1987/11/18 03:00:00	7	0	76.50%	0.07
693	1987/11/20 16:00:00	1987/11/20 19:00:00	4	0	76.60%	0.07
694	1987/12/07 05:00:00	1987/12/07 08:00:00	4	0	76.70%	0.07
695	1987/12/19 14:00:00	1987/12/19 21:00:00	8	0	76.80%	0.07
696	1987/12/29 15:00:00	1987/12/30 08:00:00	18	0	76.90%	0.07
697	1988/04/16 05:00:00	1988/04/16 07:00:00	3	0	77.00%	0.07

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
698	1988/04/23 14:00:00	1988/04/23 16:00:00	3	0	77.10%	0.06
699	1988/05/05 22:00:00	1988/05/05 23:00:00	2	0	77.20%	0.06
700	1988/05/29 04:00:00	1988/05/29 09:00:00	6	0	77.30%	0.06
701	1988/05/31 16:00:00	1988/05/31 17:00:00	2	0	77.50%	0.06
702	1988/11/23 22:00:00	1988/11/24 04:00:00	7	0	77.60%	0.06
703	1988/12/15 07:00:00	1988/12/16 21:00:00	39	0	77.70%	0.06
704	1988/12/18 06:00:00	1988/12/19 07:00:00	26	0	77.80%	0.06
705	1988/12/23 00:00:00	1988/12/23 04:00:00	5	0	77.90%	0.06
706	1988/12/28 00:00:00	1988/12/28 03:00:00	4	0	78.00%	0.06
707	1989/01/04 08:00:00	1989/01/04 15:00:00	8	0	78.10%	0.06
708	1989/01/07 16:00:00	1989/01/07 20:00:00	5	0	78.20%	0.06
709	1989/01/28 14:00:00	1989/01/28 17:00:00	4	0	78.30%	0.06
710	1989/02/02 10:00:00	1989/02/02 16:00:00	7	0	78.50%	0.06
711	1989/02/04 04:00:00	1989/02/04 17:00:00	14	0	78.60%	0.06
712	1989/03/02 19:00:00	1989/03/03 03:00:00	9	0	78.70%	0.06
713	1989/03/08 20:00:00	1989/03/08 22:00:00	3	0	78.80%	0.06
714	1989/04/12 06:00:00	1989/04/12 08:00:00	3	0	78.90%	0.06
715	1989/04/26 03:00:00	1989/04/26 05:00:00	3	0	79.00%	0.06
716	1989/05/15 12:00:00	1989/05/15 13:00:00	2	0	79.10%	0.06
717	1989/09/17 04:00:00	1989/09/17 18:00:00	15	0	79.20%	0.06
718	1989/09/19 10:00:00	1989/09/19 13:00:00	4	0	79.30%	0.06
719	1989/10/25 20:00:00	1989/10/25 22:00:00	3	0	79.40%	0.06
720	1989/11/26 08:00:00	1989/11/26 21:00:00	14	0	79.60%	0.06
721	1990/03/05 16:00:00	1990/03/05 18:00:00	3	0	79.70%	0.06
722	1990/03/12 12:00:00	1990/03/12 22:00:00	11	0	79.80%	0.06
723	1990/03/28 18:00:00	1990/03/28 21:00:00	4	0	79.90%	0.06
724	1990/04/16 21:00:00	1990/04/17 14:00:00	18	0	80.00%	0.06
725	1990/04/18 19:00:00	1990/04/19 21:00:00	27	0	80.10%	0.06
726	1990/04/25 00:00:00	1990/04/25 02:00:00	3	0	80.20%	0.06
727	1990/07/13 12:00:00	1990/07/13 13:00:00	2	0	80.30%	0.06
728	1990/08/06 00:00:00	1990/08/06 02:00:00	3	0	80.40%	0.06
729	1990/08/09 16:00:00	1990/08/09 18:00:00	3	0	80.60%	0.06
730	1990/12/15 22:00:00	1990/12/16 01:00:00	4	0	80.70%	0.06
731	1990/12/19 13:00:00	1990/12/20 10:00:00	22	0	80.80%	0.06
732	1991/01/03 12:00:00	1991/01/04 16:00:00	29	0	80.90%	0.06
733	1991/03/11 02:00:00	1991/03/11 09:00:00	8	0	81.00%	0.06
734	1991/04/21 03:00:00	1991/04/21 05:00:00	3	0	81.10%	0.06
735	1991/07/31 11:00:00	1991/07/31 13:00:00	3	0	81.20%	0.06
736	1991/09/20 17:00:00	1991/09/20 20:00:00	4	0	81.30%	0.06
737	1991/11/29 19:00:00	1991/11/29 22:00:00	4	0	81.40%	0.06
738	1991/12/08 17:00:00	1991/12/08 20:00:00	4	0	81.50%	0.06
739	1991/12/09 23:00:00	1991/12/11 11:00:00	37	0	81.70%	0.06
740	1991/12/17 11:00:00	1991/12/19 11:00:00	49	0	81.80%	0.06
741	1992/03/06 18:00:00	1992/03/08 05:00:00	36	0	81.90%	0.06
742	1992/03/29 11:00:00	1992/03/29 13:00:00	3	0	82.00%	0.06
743	1992/03/31 16:00:00	1992/04/01 15:00:00	24	0	82.10%	0.06
744	1992/05/05 22:00:00	1992/05/05 23:00:00	2	0	82.20%	0.06

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
745	1992/05/22 17:00:00	1992/05/22 21:00:00	5	0	82.30%	0.06
746	1992/08/13 16:00:00	1992/08/13 18:00:00	3	0	82.40%	0.06
747	1992/10/21 16:00:00	1992/10/21 18:00:00	3	0	82.50%	0.06
748	1992/10/23 04:00:00	1992/10/23 09:00:00	6	0	82.70%	0.06
749	1992/10/28 23:00:00	1992/10/29 05:00:00	7	0	82.80%	0.06
750	1992/10/30 17:00:00	1992/10/30 22:00:00	6	0	82.90%	0.06
751	1992/11/20 16:00:00	1992/11/20 19:00:00	4	0	83.00%	0.06
752	1992/11/22 23:00:00	1992/11/23 02:00:00	4	0	83.10%	0.06
753	1992/12/03 23:00:00	1992/12/04 22:00:00	24	0	83.20%	0.06
754	1992/12/11 17:00:00	1992/12/12 00:00:00	8	0	83.30%	0.06
755	1993/01/02 02:00:00	1993/01/03 04:00:00	27	0	83.40%	0.06
756	1993/02/22 06:00:00	1993/02/22 09:00:00	4	0	83.50%	0.06
757	1993/02/26 15:00:00	1993/02/27 14:00:00	24	0	83.60%	0.06
758	1993/06/05 13:00:00	1993/06/05 19:00:00	7	0	83.80%	0.06
759	1993/10/16 06:00:00	1993/10/16 08:00:00	3	0	83.90%	0.06
760	1993/11/11 05:00:00	1993/11/12 20:00:00	40	0	84.00%	0.06
761	1993/11/30 04:00:00	1993/11/30 09:00:00	6	0	84.10%	0.06
762	1993/12/19 04:00:00	1993/12/19 11:00:00	8	0	84.20%	0.06
763	1994/02/11 07:00:00	1994/02/11 10:00:00	4	0	84.30%	0.06
764	1994/04/24 04:00:00	1994/04/24 07:00:00	4	0	84.40%	0.06
765	1994/05/08 09:00:00	1994/05/08 10:00:00	2	0	84.50%	0.06
766	1994/05/15 02:00:00	1994/05/15 03:00:00	2	0	84.60%	0.06
767	1994/11/16 08:00:00	1994/11/16 12:00:00	5	0	84.80%	0.06
768	1994/11/18 03:00:00	1994/11/18 08:00:00	6	0	84.90%	0.06
769	1994/11/26 11:00:00	1994/11/26 14:00:00	4	0	85.00%	0.06
770	1994/12/13 06:00:00	1994/12/13 09:00:00	4	0	85.10%	0.06
771	1994/12/17 15:00:00	1994/12/17 19:00:00	5	0	85.20%	0.06
772	1994/12/22 07:00:00	1994/12/23 00:00:00	18	0	85.30%	0.06
773	1995/01/15 03:00:00	1995/01/17 12:00:00	58	0	85.40%	0.06
774	1995/01/21 02:00:00	1995/01/21 09:00:00	8	0	85.50%	0.06
775	1995/01/27 12:00:00	1995/01/27 16:00:00	5	0	85.60%	0.06
776	1995/04/07 10:00:00	1995/04/07 13:00:00	4	0	85.70%	0.06
777	1995/05/06 02:00:00	1995/05/06 12:00:00	11	0	85.90%	0.06
778	1995/05/13 07:00:00	1995/05/13 13:00:00	7	0	86.00%	0.06
779	1995/05/14 21:00:00	1995/05/15 04:00:00	8	0	86.10%	0.06
780	1995/05/23 13:00:00	1995/05/23 14:00:00	2	0	86.20%	0.06
781	1995/07/16 08:00:00	1995/07/16 09:00:00	2	0	86.30%	0.06
782	1995/10/01 01:00:00	1995/10/01 03:00:00	3	0	86.40%	0.06
783	1995/11/01 03:00:00	1995/11/01 11:00:00	9	0	86.50%	0.06
784	1995/12/13 04:00:00	1995/12/14 11:00:00	32	0	86.60%	0.06
785	1996/01/16 19:00:00	1996/01/17 03:00:00	9	0	86.70%	0.06
786	1996/01/25 11:00:00	1996/01/25 22:00:00	12	0	86.90%	0.06
787	1996/01/28 08:00:00	1996/01/28 11:00:00	4	0	87.00%	0.06
788	1996/02/21 02:00:00	1996/02/22 04:00:00	27	0	87.10%	0.06
789	1996/05/24 15:00:00	1996/05/24 16:00:00	2	0	87.20%	0.06
790	1996/07/10 14:00:00	1996/07/10 15:00:00	2	0	87.30%	0.06
791	1996/07/19 10:00:00	1996/07/19 11:00:00	2	0	87.40%	0.06

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
792	1996/10/25 22:00:00	1996/10/26 00:00:00	3	0	87.50%	0.06
793	1996/11/29 02:00:00	1996/11/29 05:00:00	4	0	87.60%	0.06
794	1996/12/05 22:00:00	1996/12/06 14:00:00	17	0	87.70%	0.06
795	1996/12/22 15:00:00	1996/12/22 22:00:00	8	0	87.80%	0.06
796	1996/12/27 16:00:00	1996/12/28 11:00:00	20	0	88.00%	0.06
797	1997/01/02 01:00:00	1997/01/02 05:00:00	5	0	88.10%	0.06
798	1997/02/10 19:00:00	1997/02/11 04:00:00	10	0	88.20%	0.06
799	1997/02/17 18:00:00	1997/02/18 16:00:00	23	0	88.30%	0.06
800	1997/04/08 10:00:00	1997/04/08 12:00:00	3	0	88.40%	0.06
801	1997/05/24 07:00:00	1997/05/24 08:00:00	2	0	88.50%	0.06
802	1997/12/18 15:00:00	1997/12/18 21:00:00	7	0	88.60%	0.06
803	1997/12/21 08:00:00	1997/12/22 19:00:00	36	0	88.70%	0.06
804	1998/01/02 16:00:00	1998/01/05 00:00:00	57	0	88.80%	0.06
805	1998/01/13 11:00:00	1998/01/13 22:00:00	12	0	89.00%	0.06
806	1998/01/15 15:00:00	1998/01/16 20:00:00	30	0	89.10%	0.06
807	1998/01/19 04:00:00	1998/01/20 02:00:00	23	0	89.20%	0.06
808	1998/03/01 17:00:00	1998/03/01 18:00:00	2	0	89.30%	0.06
809	1998/03/06 04:00:00	1998/03/07 00:00:00	21	0	89.40%	0.06
810	1998/03/15 11:00:00	1998/03/15 21:00:00	11	0	89.50%	0.06
811	1998/04/06 17:00:00	1998/04/07 19:00:00	27	0	89.60%	0.06
812	1998/04/14 08:00:00	1998/04/16 00:00:00	41	0	89.70%	0.06
813	1998/04/19 15:00:00	1998/04/19 19:00:00	5	0	89.80%	0.06
814	1998/04/28 11:00:00	1998/04/28 20:00:00	10	0	89.90%	0.06
815	1998/05/04 16:00:00	1998/05/06 18:00:00	51	0	90.10%	0.06
816	1998/05/26 17:00:00	1998/05/26 17:00:00	1	0	90.20%	0.06
817	1998/06/12 17:00:00	1998/06/12 17:00:00	1	0	90.30%	0.06
818	2000/01/01 09:00:00	2000/01/02 20:00:00	36	0	90.40%	0.06
819	2000/01/17 17:00:00	2000/01/17 19:00:00	3	0	90.50%	0.06
820	2000/01/25 12:00:00	2000/01/25 22:00:00	11	0	90.60%	0.06
821	2000/02/11 09:00:00	2000/02/11 22:00:00	14	0	90.70%	0.06
822	2000/02/28 15:00:00	2000/02/28 19:00:00	5	0	90.80%	0.06
823	2000/04/14 22:00:00	2000/04/15 00:00:00	3	0	90.90%	0.06
824	2000/04/21 19:00:00	2000/04/22 07:00:00	13	0	91.00%	0.06
825	2000/05/25 23:00:00	2000/05/26 02:00:00	4	0	91.20%	0.06
826	2000/09/23 02:00:00	2000/09/23 04:00:00	3	0	91.30%	0.05
827	2000/10/06 13:00:00	2000/10/06 15:00:00	3	0	91.40%	0.05
828	2000/10/10 08:00:00	2000/10/11 11:00:00	28	0	91.50%	0.05
829	2000/10/21 18:00:00	2000/10/21 21:00:00	4	0	91.60%	0.05
830	2000/10/26 09:00:00	2000/10/27 04:00:00	20	0	91.70%	0.05
831	2000/11/10 04:00:00	2000/11/11 10:00:00	31	0	91.80%	0.05
832	2000/11/22 21:00:00	2000/11/23 00:00:00	4	0	91.90%	0.05
833	2001/01/08 16:00:00	2001/01/09 07:00:00	16	0	92.00%	0.05
834	2001/01/15 21:00:00	2001/01/16 00:00:00	4	0	92.20%	0.05
835	2001/08/20 15:00:00	2001/08/21 17:00:00	27	0	92.30%	0.05
836	2001/11/04 16:00:00	2001/11/04 19:00:00	4	0	92.40%	0.05
837	2001/11/12 17:00:00	2001/11/13 21:00:00	29	0	92.50%	0.05
838	2001/11/29 09:00:00	2001/11/29 23:00:00	15	0	92.60%	0.05

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
839	2001/12/03 05:00:00	2001/12/04 01:00:00	21	0	92.70%	0.05
840	2001/12/14 11:00:00	2001/12/15 19:00:00	33	0	92.80%	0.05
841	2001/12/30 16:00:00	2001/12/30 20:00:00	5	0	92.90%	0.05
842	2002/01/03 17:00:00	2002/01/03 19:00:00	3	0	93.00%	0.05
843	2002/01/28 03:00:00	2002/01/29 12:00:00	34	0	93.10%	0.05
844	2002/02/17 17:00:00	2002/02/18 19:00:00	27	0	93.30%	0.05
845	2002/03/16 06:00:00	2002/03/16 10:00:00	5	0	93.40%	0.05
846	2002/03/24 02:00:00	2002/03/24 06:00:00	5	0	93.50%	0.05
847	2002/04/15 09:00:00	2002/04/15 10:00:00	2	0	93.60%	0.05
848	2002/04/24 11:00:00	2002/04/24 16:00:00	6	0	93.70%	0.05
849	2002/04/26 09:00:00	2002/04/26 10:00:00	2	0	93.80%	0.05
850	2002/05/20 23:00:00	2002/05/21 00:00:00	2	0	93.90%	0.05
851	2002/09/06 16:00:00	2002/09/06 18:00:00	3	0	94.00%	0.05
852	2002/12/29 16:00:00	2002/12/29 20:00:00	5	0	94.10%	0.05
853	2003/03/04 16:00:00	2003/03/04 19:00:00	4	0	94.30%	0.05
854	2003/04/05 17:00:00	2003/04/05 17:00:00	1	0	94.40%	0.05
855	2003/04/17 11:00:00	2003/04/17 20:00:00	10	0	94.50%	0.05
856	2003/05/07 17:00:00	2003/05/07 17:00:00	1	0	94.60%	0.05
857	2003/06/10 17:00:00	2003/06/11 17:00:00	25	0	94.70%	0.05
858	2003/06/20 17:00:00	2003/06/20 17:00:00	1	0	94.80%	0.05
859	2003/07/30 07:00:00	2003/07/30 08:00:00	2	0	94.90%	0.05
860	2003/11/01 05:00:00	2003/11/01 08:00:00	4	0	95.00%	0.05
861	2003/11/03 18:00:00	2003/11/04 02:00:00	9	0	95.10%	0.05
862	2003/11/16 01:00:00	2003/11/16 06:00:00	6	0	95.20%	0.05
863	2003/12/07 21:00:00	2003/12/08 04:00:00	8	0	95.40%	0.05
864	2003/12/11 17:00:00	2003/12/11 20:00:00	4	0	95.50%	0.05
865	2004/01/02 19:00:00	2004/01/03 04:00:00	10	0	95.60%	0.05
866	2004/01/19 08:00:00	2004/01/19 13:00:00	6	0	95.70%	0.05
867	2004/01/25 03:00:00	2004/01/25 06:00:00	4	0	95.80%	0.05
868	2004/01/31 07:00:00	2004/01/31 10:00:00	4	0	95.90%	0.05
869	2004/03/26 10:00:00	2004/03/26 12:00:00	3	0	96.00%	0.05
870	2004/11/12 12:00:00	2004/11/12 15:00:00	4	0	96.10%	0.05
871	2004/12/08 07:00:00	2004/12/08 10:00:00	4	0	96.20%	0.05
872	2005/01/26 02:00:00	2005/01/27 03:00:00	26	0	96.40%	0.05
873	2005/02/07 08:00:00	2005/02/07 11:00:00	4	0	96.50%	0.05
874	2005/03/18 17:00:00	2005/03/20 07:00:00	39	0	96.60%	0.05
875	2005/03/24 15:00:00	2005/03/24 17:00:00	3	0	96.70%	0.05
876	2005/05/06 02:00:00	2005/05/06 03:00:00	2	0	96.80%	0.05
877	2005/07/23 05:00:00	2005/07/23 06:00:00	2	0	96.90%	0.05
878	2005/12/03 02:00:00	2005/12/03 05:00:00	4	0	97.00%	0.05
879	2006/02/17 23:00:00	2006/02/19 08:00:00	34	0	97.10%	0.05
880	2006/03/03 17:00:00	2006/03/03 19:00:00	3	0	97.20%	0.05
881	2006/03/07 01:00:00	2006/03/08 09:00:00	33	0	97.30%	0.05
882	2006/03/12 21:00:00	2006/03/13 01:00:00	5	0	97.50%	0.05
883	2006/03/26 00:00:00	2006/03/26 05:00:00	6	0	97.60%	0.05
884	2006/04/23 06:00:00	2006/04/23 08:00:00	3	0	97.70%	0.05
885	2006/07/29 00:00:00	2006/07/29 06:00:00	7	0	97.80%	0.05

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
886	2006/07/30 08:00:00	2006/07/31 08:00:00	25	0	97.90%	0.05
887	2006/11/27 10:00:00	2006/11/28 03:00:00	18	0	98.00%	0.05
888	2006/12/22 08:00:00	2006/12/22 11:00:00	4	0	98.10%	0.05
889	2006/12/27 07:00:00	2006/12/27 14:00:00	8	0	98.20%	0.05
890	2007/01/04 22:00:00	2007/01/05 05:00:00	8	0	98.30%	0.05
891	2007/02/11 12:00:00	2007/02/11 16:00:00	5	0	98.50%	0.05
892	2007/02/22 21:00:00	2007/02/23 08:00:00	12	0	98.60%	0.05
893	2007/02/27 00:00:00	2007/02/27 03:00:00	4	0	98.70%	0.05
894	2007/03/21 04:00:00	2007/03/21 12:00:00	9	0	98.80%	0.05
895	2007/03/27 05:00:00	2007/03/27 18:00:00	14	0	98.90%	0.05
896	2007/04/22 23:00:00	2007/04/23 04:00:00	6	0	99.00%	0.05
897	2007/05/23 01:00:00	2007/05/23 04:00:00	4	0	99.10%	0.05
898	2007/09/22 11:00:00	2007/09/22 13:00:00	3	0	99.20%	0.05
899	2007/10/13 03:00:00	2007/10/13 09:00:00	7	0	99.30%	0.05
900	2007/10/17 09:00:00	2007/10/17 11:00:00	3	0	99.40%	0.05
901	2007/12/19 00:00:00	2007/12/19 11:00:00	12	0	99.60%	0.05
902	2008/01/21 08:00:00	2008/01/21 13:00:00	6	0	99.70%	0.05
903	2008/02/20 09:00:00	2008/02/20 17:00:00	9	0	99.80%	0.05
904	2008/02/24 07:00:00	2008/02/24 14:00:00	8	0	99.90%	0.05
-End of Data-----						

SWMM.out file name: V:\22\22060\Engineering\Storm-TM\Working Files\Hydmod\working files after 2nd pcc\22060-Post-Development-1.out

SWMM.out time stamp: 3/31/2023 10:57:26 AM

Peak Flow Statistics Table Values

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
1	1993/01/06 02:00:00	1993/01/11 07:00:00	126	2.6	0.10%	45
2	1995/01/03 07:00:00	1995/01/05 22:00:00	64	2.1	0.20%	22.5
3	1966/12/03 05:00:00	1966/12/07 18:00:00	110	2	0.40%	15
4	1978/03/11 17:00:00	1978/03/19 02:00:00	178	1.9	0.50%	11.25
5	1983/02/24 09:00:00	1983/03/04 17:00:00	201	1.9	0.60%	9
6	1980/01/27 20:00:00	1980/01/31 13:00:00	90	1.6	0.70%	7.5
7	1986/02/14 23:00:00	1986/02/16 12:00:00	38	1.6	0.80%	6.43
8	1978/01/14 14:00:00	1978/01/17 06:00:00	65	1.5	0.90%	5.63
9	1983/12/24 19:00:00	1983/12/27 23:00:00	77	1.5	1.10%	5
10	1998/02/14 02:00:00	1998/02/21 00:00:00	167	1.5	1.20%	4.5
11	1969/01/24 04:00:00	1969/01/29 09:00:00	126	1.4	1.30%	4.09
12	1971/02/23 04:00:00	1971/02/24 07:00:00	28	1.4	1.40%	3.75
13	1995/01/23 21:00:00	1995/01/27 17:00:00	93	1.4	1.50%	3.46
14	1967/11/19 03:00:00	1967/11/23 15:00:00	109	1.3	1.60%	3.21
15	1981/02/08 17:00:00	1981/02/10 16:00:00	48	1.3	1.80%	3
16	1988/04/19 23:00:00	1988/04/23 16:00:00	90	1.3	1.90%	2.81
17	1993/02/07 12:00:00	1993/02/10 04:00:00	65	1.3	2.00%	2.65
18	2007/08/26 07:00:00	2007/08/27 02:00:00	20	1.3	2.10%	2.5
19	1965/11/21 22:00:00	1965/11/26 02:00:00	101	1.2	2.20%	2.37
20	1967/04/11 08:00:00	1967/04/12 19:00:00	36	1.2	2.30%	2.25
21	1972/11/14 12:00:00	1972/11/17 23:00:00	84	1.2	2.50%	2.14
22	1979/01/05 07:00:00	1979/01/07 00:00:00	42	1.2	2.60%	2.05
23	1980/03/02 20:00:00	1980/03/04 04:00:00	33	1.2	2.70%	1.96
24	1983/11/24 23:00:00	1983/11/25 20:00:00	22	1.2	2.80%	1.88
25	1985/11/24 15:00:00	1985/11/26 07:00:00	41	1.2	2.90%	1.8
26	1993/01/12 14:00:00	1993/01/19 11:00:00	166	1.2	3.00%	1.73
27	1998/02/03 02:00:00	1998/02/09 20:00:00	163	1.2	3.20%	1.67
28	2007/11/30 07:00:00	2007/12/01 18:00:00	36	1.2	3.30%	1.61
29	1970/03/04 21:00:00	1970/03/05 18:00:00	22	1.1	3.40%	1.55
30	1974/12/04 03:00:00	1974/12/05 06:00:00	28	1.1	3.50%	1.5
31	1980/02/13 12:00:00	1980/02/21 22:00:00	203	1.1	3.60%	1.45
32	1998/01/09 02:00:00	1998/01/11 12:00:00	59	1.1	3.70%	1.41
33	2004/10/17 08:00:00	2004/10/21 11:00:00	100	1.1	3.90%	1.36
34	2004/10/27 02:00:00	2004/10/28 16:00:00	39	1.1	4.00%	1.32
35	2005/01/07 04:00:00	2005/01/12 10:00:00	127	1.1	4.10%	1.29
36	2007/01/29 22:00:00	2007/01/31 22:00:00	49	1.1	4.20%	1.25
37	1969/02/05 03:00:00	1969/02/07 11:00:00	57	1	4.30%	1.22
38	1978/12/16 22:00:00	1978/12/19 21:00:00	72	1	4.40%	1.18
39	1982/03/17 18:00:00	1982/03/20 14:00:00	69	1	4.60%	1.15

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
40	1991/03/19 00:00:00	1991/03/21 23:00:00	72	1	4.70%	1.13
41	1995/03/03 05:00:00	1995/03/06 21:00:00	89	1	4.80%	1.1
42	2003/02/25 02:00:00	2003/02/28 19:00:00	90	1	4.90%	1.07
43	2004/02/26 01:00:00	2004/02/28 01:00:00	49	1	5.00%	1.05
44	2006/04/04 18:00:00	2006/04/06 03:00:00	34	1	5.10%	1.02
45	1967/12/16 13:00:00	1967/12/20 15:00:00	99	0.9	5.30%	1
46	1970/02/28 13:00:00	1970/03/03 00:00:00	60	0.9	5.40%	0.98
47	1977/05/08 10:00:00	1977/05/10 07:00:00	46	0.9	5.50%	0.96
48	1980/01/07 14:00:00	1980/01/13 07:00:00	138	0.9	5.60%	0.94
49	1981/12/30 07:00:00	1982/01/02 20:00:00	86	0.9	5.70%	0.92
50	1982/12/22 18:00:00	1982/12/23 18:00:00	25	0.9	5.80%	0.9
51	1985/11/29 06:00:00	1985/11/30 12:00:00	31	0.9	6.00%	0.88
52	1991/02/27 13:00:00	1991/03/02 06:00:00	66	0.9	6.10%	0.87
53	1992/02/06 08:00:00	1992/02/07 18:00:00	35	0.9	6.20%	0.85
54	1994/02/17 11:00:00	1994/02/19 11:00:00	49	0.9	6.30%	0.83
55	1966/11/07 14:00:00	1966/11/08 13:00:00	24	0.8	6.40%	0.82
56	1967/01/22 16:00:00	1967/01/25 18:00:00	75	0.8	6.50%	0.8
57	1969/01/13 17:00:00	1969/01/15 06:00:00	38	0.8	6.70%	0.79
58	1973/01/16 15:00:00	1973/01/17 16:00:00	26	0.8	6.80%	0.78
59	1974/03/06 19:00:00	1974/03/09 07:00:00	61	0.8	6.90%	0.76
60	1976/02/03 17:00:00	1976/02/10 21:00:00	173	0.8	7.00%	0.75
61	1979/03/01 07:00:00	1979/03/02 13:00:00	31	0.8	7.10%	0.74
62	1981/02/28 15:00:00	1981/03/02 23:00:00	57	0.8	7.30%	0.73
63	1986/11/17 18:00:00	1986/11/18 20:00:00	27	0.8	7.40%	0.71
64	1991/03/25 06:00:00	1991/03/28 08:00:00	75	0.8	7.50%	0.7
65	1992/02/12 18:00:00	1992/02/14 00:00:00	31	0.8	7.60%	0.69
66	1996/11/21 16:00:00	1996/11/23 08:00:00	41	0.8	7.70%	0.68
67	2003/02/11 02:00:00	2003/02/15 07:00:00	102	0.8	7.80%	0.67
68	2005/01/03 04:00:00	2005/01/05 05:00:00	50	0.8	8.00%	0.66
69	1965/11/14 07:00:00	1965/11/18 18:00:00	108	0.7	8.10%	0.65
70	1965/12/09 04:00:00	1965/12/11 05:00:00	50	0.7	8.20%	0.64
71	1968/03/07 21:00:00	1968/03/09 06:00:00	34	0.7	8.30%	0.63
72	1970/12/16 22:00:00	1970/12/22 16:00:00	139	0.7	8.40%	0.63
73	1972/12/04 12:00:00	1972/12/05 12:00:00	25	0.7	8.50%	0.62
74	1976/03/01 08:00:00	1976/03/03 23:00:00	64	0.7	8.70%	0.61
75	1976/11/11 22:00:00	1976/11/13 04:00:00	31	0.7	8.80%	0.6
76	1988/01/17 03:00:00	1988/01/18 14:00:00	36	0.7	8.90%	0.59
77	1988/12/24 20:00:00	1988/12/26 09:00:00	38	0.7	9.00%	0.58
78	1995/02/13 10:00:00	1995/02/15 17:00:00	56	0.7	9.10%	0.58
79	1995/03/11 02:00:00	1995/03/12 17:00:00	40	0.7	9.20%	0.57
80	1996/01/31 04:00:00	1996/02/02 01:00:00	46	0.7	9.40%	0.56
81	2005/02/18 04:00:00	2005/02/24 04:00:00	145	0.7	9.50%	0.56
82	1964/11/17 13:00:00	1964/11/18 16:00:00	28	0.6	9.60%	0.55
83	1965/04/07 04:00:00	1965/04/12 06:00:00	123	0.6	9.70%	0.54
84	1967/03/13 11:00:00	1967/03/14 15:00:00	29	0.6	9.80%	0.54
85	1969/02/22 02:00:00	1969/02/26 19:00:00	114	0.6	9.90%	0.53
86	1970/11/28 20:00:00	1970/11/30 19:00:00	48	0.6	10.10%	0.52

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
87	1973/11/22 19:00:00	1973/11/25 01:00:00	55	0.6	10.20%	0.52
88	1974/01/04 17:00:00	1974/01/09 22:00:00	126	0.6	10.30%	0.51
89	1975/04/05 21:00:00	1975/04/10 00:00:00	100	0.6	10.40%	0.51
90	1979/03/27 03:00:00	1979/03/29 15:00:00	61	0.6	10.50%	0.5
91	1980/03/10 14:00:00	1980/03/11 13:00:00	24	0.6	10.60%	0.5
92	1982/11/29 15:00:00	1982/12/01 12:00:00	46	0.6	10.80%	0.49
93	1983/01/27 07:00:00	1983/01/29 21:00:00	63	0.6	10.90%	0.48
94	1985/11/11 03:00:00	1985/11/12 20:00:00	42	0.6	11.00%	0.48
95	1986/02/07 19:00:00	1986/02/09 09:00:00	39	0.6	11.10%	0.47
96	1986/09/23 20:00:00	1986/09/26 09:00:00	62	0.6	11.20%	0.47
97	1987/01/04 13:00:00	1987/01/08 02:00:00	86	0.6	11.30%	0.46
98	1987/12/16 12:00:00	1987/12/17 23:00:00	36	0.6	11.50%	0.46
99	1994/02/07 02:00:00	1994/02/08 21:00:00	44	0.6	11.60%	0.46
100	1997/01/12 13:00:00	1997/01/14 11:00:00	47	0.6	11.70%	0.45
101	2001/01/10 20:00:00	2001/01/13 02:00:00	55	0.6	11.80%	0.45
102	2003/04/13 15:00:00	2003/04/16 06:00:00	64	0.6	11.90%	0.44
103	2008/01/05 01:00:00	2008/01/07 23:00:00	71	0.6	12.00%	0.44
104	2008/02/03 06:00:00	2008/02/04 15:00:00	34	0.6	12.20%	0.43
105	1970/03/06 19:00:00	1970/03/09 12:00:00	66	0.5	12.30%	0.43
106	1971/12/22 05:00:00	1971/12/29 06:00:00	170	0.5	12.40%	0.43
107	1973/03/04 00:00:00	1973/03/09 13:00:00	134	0.5	12.50%	0.42
108	1975/03/08 08:00:00	1975/03/12 04:00:00	93	0.5	12.60%	0.42
109	1976/04/11 19:00:00	1976/04/16 09:00:00	111	0.5	12.70%	0.41
110	1976/09/09 19:00:00	1976/09/11 14:00:00	44	0.5	12.90%	0.41
111	1976/12/30 13:00:00	1977/01/01 05:00:00	41	0.5	13.00%	0.41
112	1977/08/16 14:00:00	1977/08/18 08:00:00	43	0.5	13.10%	0.4
113	1978/02/05 00:00:00	1978/02/07 14:00:00	63	0.5	13.20%	0.4
114	1979/10/19 22:00:00	1979/10/21 17:00:00	44	0.5	13.30%	0.4
115	1982/02/09 16:00:00	1982/02/11 14:00:00	47	0.5	13.50%	0.39
116	1986/03/08 15:00:00	1986/03/14 15:00:00	145	0.5	13.60%	0.39
117	1988/11/25 05:00:00	1988/11/26 15:00:00	35	0.5	13.70%	0.39
118	1989/03/25 09:00:00	1989/03/26 18:00:00	34	0.5	13.80%	0.38
119	1990/01/13 03:00:00	1990/01/17 22:00:00	116	0.5	13.90%	0.38
120	1992/01/02 23:00:00	1992/01/08 15:00:00	137	0.5	14.00%	0.38
121	1992/02/15 05:00:00	1992/02/16 13:00:00	33	0.5	14.20%	0.37
122	1992/12/07 08:00:00	1992/12/08 13:00:00	30	0.5	14.30%	0.37
123	2004/02/21 15:00:00	2004/02/24 00:00:00	58	0.5	14.40%	0.37
124	2004/12/28 06:00:00	2005/01/01 07:00:00	98	0.5	14.50%	0.36
125	2006/02/27 19:00:00	2006/03/01 04:00:00	34	0.5	14.60%	0.36
126	2008/02/22 02:00:00	2008/02/23 05:00:00	28	0.5	14.70%	0.36
127	1964/12/27 07:00:00	1964/12/29 10:00:00	52	0.4	14.90%	0.35
128	1965/12/29 08:00:00	1966/01/01 10:00:00	75	0.4	15.00%	0.35
129	1979/01/15 14:00:00	1979/01/19 07:00:00	90	0.4	15.10%	0.35
130	1979/02/21 01:00:00	1979/02/23 16:00:00	64	0.4	15.20%	0.35
131	1980/03/06 00:00:00	1980/03/07 06:00:00	31	0.4	15.30%	0.34
132	1981/03/19 20:00:00	1981/03/20 21:00:00	26	0.4	15.40%	0.34
133	1982/03/15 12:00:00	1982/03/16 17:00:00	30	0.4	15.60%	0.34

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
134	1983/03/20 20:00:00	1983/03/24 23:00:00	100	0.4	15.70%	0.34
135	1991/12/28 00:00:00	1991/12/30 14:00:00	63	0.4	15.80%	0.33
136	1993/02/18 13:00:00	1993/02/21 00:00:00	60	0.4	15.90%	0.33
137	1995/01/07 16:00:00	1995/01/09 00:00:00	33	0.4	16.00%	0.33
138	1995/01/10 16:00:00	1995/01/13 08:00:00	65	0.4	16.10%	0.33
139	1997/01/25 15:00:00	1997/01/27 15:00:00	49	0.4	16.30%	0.32
140	1998/02/22 02:00:00	1998/02/25 18:00:00	89	0.4	16.40%	0.32
141	2003/03/15 02:00:00	2003/03/17 18:00:00	65	0.4	16.50%	0.32
142	1965/12/12 06:00:00	1965/12/17 01:00:00	116	0.3	16.60%	0.32
143	1966/02/06 10:00:00	1966/02/08 11:00:00	50	0.3	16.70%	0.32
144	1968/04/01 19:00:00	1968/04/02 22:00:00	28	0.3	16.80%	0.31
145	1969/01/18 22:00:00	1969/01/22 11:00:00	86	0.3	17.00%	0.31
146	1972/11/11 01:00:00	1972/11/12 02:00:00	26	0.3	17.10%	0.31
147	1973/01/18 20:00:00	1973/01/19 19:00:00	24	0.3	17.20%	0.31
148	1973/02/10 22:00:00	1973/02/13 16:00:00	67	0.3	17.30%	0.3
149	1973/03/11 11:00:00	1973/03/14 07:00:00	69	0.3	17.40%	0.3
150	1973/03/20 08:00:00	1973/03/22 19:00:00	60	0.3	17.50%	0.3
151	1974/04/02 01:00:00	1974/04/03 02:00:00	26	0.3	17.70%	0.3
152	1974/10/28 05:00:00	1974/10/30 05:00:00	49	0.3	17.80%	0.3
153	1975/12/11 23:00:00	1975/12/13 04:00:00	30	0.3	17.90%	0.29
154	1978/09/05 17:00:00	1978/09/07 18:00:00	50	0.3	18.00%	0.29
155	1979/03/17 05:00:00	1979/03/21 12:00:00	104	0.3	18.10%	0.29
156	1982/01/20 03:00:00	1982/01/22 06:00:00	52	0.3	18.20%	0.29
157	1983/02/05 17:00:00	1983/02/09 02:00:00	82	0.3	18.40%	0.29
158	1983/03/17 04:00:00	1983/03/19 14:00:00	59	0.3	18.50%	0.29
159	1986/12/06 03:00:00	1986/12/07 20:00:00	42	0.3	18.60%	0.28
160	1987/11/04 15:00:00	1987/11/06 01:00:00	35	0.3	18.70%	0.28
161	1988/02/01 01:00:00	1988/02/03 11:00:00	59	0.3	18.80%	0.28
162	1992/03/02 01:00:00	1992/03/04 00:00:00	48	0.3	18.90%	0.28
163	1992/12/27 16:00:00	1992/12/30 13:00:00	70	0.3	19.10%	0.28
164	1993/11/14 06:00:00	1993/11/15 10:00:00	29	0.3	19.20%	0.27
165	1994/03/19 02:00:00	1994/03/20 21:00:00	44	0.3	19.30%	0.27
166	1994/03/24 21:00:00	1994/03/26 08:00:00	36	0.3	19.40%	0.27
167	1995/03/23 09:00:00	1995/03/24 07:00:00	23	0.3	19.50%	0.27
168	1996/12/09 15:00:00	1996/12/12 11:00:00	69	0.3	19.60%	0.27
169	2002/11/08 02:00:00	2002/11/10 19:00:00	66	0.3	19.80%	0.27
170	2005/02/11 01:00:00	2005/02/13 10:00:00	58	0.3	19.90%	0.27
171	2005/12/31 16:00:00	2006/01/03 11:00:00	68	0.3	20.00%	0.26
172	1965/02/06 00:00:00	1965/02/07 14:00:00	39	0.2	20.10%	0.26
173	1965/03/31 14:00:00	1965/04/05 15:00:00	122	0.2	20.20%	0.26
174	1967/04/21 12:00:00	1967/04/22 20:00:00	33	0.2	20.40%	0.26
175	1969/02/18 09:00:00	1969/02/20 10:00:00	50	0.2	20.50%	0.26
176	1969/03/12 21:00:00	1969/03/14 09:00:00	37	0.2	20.60%	0.26
177	1969/11/06 18:00:00	1969/11/07 18:00:00	25	0.2	20.70%	0.25
178	1970/03/11 10:00:00	1970/03/12 16:00:00	31	0.2	20.80%	0.25
179	1970/10/03 14:00:00	1970/10/04 08:00:00	19	0.2	20.90%	0.25
180	1971/01/02 04:00:00	1971/01/03 04:00:00	25	0.2	21.10%	0.25

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
181	1971/05/06 06:00:00	1971/05/08 16:00:00	59	0.2	21.20%	0.25
182	1971/05/28 01:00:00	1971/05/29 11:00:00	35	0.2	21.30%	0.25
183	1973/02/27 23:00:00	1973/02/28 23:00:00	25	0.2	21.40%	0.25
184	1974/01/01 04:00:00	1974/01/02 07:00:00	28	0.2	21.50%	0.25
185	1975/02/09 06:00:00	1975/02/10 19:00:00	38	0.2	21.60%	0.24
186	1975/11/27 17:00:00	1975/11/29 11:00:00	43	0.2	21.80%	0.24
187	1976/10/22 20:00:00	1976/10/23 20:00:00	25	0.2	21.90%	0.24
188	1977/01/03 12:00:00	1977/01/04 16:00:00	29	0.2	22.00%	0.24
189	1977/03/16 12:00:00	1977/03/17 16:00:00	29	0.2	22.10%	0.24
190	1977/03/24 11:00:00	1977/03/26 02:00:00	40	0.2	22.20%	0.24
191	1977/12/25 11:00:00	1977/12/29 23:00:00	109	0.2	22.30%	0.24
192	1978/01/30 07:00:00	1978/01/31 11:00:00	29	0.2	22.50%	0.23
193	1978/03/30 14:00:00	1978/04/01 05:00:00	40	0.2	22.60%	0.23
194	1978/04/07 01:00:00	1978/04/08 16:00:00	40	0.2	22.70%	0.23
195	1978/11/10 18:00:00	1978/11/12 18:00:00	49	0.2	22.80%	0.23
196	1978/11/13 21:00:00	1978/11/14 20:00:00	24	0.2	22.90%	0.23
197	1978/11/21 18:00:00	1978/11/24 04:00:00	59	0.2	23.00%	0.23
198	1979/01/31 00:00:00	1979/02/03 03:00:00	76	0.2	23.20%	0.23
199	1980/01/18 04:00:00	1980/01/19 16:00:00	37	0.2	23.30%	0.23
200	1980/03/25 22:00:00	1980/03/26 18:00:00	21	0.2	23.40%	0.23
201	1980/12/04 13:00:00	1980/12/05 13:00:00	25	0.2	23.50%	0.22
202	1981/02/25 05:00:00	1981/02/26 17:00:00	37	0.2	23.60%	0.22
203	1981/03/04 07:00:00	1981/03/06 06:00:00	48	0.2	23.70%	0.22
204	1981/11/26 18:00:00	1981/11/29 21:00:00	76	0.2	23.90%	0.22
205	1982/01/28 17:00:00	1982/01/29 13:00:00	21	0.2	24.00%	0.22
206	1982/03/26 21:00:00	1982/03/29 05:00:00	57	0.2	24.10%	0.22
207	1982/03/31 02:00:00	1982/04/03 15:00:00	86	0.2	24.20%	0.22
208	1982/11/09 13:00:00	1982/11/11 17:00:00	53	0.2	24.30%	0.22
209	1983/04/29 02:00:00	1983/05/01 22:00:00	69	0.2	24.40%	0.22
210	1983/11/20 09:00:00	1983/11/21 21:00:00	37	0.2	24.60%	0.21
211	1983/12/03 15:00:00	1983/12/04 12:00:00	22	0.2	24.70%	0.21
212	1985/02/01 15:00:00	1985/02/03 22:00:00	56	0.2	24.80%	0.21
213	1985/09/18 08:00:00	1985/09/19 03:00:00	20	0.2	24.90%	0.21
214	1985/12/02 12:00:00	1985/12/03 21:00:00	34	0.2	25.00%	0.21
215	1986/01/30 01:00:00	1986/02/01 09:00:00	57	0.2	25.10%	0.21
216	1986/03/15 20:00:00	1986/03/17 16:00:00	45	0.2	25.30%	0.21
217	1986/04/06 05:00:00	1986/04/07 07:00:00	27	0.2	25.40%	0.21
218	1987/10/22 16:00:00	1987/10/24 10:00:00	43	0.2	25.50%	0.21
219	1987/12/04 21:00:00	1987/12/05 16:00:00	20	0.2	25.60%	0.21
220	1988/04/14 18:00:00	1988/04/16 07:00:00	38	0.2	25.70%	0.21
221	1988/12/21 01:00:00	1988/12/23 07:00:00	55	0.2	25.80%	0.2
222	1990/02/17 10:00:00	1990/02/19 10:00:00	49	0.2	26.00%	0.2
223	1990/06/09 07:00:00	1990/06/10 22:00:00	40	0.2	26.10%	0.2
224	1991/01/09 09:00:00	1991/01/10 06:00:00	22	0.2	26.20%	0.2
225	1991/10/26 20:00:00	1991/10/27 16:00:00	21	0.2	26.30%	0.2
226	1993/01/31 01:00:00	1993/01/31 20:00:00	20	0.2	26.40%	0.2
227	1993/02/23 19:00:00	1993/02/24 21:00:00	27	0.2	26.50%	0.2

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
228	1993/03/26 00:00:00	1993/03/28 19:00:00	68	0.2	26.70%	0.2
229	1994/02/03 20:00:00	1994/02/05 09:00:00	38	0.2	26.80%	0.2
230	1994/02/20 12:00:00	1994/02/21 10:00:00	23	0.2	26.90%	0.2
231	1994/04/25 15:00:00	1994/04/28 17:00:00	75	0.2	27.00%	0.2
232	1995/03/21 09:00:00	1995/03/22 07:00:00	23	0.2	27.10%	0.19
233	1995/04/16 06:00:00	1995/04/19 14:00:00	81	0.2	27.30%	0.19
234	1995/12/20 17:00:00	1995/12/21 11:00:00	19	0.2	27.40%	0.19
235	1996/01/21 18:00:00	1996/01/22 23:00:00	30	0.2	27.50%	0.19
236	1996/02/25 09:00:00	1996/02/26 19:00:00	35	0.2	27.60%	0.19
237	1996/03/12 17:00:00	1996/03/14 10:00:00	42	0.2	27.70%	0.19
238	1997/04/03 17:00:00	1997/04/05 00:00:00	32	0.2	27.80%	0.19
239	1998/03/25 02:00:00	1998/04/02 17:00:00	208	0.2	28.00%	0.19
240	1998/04/11 02:00:00	1998/04/12 21:00:00	44	0.2	28.10%	0.19
241	1998/05/12 02:00:00	1998/05/13 19:00:00	42	0.2	28.20%	0.19
242	2000/02/21 02:00:00	2000/02/23 05:00:00	52	0.2	28.30%	0.19
243	2000/04/17 16:00:00	2000/04/18 19:00:00	28	0.2	28.40%	0.19
244	2001/01/26 11:00:00	2001/01/28 10:00:00	48	0.2	28.50%	0.18
245	2001/11/24 02:00:00	2001/11/25 15:00:00	38	0.2	28.70%	0.18
246	2002/03/17 20:00:00	2002/03/18 16:00:00	21	0.2	28.80%	0.18
247	2002/11/29 02:00:00	2002/11/30 18:00:00	41	0.2	28.90%	0.18
248	2002/12/16 02:00:00	2002/12/17 20:00:00	43	0.2	29.00%	0.18
249	2002/12/20 02:00:00	2002/12/22 02:00:00	49	0.2	29.10%	0.18
250	2003/12/24 23:00:00	2003/12/26 13:00:00	39	0.2	29.20%	0.18
251	2004/02/02 23:00:00	2004/02/04 10:00:00	36	0.2	29.40%	0.18
252	2004/02/18 16:00:00	2004/02/19 08:00:00	17	0.2	29.50%	0.18
253	2004/03/02 00:00:00	2004/03/03 11:00:00	36	0.2	29.60%	0.18
254	2005/04/28 07:00:00	2005/04/29 07:00:00	25	0.2	29.70%	0.18
255	2006/03/10 13:00:00	2006/03/13 06:00:00	66	0.2	29.80%	0.18
256	2006/03/28 02:00:00	2006/03/29 19:00:00	42	0.2	29.90%	0.18
257	2006/05/22 04:00:00	2006/05/23 00:00:00	21	0.2	30.10%	0.18
258	2007/04/20 14:00:00	2007/04/21 08:00:00	19	0.2	30.20%	0.17
259	2007/12/07 04:00:00	2007/12/09 04:00:00	49	0.2	30.30%	0.17
260	2008/02/14 11:00:00	2008/02/15 09:00:00	23	0.2	30.40%	0.17
261	1964/09/24 14:00:00	1964/09/24 21:00:00	8	0.1	30.50%	0.17
262	1964/10/15 09:00:00	1964/10/16 03:00:00	19	0.1	30.60%	0.17
263	1964/11/09 12:00:00	1964/11/12 15:00:00	76	0.1	30.80%	0.17
264	1965/01/24 06:00:00	1965/01/24 22:00:00	17	0.1	30.90%	0.17
265	1965/03/11 07:00:00	1965/03/12 04:00:00	22	0.1	31.00%	0.17
266	1965/12/21 23:00:00	1965/12/23 04:00:00	30	0.1	31.10%	0.17
267	1966/10/04 00:00:00	1966/10/05 20:00:00	45	0.1	31.20%	0.17
268	1966/10/10 12:00:00	1966/10/11 02:00:00	15	0.1	31.30%	0.17
269	1967/03/04 00:00:00	1967/03/04 17:00:00	18	0.1	31.50%	0.17
270	1967/03/31 10:00:00	1967/04/02 13:00:00	52	0.1	31.60%	0.17
271	1967/04/04 16:00:00	1967/04/05 07:00:00	16	0.1	31.70%	0.17
272	1967/04/18 19:00:00	1967/04/20 05:00:00	35	0.1	31.80%	0.17
273	1967/06/13 12:00:00	1967/06/13 23:00:00	12	0.1	31.90%	0.17
274	1967/08/31 02:00:00	1967/08/31 19:00:00	18	0.1	32.00%	0.16

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
275	1967/11/30 16:00:00	1967/12/01 08:00:00	17	0.1	32.20%	0.16
276	1967/12/13 10:00:00	1967/12/13 22:00:00	13	0.1	32.30%	0.16
277	1968/01/27 07:00:00	1968/01/28 15:00:00	33	0.1	32.40%	0.16
278	1968/02/13 09:00:00	1968/02/14 13:00:00	29	0.1	32.50%	0.16
279	1968/03/18 13:00:00	1968/03/19 00:00:00	12	0.1	32.60%	0.16
280	1968/07/09 21:00:00	1968/07/10 04:00:00	8	0.1	32.70%	0.16
281	1968/11/15 06:00:00	1968/11/16 06:00:00	25	0.1	32.90%	0.16
282	1968/12/19 14:00:00	1968/12/21 00:00:00	35	0.1	33.00%	0.16
283	1968/12/25 18:00:00	1968/12/26 20:00:00	27	0.1	33.10%	0.16
284	1969/02/15 18:00:00	1969/02/16 06:00:00	13	0.1	33.20%	0.16
285	1969/02/28 22:00:00	1969/03/01 10:00:00	13	0.1	33.30%	0.16
286	1969/03/10 02:00:00	1969/03/11 15:00:00	38	0.1	33.50%	0.16
287	1969/03/21 13:00:00	1969/03/22 13:00:00	25	0.1	33.60%	0.16
288	1969/04/05 20:00:00	1969/04/06 07:00:00	12	0.1	33.70%	0.16
289	1969/11/10 00:00:00	1969/11/10 15:00:00	16	0.1	33.80%	0.16
290	1969/12/08 19:00:00	1969/12/09 08:00:00	14	0.1	33.90%	0.16
291	1970/01/11 14:00:00	1970/01/12 12:00:00	23	0.1	34.00%	0.16
292	1970/01/16 16:00:00	1970/01/17 08:00:00	17	0.1	34.20%	0.15
293	1970/02/10 01:00:00	1970/02/11 16:00:00	40	0.1	34.30%	0.15
294	1970/04/30 09:00:00	1970/04/30 16:00:00	8	0.1	34.40%	0.15
295	1970/11/25 23:00:00	1970/11/26 22:00:00	24	0.1	34.50%	0.15
296	1970/12/09 05:00:00	1970/12/09 19:00:00	15	0.1	34.60%	0.15
297	1971/01/12 19:00:00	1971/01/13 10:00:00	16	0.1	34.70%	0.15
298	1971/02/16 16:00:00	1971/02/17 20:00:00	29	0.1	34.90%	0.15
299	1971/02/19 17:00:00	1971/02/20 14:00:00	22	0.1	35.00%	0.15
300	1971/03/13 06:00:00	1971/03/14 00:00:00	19	0.1	35.10%	0.15
301	1971/04/14 11:00:00	1971/04/16 15:00:00	53	0.1	35.20%	0.15
302	1971/04/23 07:00:00	1971/04/23 18:00:00	12	0.1	35.30%	0.15
303	1971/10/16 04:00:00	1971/10/17 17:00:00	38	0.1	35.40%	0.15
304	1971/12/03 00:00:00	1971/12/04 12:00:00	37	0.1	35.60%	0.15
305	1971/12/07 01:00:00	1971/12/07 12:00:00	12	0.1	35.70%	0.15
306	1971/12/31 04:00:00	1971/12/31 16:00:00	13	0.1	35.80%	0.15
307	1972/01/09 09:00:00	1972/01/10 10:00:00	26	0.1	35.90%	0.15
308	1972/02/05 08:00:00	1972/02/06 15:00:00	32	0.1	36.00%	0.15
309	1972/04/30 04:00:00	1972/04/30 18:00:00	15	0.1	36.10%	0.15
310	1972/05/19 04:00:00	1972/05/21 00:00:00	45	0.1	36.30%	0.15
311	1972/10/19 03:00:00	1972/10/21 01:00:00	47	0.1	36.40%	0.15
312	1972/12/07 04:00:00	1972/12/09 13:00:00	58	0.1	36.50%	0.14
313	1973/01/04 01:00:00	1973/01/05 05:00:00	29	0.1	36.60%	0.14
314	1973/01/09 10:00:00	1973/01/10 11:00:00	26	0.1	36.70%	0.14
315	1973/02/03 13:00:00	1973/02/04 08:00:00	20	0.1	36.80%	0.14
316	1973/02/06 01:00:00	1973/02/06 13:00:00	13	0.1	37.00%	0.14
317	1973/03/27 03:00:00	1973/03/29 03:00:00	49	0.1	37.10%	0.14
318	1973/04/30 05:00:00	1973/04/30 19:00:00	15	0.1	37.20%	0.14
319	1973/11/17 06:00:00	1973/11/19 03:00:00	46	0.1	37.30%	0.14
320	1973/12/01 15:00:00	1973/12/02 02:00:00	12	0.1	37.40%	0.14
321	1974/01/20 17:00:00	1974/01/21 06:00:00	14	0.1	37.50%	0.14

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
322	1974/03/02 10:00:00	1974/03/03 23:00:00	38	0.1	37.70%	0.14
323	1974/03/27 09:00:00	1974/03/27 18:00:00	10	0.1	37.80%	0.14
324	1974/12/28 06:00:00	1974/12/29 21:00:00	40	0.1	37.90%	0.14
325	1975/01/30 18:00:00	1975/01/31 08:00:00	15	0.1	38.00%	0.14
326	1975/02/03 09:00:00	1975/02/05 15:00:00	55	0.1	38.10%	0.14
327	1975/03/05 14:00:00	1975/03/07 04:00:00	39	0.1	38.20%	0.14
328	1975/03/14 02:00:00	1975/03/14 20:00:00	19	0.1	38.40%	0.14
329	1975/03/22 08:00:00	1975/03/23 20:00:00	37	0.1	38.50%	0.14
330	1975/03/31 21:00:00	1975/04/01 14:00:00	18	0.1	38.60%	0.14
331	1975/04/17 03:00:00	1975/04/18 19:00:00	41	0.1	38.70%	0.14
332	1976/11/27 04:00:00	1976/11/27 21:00:00	18	0.1	38.80%	0.14
333	1977/01/06 19:00:00	1977/01/07 16:00:00	22	0.1	38.90%	0.14
334	1977/01/28 17:00:00	1977/01/29 05:00:00	13	0.1	39.10%	0.14
335	1977/02/22 01:00:00	1977/02/22 11:00:00	11	0.1	39.20%	0.13
336	1977/02/23 12:00:00	1977/02/24 08:00:00	21	0.1	39.30%	0.13
337	1977/05/12 19:00:00	1977/05/13 07:00:00	13	0.1	39.40%	0.13
338	1977/05/24 06:00:00	1977/05/24 16:00:00	11	0.1	39.50%	0.13
339	1977/12/18 01:00:00	1977/12/19 00:00:00	24	0.1	39.60%	0.13
340	1977/12/23 03:00:00	1977/12/23 15:00:00	13	0.1	39.80%	0.13
341	1978/01/10 17:00:00	1978/01/11 10:00:00	18	0.1	39.90%	0.13
342	1978/03/22 04:00:00	1978/03/23 20:00:00	41	0.1	40.00%	0.13
343	1978/04/15 20:00:00	1978/04/16 11:00:00	16	0.1	40.10%	0.13
344	1979/01/09 08:00:00	1979/01/10 00:00:00	17	0.1	40.20%	0.13
345	1979/02/14 03:00:00	1979/02/14 20:00:00	18	0.1	40.40%	0.13
346	1979/11/07 19:00:00	1979/11/09 10:00:00	40	0.1	40.50%	0.13
347	1980/03/21 19:00:00	1980/03/22 10:00:00	16	0.1	40.60%	0.13
348	1980/04/22 15:00:00	1980/04/24 18:00:00	52	0.1	40.70%	0.13
349	1980/04/28 17:00:00	1980/04/30 02:00:00	34	0.1	40.80%	0.13
350	1980/05/10 11:00:00	1980/05/10 21:00:00	11	0.1	40.90%	0.13
351	1980/12/07 11:00:00	1980/12/07 22:00:00	12	0.1	41.10%	0.13
352	1981/01/28 06:00:00	1981/01/31 03:00:00	70	0.1	41.20%	0.13
353	1981/03/26 22:00:00	1981/03/27 13:00:00	16	0.1	41.30%	0.13
354	1981/04/18 13:00:00	1981/04/19 15:00:00	27	0.1	41.40%	0.13
355	1981/10/11 06:00:00	1981/10/11 15:00:00	10	0.1	41.50%	0.13
356	1982/01/05 04:00:00	1982/01/06 00:00:00	21	0.1	41.60%	0.13
357	1982/01/10 18:00:00	1982/01/11 09:00:00	16	0.1	41.80%	0.13
358	1982/03/02 19:00:00	1982/03/03 08:00:00	14	0.1	41.90%	0.13
359	1982/09/26 01:00:00	1982/09/27 00:00:00	24	0.1	42.00%	0.13
360	1982/11/19 02:00:00	1982/11/20 02:00:00	25	0.1	42.10%	0.13
361	1982/12/07 23:00:00	1982/12/10 10:00:00	60	0.1	42.20%	0.13
362	1982/12/29 19:00:00	1982/12/30 17:00:00	23	0.1	42.30%	0.12
363	1983/01/19 04:00:00	1983/01/19 19:00:00	16	0.1	42.50%	0.12
364	1983/01/23 00:00:00	1983/01/23 13:00:00	14	0.1	42.60%	0.12
365	1983/01/24 18:00:00	1983/01/25 05:00:00	12	0.1	42.70%	0.12
366	1983/02/02 12:00:00	1983/02/03 08:00:00	21	0.1	42.80%	0.12
367	1983/03/06 03:00:00	1983/03/06 20:00:00	18	0.1	42.90%	0.12
368	1983/04/10 23:00:00	1983/04/13 06:00:00	56	0.1	43.00%	0.12

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
369	1983/04/17 22:00:00	1983/04/18 15:00:00	18	0.1	43.20%	0.12
370	1983/04/20 01:00:00	1983/04/21 19:00:00	43	0.1	43.30%	0.12
371	1983/08/16 15:00:00	1983/08/17 03:00:00	13	0.1	43.40%	0.12
372	1983/10/01 04:00:00	1983/10/02 05:00:00	26	0.1	43.50%	0.12
373	1983/10/07 07:00:00	1983/10/08 02:00:00	20	0.1	43.60%	0.12
374	1983/11/11 22:00:00	1983/11/13 14:00:00	41	0.1	43.70%	0.12
375	1983/12/09 18:00:00	1983/12/10 09:00:00	16	0.1	43.90%	0.12
376	1984/01/16 16:00:00	1984/01/17 05:00:00	14	0.1	44.00%	0.12
377	1984/04/06 06:00:00	1984/04/06 17:00:00	12	0.1	44.10%	0.12
378	1984/12/07 23:00:00	1984/12/08 14:00:00	16	0.1	44.20%	0.12
379	1984/12/14 14:00:00	1984/12/15 00:00:00	11	0.1	44.30%	0.12
380	1984/12/16 04:00:00	1984/12/16 11:00:00	8	0.1	44.40%	0.12
381	1985/02/09 05:00:00	1985/02/10 05:00:00	25	0.1	44.60%	0.12
382	1985/02/20 20:00:00	1985/02/21 07:00:00	12	0.1	44.70%	0.12
383	1985/03/02 13:00:00	1985/03/03 12:00:00	24	0.1	44.80%	0.12
384	1985/03/27 08:00:00	1985/03/28 18:00:00	35	0.1	44.90%	0.12
385	1985/10/07 14:00:00	1985/10/07 22:00:00	9	0.1	45.00%	0.12
386	1985/10/09 12:00:00	1985/10/10 02:00:00	15	0.1	45.10%	0.12
387	1985/12/09 16:00:00	1985/12/11 21:00:00	54	0.1	45.30%	0.12
388	1986/07/19 12:00:00	1986/07/20 02:00:00	15	0.1	45.40%	0.12
389	1986/10/08 16:00:00	1986/10/11 09:00:00	66	0.1	45.50%	0.12
390	1987/02/23 13:00:00	1987/02/26 13:00:00	73	0.1	45.60%	0.12
391	1987/04/03 04:00:00	1987/04/04 14:00:00	35	0.1	45.70%	0.12
392	1987/10/12 18:00:00	1987/10/13 05:00:00	12	0.1	45.80%	0.12
393	1987/10/28 19:00:00	1987/10/29 10:00:00	16	0.1	46.00%	0.12
394	1987/10/31 00:00:00	1987/11/02 14:00:00	63	0.1	46.10%	0.11
395	1987/12/19 14:00:00	1987/12/20 04:00:00	15	0.1	46.20%	0.11
396	1988/01/05 13:00:00	1988/01/06 09:00:00	21	0.1	46.30%	0.11
397	1988/02/29 22:00:00	1988/03/02 10:00:00	37	0.1	46.40%	0.11
398	1988/11/14 05:00:00	1988/11/14 23:00:00	19	0.1	46.50%	0.11
399	1988/12/15 07:00:00	1988/12/17 01:00:00	43	0.1	46.70%	0.11
400	1988/12/18 06:00:00	1988/12/19 08:00:00	27	0.1	46.80%	0.11
401	1989/01/04 08:00:00	1989/01/06 11:00:00	52	0.1	46.90%	0.11
402	1989/02/02 10:00:00	1989/02/02 20:00:00	11	0.1	47.00%	0.11
403	1989/02/04 04:00:00	1989/02/05 01:00:00	22	0.1	47.10%	0.11
404	1989/10/21 23:00:00	1989/10/22 15:00:00	17	0.1	47.30%	0.11
405	1990/01/02 01:00:00	1990/01/02 20:00:00	20	0.1	47.40%	0.11
406	1990/01/31 00:00:00	1990/01/31 17:00:00	18	0.1	47.50%	0.11
407	1990/02/04 11:00:00	1990/02/04 22:00:00	12	0.1	47.60%	0.11
408	1990/03/11 01:00:00	1990/03/13 00:00:00	48	0.1	47.70%	0.11
409	1990/04/04 09:00:00	1990/04/05 16:00:00	32	0.1	47.80%	0.11
410	1990/05/28 04:00:00	1990/05/29 07:00:00	28	0.1	48.00%	0.11
411	1990/11/19 22:00:00	1990/11/20 17:00:00	20	0.1	48.10%	0.11
412	1990/11/26 02:00:00	1990/11/26 15:00:00	14	0.1	48.20%	0.11
413	1990/12/19 13:00:00	1990/12/20 12:00:00	24	0.1	48.30%	0.11
414	1991/01/03 12:00:00	1991/01/04 22:00:00	35	0.1	48.40%	0.11
415	1991/03/13 17:00:00	1991/03/16 05:00:00	61	0.1	48.50%	0.11

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
416	1991/12/17 11:00:00	1991/12/19 14:00:00	52	0.1	48.70%	0.11
417	1992/02/09 23:00:00	1992/02/10 14:00:00	16	0.1	48.80%	0.11
418	1992/03/20 16:00:00	1992/03/23 19:00:00	76	0.1	48.90%	0.11
419	1992/03/26 16:00:00	1992/03/27 10:00:00	19	0.1	49.00%	0.11
420	1992/03/31 16:00:00	1992/04/01 15:00:00	24	0.1	49.10%	0.11
421	1992/10/30 17:00:00	1992/10/31 03:00:00	11	0.1	49.20%	0.11
422	1992/12/03 23:00:00	1992/12/05 02:00:00	28	0.1	49.40%	0.11
423	1992/12/17 22:00:00	1992/12/18 16:00:00	19	0.1	49.50%	0.11
424	1993/01/02 02:00:00	1993/01/03 06:00:00	29	0.1	49.60%	0.11
425	1993/06/05 13:00:00	1993/06/06 04:00:00	16	0.1	49.70%	0.11
426	1993/11/22 22:00:00	1993/11/23 16:00:00	19	0.1	49.80%	0.11
427	1993/11/30 04:00:00	1993/11/30 14:00:00	11	0.1	49.90%	0.11
428	1993/12/11 16:00:00	1993/12/12 12:00:00	21	0.1	50.10%	0.11
429	1993/12/14 17:00:00	1993/12/15 13:00:00	21	0.1	50.20%	0.11
430	1994/01/25 00:00:00	1994/01/27 22:00:00	71	0.1	50.30%	0.11
431	1994/03/06 05:00:00	1994/03/08 00:00:00	44	0.1	50.40%	0.1
432	1994/04/09 05:00:00	1994/04/10 02:00:00	22	0.1	50.50%	0.1
433	1994/11/10 11:00:00	1994/11/10 23:00:00	13	0.1	50.60%	0.1
434	1994/11/16 08:00:00	1994/11/16 17:00:00	10	0.1	50.80%	0.1
435	1994/12/24 05:00:00	1994/12/25 20:00:00	40	0.1	50.90%	0.1
436	1995/01/15 03:00:00	1995/01/17 15:00:00	61	0.1	51.00%	0.1
437	1995/01/21 02:00:00	1995/01/21 16:00:00	15	0.1	51.10%	0.1
438	1995/06/15 21:00:00	1995/06/17 17:00:00	45	0.1	51.20%	0.1
439	1995/12/23 10:00:00	1995/12/24 00:00:00	15	0.1	51.30%	0.1
440	1996/02/21 02:00:00	1996/02/22 09:00:00	32	0.1	51.50%	0.1
441	1996/02/27 21:00:00	1996/02/28 12:00:00	16	0.1	51.60%	0.1
442	1996/03/04 17:00:00	1996/03/05 13:00:00	21	0.1	51.70%	0.1
443	1996/04/18 00:00:00	1996/04/18 19:00:00	20	0.1	51.80%	0.1
444	1996/10/30 13:00:00	1996/10/31 10:00:00	22	0.1	51.90%	0.1
445	1996/12/05 22:00:00	1996/12/06 19:00:00	22	0.1	52.00%	0.1
446	1996/12/22 15:00:00	1996/12/23 02:00:00	12	0.1	52.20%	0.1
447	1997/01/05 09:00:00	1997/01/06 02:00:00	18	0.1	52.30%	0.1
448	1997/01/15 18:00:00	1997/01/16 08:00:00	15	0.1	52.40%	0.1
449	1997/01/23 03:00:00	1997/01/24 06:00:00	28	0.1	52.50%	0.1
450	1997/02/10 19:00:00	1997/02/11 08:00:00	14	0.1	52.60%	0.1
451	1997/02/27 11:00:00	1997/02/28 11:00:00	25	0.1	52.70%	0.1
452	1997/12/06 02:00:00	1997/12/08 06:00:00	53	0.1	52.90%	0.1
453	1998/01/19 04:00:00	1998/01/20 04:00:00	25	0.1	53.00%	0.1
454	1998/01/29 02:00:00	1998/01/30 09:00:00	32	0.1	53.10%	0.1
455	1998/03/06 04:00:00	1998/03/07 03:00:00	24	0.1	53.20%	0.1
456	1998/04/14 08:00:00	1998/04/16 02:00:00	43	0.1	53.30%	0.1
457	1998/05/04 16:00:00	1998/05/06 18:00:00	51	0.1	53.50%	0.1
458	2000/02/13 02:00:00	2000/02/14 19:00:00	42	0.1	53.60%	0.1
459	2000/02/17 02:00:00	2000/02/18 08:00:00	31	0.1	53.70%	0.1
460	2000/10/29 20:00:00	2000/10/30 17:00:00	22	0.1	53.80%	0.1
461	2000/11/10 04:00:00	2000/11/11 15:00:00	36	0.1	53.90%	0.1
462	2001/01/08 16:00:00	2001/01/09 08:00:00	17	0.1	54.00%	0.1

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
463	2001/04/21 00:00:00	2001/04/22 00:00:00	25	0.1	54.20%	0.1
464	2001/05/29 15:00:00	2001/05/29 22:00:00	8	0.1	54.30%	0.1
465	2001/12/03 05:00:00	2001/12/04 03:00:00	23	0.1	54.40%	0.1
466	2001/12/09 02:00:00	2001/12/10 08:00:00	31	0.1	54.50%	0.1
467	2001/12/21 02:00:00	2001/12/22 09:00:00	32	0.1	54.60%	0.1
468	2002/03/07 11:00:00	2002/03/08 05:00:00	19	0.1	54.70%	0.1
469	2003/05/03 02:00:00	2003/05/04 06:00:00	29	0.1	54.90%	0.1
470	2003/11/12 03:00:00	2003/11/13 00:00:00	22	0.1	55.00%	0.1
471	2004/01/28 05:00:00	2004/01/28 17:00:00	13	0.1	55.10%	0.1
472	2004/04/01 22:00:00	2004/04/02 22:00:00	25	0.1	55.20%	0.1
473	2004/04/17 13:00:00	2004/04/17 22:00:00	10	0.1	55.30%	0.1
474	2004/11/21 05:00:00	2004/11/21 23:00:00	19	0.1	55.40%	0.1
475	2004/11/29 12:00:00	2004/11/29 21:00:00	10	0.1	55.60%	0.1
476	2004/12/04 14:00:00	2004/12/06 08:00:00	43	0.1	55.70%	0.1
477	2005/01/28 15:00:00	2005/01/29 09:00:00	19	0.1	55.80%	0.09
478	2005/03/04 15:00:00	2005/03/05 18:00:00	28	0.1	55.90%	0.09
479	2005/03/22 19:00:00	2005/03/24 17:00:00	47	0.1	56.00%	0.09
480	2005/09/20 02:00:00	2005/09/20 07:00:00	6	0.1	56.10%	0.09
481	2005/10/16 16:00:00	2005/10/18 23:00:00	56	0.1	56.30%	0.09
482	2006/02/17 23:00:00	2006/02/19 14:00:00	40	0.1	56.40%	0.09
483	2006/03/17 20:00:00	2006/03/19 03:00:00	32	0.1	56.50%	0.09
484	2006/03/20 04:00:00	2006/03/21 16:00:00	37	0.1	56.60%	0.09
485	2006/04/14 13:00:00	2006/04/15 14:00:00	26	0.1	56.70%	0.09
486	2006/10/13 20:00:00	2006/10/14 22:00:00	27	0.1	56.80%	0.09
487	2006/12/09 22:00:00	2006/12/11 04:00:00	31	0.1	57.00%	0.09
488	2006/12/16 20:00:00	2006/12/17 12:00:00	17	0.1	57.10%	0.09
489	2007/02/12 22:00:00	2007/02/14 06:00:00	33	0.1	57.20%	0.09
490	2007/02/19 01:00:00	2007/02/20 07:00:00	31	0.1	57.30%	0.09
491	2007/02/22 21:00:00	2007/02/23 14:00:00	18	0.1	57.40%	0.09
492	2007/02/28 05:00:00	2007/02/28 14:00:00	10	0.1	57.50%	0.09
493	2007/04/22 23:00:00	2007/04/23 11:00:00	13	0.1	57.70%	0.09
494	2007/12/19 00:00:00	2007/12/19 17:00:00	18	0.1	57.80%	0.09
495	2007/12/20 22:00:00	2007/12/21 14:00:00	17	0.1	57.90%	0.09
496	2008/01/23 19:00:00	2008/01/24 15:00:00	21	0.1	58.00%	0.09
497	2008/01/26 21:00:00	2008/01/28 21:00:00	49	0.1	58.10%	0.09
498	2008/02/20 09:00:00	2008/02/20 23:00:00	15	0.1	58.20%	0.09
499	2008/02/24 07:00:00	2008/02/24 21:00:00	15	0.1	58.40%	0.09
500	1964/11/26 12:00:00	1964/11/26 19:00:00	8	0	58.50%	0.09
501	1965/01/07 10:00:00	1965/01/07 20:00:00	11	0	58.60%	0.09
502	1965/03/07 01:00:00	1965/03/07 11:00:00	11	0	58.70%	0.09
503	1965/03/13 06:00:00	1965/03/13 13:00:00	8	0	58.80%	0.09
504	1965/03/15 02:00:00	1965/03/15 13:00:00	12	0	58.90%	0.09
505	1965/03/24 09:00:00	1965/03/24 21:00:00	13	0	59.10%	0.09
506	1965/05/23 02:00:00	1965/05/24 10:00:00	33	0	59.20%	0.09
507	1965/06/25 06:00:00	1965/06/25 09:00:00	4	0	59.30%	0.09
508	1965/09/05 18:00:00	1965/09/05 18:00:00	1	0	59.40%	0.09
509	1966/01/19 16:00:00	1966/01/20 05:00:00	14	0	59.50%	0.09

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
510	1966/02/10 15:00:00	1966/02/10 21:00:00	7	0	59.60%	0.09
511	1966/02/25 03:00:00	1966/02/25 07:00:00	5	0	59.80%	0.09
512	1966/03/02 10:00:00	1966/03/02 15:00:00	6	0	59.90%	0.09
513	1966/03/13 15:00:00	1966/03/13 19:00:00	5	0	60.00%	0.09
514	1966/03/24 19:00:00	1966/03/24 23:00:00	5	0	60.10%	0.09
515	1966/05/10 05:00:00	1966/05/10 07:00:00	3	0	60.20%	0.09
516	1966/09/30 00:00:00	1966/09/30 15:00:00	16	0	60.40%	0.09
517	1966/10/18 12:00:00	1966/10/18 17:00:00	6	0	60.50%	0.09
518	1967/01/31 04:00:00	1967/01/31 10:00:00	7	0	60.60%	0.09
519	1967/03/11 09:00:00	1967/03/11 14:00:00	6	0	60.70%	0.09
520	1967/03/29 06:00:00	1967/03/29 09:00:00	4	0	60.80%	0.09
521	1967/04/24 11:00:00	1967/04/24 17:00:00	7	0	60.90%	0.09
522	1967/04/28 19:00:00	1967/04/29 00:00:00	6	0	61.10%	0.09
523	1967/06/09 07:00:00	1967/06/09 09:00:00	3	0	61.20%	0.09
524	1967/07/26 21:00:00	1967/07/26 23:00:00	3	0	61.30%	0.09
525	1967/09/02 21:00:00	1967/09/03 02:00:00	6	0	61.40%	0.09
526	1967/09/29 21:00:00	1967/09/30 07:00:00	11	0	61.50%	0.09
527	1967/11/28 10:00:00	1967/11/28 16:00:00	7	0	61.60%	0.09
528	1967/12/08 01:00:00	1967/12/08 07:00:00	7	0	61.80%	0.09
529	1968/01/10 05:00:00	1968/01/10 09:00:00	5	0	61.90%	0.09
530	1968/02/10 04:00:00	1968/02/10 09:00:00	6	0	62.00%	0.09
531	1968/03/13 22:00:00	1968/03/14 03:00:00	6	0	62.10%	0.09
532	1968/03/17 02:00:00	1968/03/17 08:00:00	7	0	62.20%	0.09
533	1968/05/12 05:00:00	1968/05/12 14:00:00	10	0	62.30%	0.08
534	1968/06/07 07:00:00	1968/06/07 09:00:00	3	0	62.50%	0.08
535	1968/09/13 11:00:00	1968/09/13 13:00:00	3	0	62.60%	0.08
536	1968/10/30 10:00:00	1968/10/30 13:00:00	4	0	62.70%	0.08
537	1968/12/01 11:00:00	1968/12/01 15:00:00	5	0	62.80%	0.08
538	1969/01/17 11:00:00	1969/01/17 17:00:00	7	0	62.90%	0.08
539	1969/04/03 02:00:00	1969/04/03 05:00:00	4	0	63.00%	0.08
540	1969/06/11 09:00:00	1969/06/11 17:00:00	9	0	63.20%	0.08
541	1969/06/17 09:00:00	1969/06/17 13:00:00	5	0	63.30%	0.08
542	1969/08/10 05:00:00	1969/08/10 07:00:00	3	0	63.40%	0.08
543	1969/09/07 00:00:00	1969/09/07 02:00:00	3	0	63.50%	0.08
544	1969/11/15 21:00:00	1969/11/16 03:00:00	7	0	63.60%	0.08
545	1969/12/26 10:00:00	1969/12/26 15:00:00	6	0	63.70%	0.08
546	1970/01/10 01:00:00	1970/01/10 06:00:00	6	0	63.90%	0.08
547	1970/01/15 02:00:00	1970/01/15 08:00:00	7	0	64.00%	0.08
548	1970/01/18 14:00:00	1970/01/18 20:00:00	7	0	64.10%	0.08
549	1970/12/02 15:00:00	1970/12/02 21:00:00	7	0	64.20%	0.08
550	1971/05/03 09:00:00	1971/05/03 12:00:00	4	0	64.30%	0.08
551	1971/06/02 12:00:00	1971/06/02 17:00:00	6	0	64.40%	0.08
552	1971/06/05 14:00:00	1971/06/05 19:00:00	6	0	64.60%	0.08
553	1971/10/22 13:00:00	1971/10/22 18:00:00	6	0	64.70%	0.08
554	1971/10/24 11:00:00	1971/10/25 19:00:00	33	0	64.80%	0.08
555	1971/10/30 10:00:00	1971/10/30 15:00:00	6	0	64.90%	0.08
556	1971/11/13 13:00:00	1971/11/13 17:00:00	5	0	65.00%	0.08

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
557	1971/11/15 16:00:00	1971/11/15 22:00:00	7	0	65.10%	0.08
558	1971/11/29 06:00:00	1971/11/29 11:00:00	6	0	65.30%	0.08
559	1972/04/13 03:00:00	1972/04/13 13:00:00	11	0	65.40%	0.08
560	1972/04/21 09:00:00	1972/04/21 13:00:00	5	0	65.50%	0.08
561	1972/06/07 04:00:00	1972/06/07 06:00:00	3	0	65.60%	0.08
562	1972/06/10 02:00:00	1972/06/10 04:00:00	3	0	65.70%	0.08
563	1972/06/22 13:00:00	1972/06/22 15:00:00	3	0	65.80%	0.08
564	1972/09/06 05:00:00	1972/09/07 01:00:00	21	0	66.00%	0.08
565	1972/10/11 15:00:00	1972/10/11 18:00:00	4	0	66.10%	0.08
566	1972/10/17 09:00:00	1972/10/17 12:00:00	4	0	66.20%	0.08
567	1972/11/08 01:00:00	1972/11/08 04:00:00	4	0	66.30%	0.08
568	1973/01/25 21:00:00	1973/01/26 03:00:00	7	0	66.40%	0.08
569	1973/01/30 13:00:00	1973/01/30 19:00:00	7	0	66.50%	0.08
570	1973/02/07 15:00:00	1973/02/07 21:00:00	7	0	66.70%	0.08
571	1973/02/21 09:00:00	1973/02/21 14:00:00	6	0	66.80%	0.08
572	1973/04/21 10:00:00	1973/04/21 12:00:00	3	0	66.90%	0.08
573	1973/05/23 15:00:00	1973/05/23 17:00:00	3	0	67.00%	0.08
574	1973/05/28 10:00:00	1973/05/28 12:00:00	3	0	67.10%	0.08
575	1973/05/31 09:00:00	1973/05/31 14:00:00	6	0	67.30%	0.08
576	1973/12/16 15:00:00	1973/12/16 20:00:00	6	0	67.40%	0.08
577	1973/12/20 14:00:00	1973/12/20 20:00:00	7	0	67.50%	0.08
578	1973/12/22 03:00:00	1973/12/22 09:00:00	7	0	67.60%	0.08
579	1974/02/18 16:00:00	1974/02/20 01:00:00	34	0	67.70%	0.08
580	1974/06/08 12:00:00	1974/06/08 14:00:00	3	0	67.80%	0.08
581	1974/11/01 23:00:00	1974/11/02 05:00:00	7	0	68.00%	0.08
582	1974/11/03 16:00:00	1974/11/03 22:00:00	7	0	68.10%	0.08
583	1975/02/14 05:00:00	1975/02/14 11:00:00	7	0	68.20%	0.08
584	1975/03/25 10:00:00	1975/03/26 04:00:00	19	0	68.30%	0.08
585	1975/04/23 15:00:00	1975/04/23 20:00:00	6	0	68.40%	0.08
586	1975/05/20 02:00:00	1975/05/20 04:00:00	3	0	68.50%	0.08
587	1975/06/07 14:00:00	1975/06/07 16:00:00	3	0	68.70%	0.08
588	1975/10/28 22:00:00	1975/10/29 01:00:00	4	0	68.80%	0.08
589	1975/12/20 00:00:00	1975/12/20 06:00:00	7	0	68.90%	0.08
590	1976/04/04 09:00:00	1976/04/05 04:00:00	20	0	69.00%	0.08
591	1976/09/03 17:00:00	1976/09/03 19:00:00	3	0	69.10%	0.08
592	1976/09/14 11:00:00	1976/09/14 16:00:00	6	0	69.20%	0.08
593	1977/01/21 15:00:00	1977/01/21 20:00:00	6	0	69.40%	0.08
594	1977/04/02 01:00:00	1977/04/02 06:00:00	6	0	69.50%	0.08
595	1977/05/05 21:00:00	1977/05/05 23:00:00	3	0	69.60%	0.08
596	1977/08/12 11:00:00	1977/08/12 13:00:00	3	0	69.70%	0.08
597	1977/10/06 03:00:00	1977/10/06 06:00:00	4	0	69.80%	0.08
598	1977/11/06 02:00:00	1977/11/06 05:00:00	4	0	69.90%	0.08
599	1978/01/12 16:00:00	1978/01/12 22:00:00	7	0	70.10%	0.08
600	1978/01/26 10:00:00	1978/01/26 16:00:00	7	0	70.20%	0.08
601	1978/04/02 17:00:00	1978/04/02 23:00:00	7	0	70.30%	0.08
602	1978/04/26 09:00:00	1978/04/26 12:00:00	4	0	70.40%	0.08
603	1978/05/01 11:00:00	1978/05/01 16:00:00	6	0	70.50%	0.08

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
604	1978/09/19 13:00:00	1978/09/19 15:00:00	3	0	70.60%	0.08
605	1979/01/29 09:00:00	1979/01/29 14:00:00	6	0	70.80%	0.07
606	1979/03/13 10:00:00	1979/03/13 14:00:00	5	0	70.90%	0.07
607	1979/03/15 22:00:00	1979/03/16 04:00:00	7	0	71.00%	0.07
608	1979/05/19 15:00:00	1979/05/19 17:00:00	3	0	71.10%	0.07
609	1979/08/13 15:00:00	1979/08/13 17:00:00	3	0	71.20%	0.07
610	1979/11/04 07:00:00	1979/11/04 11:00:00	5	0	71.30%	0.07
611	1979/11/05 14:00:00	1979/11/05 20:00:00	7	0	71.50%	0.07
612	1979/12/22 10:00:00	1979/12/22 14:00:00	5	0	71.60%	0.07
613	1980/01/15 10:00:00	1980/01/15 16:00:00	7	0	71.70%	0.07
614	1980/03/18 08:00:00	1980/03/19 01:00:00	18	0	71.80%	0.07
615	1980/04/21 04:00:00	1980/04/21 06:00:00	3	0	71.90%	0.07
616	1980/05/01 23:00:00	1980/05/02 04:00:00	6	0	72.00%	0.07
617	1980/10/26 10:00:00	1980/10/26 13:00:00	4	0	72.20%	0.07
618	1980/12/11 14:00:00	1980/12/11 20:00:00	7	0	72.30%	0.07
619	1981/01/11 17:00:00	1981/01/11 21:00:00	5	0	72.40%	0.07
620	1981/03/14 02:00:00	1981/03/14 07:00:00	6	0	72.50%	0.07
621	1981/04/02 06:00:00	1981/04/03 03:00:00	22	0	72.60%	0.07
622	1981/05/16 11:00:00	1981/05/16 13:00:00	3	0	72.70%	0.07
623	1981/05/27 01:00:00	1981/05/27 03:00:00	3	0	72.90%	0.07
624	1981/10/01 02:00:00	1981/10/01 05:00:00	4	0	73.00%	0.07
625	1981/10/28 23:00:00	1981/10/29 02:00:00	4	0	73.10%	0.07
626	1981/12/21 04:00:00	1981/12/21 08:00:00	5	0	73.20%	0.07
627	1982/02/05 14:00:00	1982/02/05 19:00:00	6	0	73.30%	0.07
628	1982/02/08 03:00:00	1982/02/08 09:00:00	7	0	73.50%	0.07
629	1982/02/16 09:00:00	1982/02/16 15:00:00	7	0	73.60%	0.07
630	1982/03/12 14:00:00	1982/03/12 18:00:00	5	0	73.70%	0.07
631	1982/04/05 15:00:00	1982/04/05 20:00:00	6	0	73.80%	0.07
632	1982/05/11 08:00:00	1982/05/11 10:00:00	3	0	73.90%	0.07
633	1982/05/26 13:00:00	1982/05/26 15:00:00	3	0	74.00%	0.07
634	1982/09/16 13:00:00	1982/09/16 15:00:00	3	0	74.20%	0.07
635	1982/09/22 13:00:00	1982/09/22 15:00:00	3	0	74.30%	0.07
636	1982/10/26 10:00:00	1982/10/26 13:00:00	4	0	74.40%	0.07
637	1982/10/31 15:00:00	1982/10/31 18:00:00	4	0	74.50%	0.07
638	1983/03/15 10:00:00	1983/03/15 15:00:00	6	0	74.60%	0.07
639	1983/08/07 09:00:00	1983/08/07 11:00:00	3	0	74.70%	0.07
640	1983/08/18 09:00:00	1983/08/18 22:00:00	14	0	74.90%	0.07
641	1983/11/18 02:00:00	1983/11/18 08:00:00	7	0	75.00%	0.07
642	1983/12/22 11:00:00	1983/12/22 14:00:00	4	0	75.10%	0.07
643	1984/03/24 13:00:00	1984/03/24 16:00:00	4	0	75.20%	0.07
644	1984/10/17 08:00:00	1984/10/17 10:00:00	3	0	75.30%	0.07
645	1984/11/13 10:00:00	1984/11/13 13:00:00	4	0	75.40%	0.07
646	1984/11/22 16:00:00	1984/11/22 19:00:00	4	0	75.60%	0.07
647	1984/11/24 16:00:00	1984/11/24 19:00:00	4	0	75.70%	0.07
648	1984/12/12 23:00:00	1984/12/13 02:00:00	4	0	75.80%	0.07
649	1984/12/18 14:00:00	1984/12/19 23:00:00	34	0	75.90%	0.07
650	1985/01/09 13:00:00	1985/01/09 17:00:00	5	0	76.00%	0.07

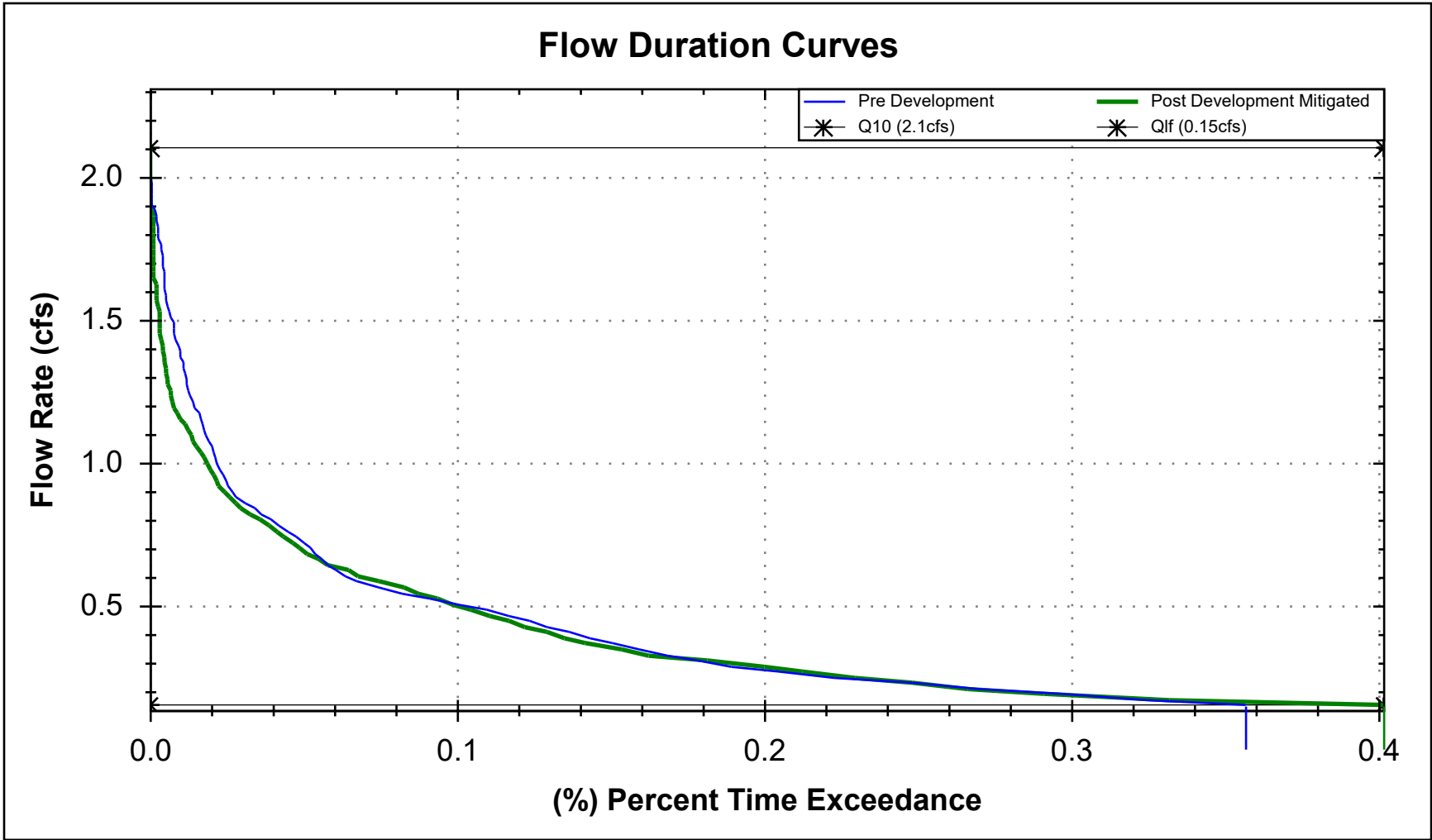
Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
651	1985/03/12 11:00:00	1985/03/12 15:00:00	5	0	76.10%	0.07
652	1985/04/21 14:00:00	1985/04/22 06:00:00	17	0	76.30%	0.07
653	1985/05/30 15:00:00	1985/05/30 18:00:00	4	0	76.40%	0.07
654	1985/06/02 22:00:00	1985/06/03 03:00:00	6	0	76.50%	0.07
655	1985/07/18 16:00:00	1985/07/18 17:00:00	2	0	76.60%	0.07
656	1985/08/10 14:00:00	1985/08/10 16:00:00	3	0	76.70%	0.07
657	1985/09/04 11:00:00	1985/09/04 14:00:00	4	0	76.80%	0.07
658	1985/10/22 00:00:00	1985/10/22 05:00:00	6	0	77.00%	0.07
659	1985/11/27 09:00:00	1985/11/27 12:00:00	4	0	77.10%	0.07
660	1986/01/02 15:00:00	1986/01/02 23:00:00	9	0	77.20%	0.07
661	1986/02/13 09:00:00	1986/02/13 12:00:00	4	0	77.30%	0.07
662	1986/02/18 22:00:00	1986/02/19 17:00:00	20	0	77.40%	0.07
663	1986/05/22 10:00:00	1986/05/22 11:00:00	2	0	77.50%	0.07
664	1986/07/22 14:00:00	1986/07/22 17:00:00	4	0	77.70%	0.07
665	1986/08/18 06:00:00	1986/08/18 08:00:00	3	0	77.80%	0.07
666	1986/09/18 11:00:00	1986/09/18 13:00:00	3	0	77.90%	0.07
667	1986/12/20 06:00:00	1986/12/20 19:00:00	14	0	78.00%	0.07
668	1986/12/30 16:00:00	1986/12/30 19:00:00	4	0	78.10%	0.07
669	1987/02/01 01:00:00	1987/02/01 04:00:00	4	0	78.20%	0.07
670	1987/02/13 19:00:00	1987/02/14 07:00:00	13	0	78.40%	0.07
671	1987/02/15 15:00:00	1987/02/15 18:00:00	4	0	78.50%	0.07
672	1987/03/06 12:00:00	1987/03/06 14:00:00	3	0	78.60%	0.07
673	1987/03/15 01:00:00	1987/03/15 03:00:00	3	0	78.70%	0.07
674	1987/03/21 16:00:00	1987/03/21 23:00:00	8	0	78.80%	0.07
675	1987/03/23 21:00:00	1987/03/23 23:00:00	3	0	78.90%	0.07
676	1987/05/01 01:00:00	1987/05/01 02:00:00	2	0	79.10%	0.07
677	1987/05/20 08:00:00	1987/05/20 10:00:00	3	0	79.20%	0.07
678	1987/07/18 00:00:00	1987/07/18 02:00:00	3	0	79.30%	0.07
679	1987/08/14 09:00:00	1987/08/14 10:00:00	2	0	79.40%	0.07
680	1987/09/01 01:00:00	1987/09/01 03:00:00	3	0	79.50%	0.07
681	1987/09/13 05:00:00	1987/09/13 07:00:00	3	0	79.60%	0.07
682	1987/10/07 09:00:00	1987/10/07 11:00:00	3	0	79.80%	0.07
683	1987/11/14 02:00:00	1987/11/14 09:00:00	8	0	79.90%	0.07
684	1987/11/17 21:00:00	1987/11/18 03:00:00	7	0	80.00%	0.07
685	1987/11/20 16:00:00	1987/11/20 21:00:00	6	0	80.10%	0.07
686	1987/12/07 05:00:00	1987/12/07 08:00:00	4	0	80.20%	0.07
687	1987/12/29 15:00:00	1987/12/30 09:00:00	19	0	80.40%	0.07
688	1988/05/05 22:00:00	1988/05/05 23:00:00	2	0	80.50%	0.07
689	1988/05/29 04:00:00	1988/05/29 09:00:00	6	0	80.60%	0.07
690	1988/05/31 16:00:00	1988/05/31 17:00:00	2	0	80.70%	0.07
691	1988/11/23 22:00:00	1988/11/24 04:00:00	7	0	80.80%	0.07
692	1988/12/28 00:00:00	1988/12/28 03:00:00	4	0	80.90%	0.07
693	1989/01/07 16:00:00	1989/01/07 23:00:00	8	0	81.10%	0.07
694	1989/01/28 14:00:00	1989/01/28 17:00:00	4	0	81.20%	0.07
695	1989/03/02 19:00:00	1989/03/03 06:00:00	12	0	81.30%	0.07
696	1989/03/08 20:00:00	1989/03/08 22:00:00	3	0	81.40%	0.07
697	1989/04/12 06:00:00	1989/04/12 08:00:00	3	0	81.50%	0.07

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
698	1989/04/26 03:00:00	1989/04/26 05:00:00	3	0	81.60%	0.06
699	1989/05/15 12:00:00	1989/05/15 13:00:00	2	0	81.80%	0.06
700	1989/09/17 04:00:00	1989/09/17 18:00:00	15	0	81.90%	0.06
701	1989/09/19 10:00:00	1989/09/19 14:00:00	5	0	82.00%	0.06
702	1989/10/25 20:00:00	1989/10/25 22:00:00	3	0	82.10%	0.06
703	1989/11/26 08:00:00	1989/11/26 21:00:00	14	0	82.20%	0.06
704	1990/03/05 16:00:00	1990/03/05 18:00:00	3	0	82.30%	0.06
705	1990/03/28 18:00:00	1990/03/28 21:00:00	4	0	82.50%	0.06
706	1990/04/16 21:00:00	1990/04/17 14:00:00	18	0	82.60%	0.06
707	1990/04/18 19:00:00	1990/04/19 21:00:00	27	0	82.70%	0.06
708	1990/04/25 00:00:00	1990/04/25 02:00:00	3	0	82.80%	0.06
709	1990/07/13 12:00:00	1990/07/13 13:00:00	2	0	82.90%	0.06
710	1990/08/06 00:00:00	1990/08/06 02:00:00	3	0	83.00%	0.06
711	1990/08/09 16:00:00	1990/08/09 18:00:00	3	0	83.20%	0.06
712	1990/12/15 22:00:00	1990/12/16 01:00:00	4	0	83.30%	0.06
713	1991/03/11 02:00:00	1991/03/11 14:00:00	13	0	83.40%	0.06
714	1991/04/21 03:00:00	1991/04/21 05:00:00	3	0	83.50%	0.06
715	1991/07/31 11:00:00	1991/07/31 13:00:00	3	0	83.60%	0.06
716	1991/09/20 17:00:00	1991/09/20 20:00:00	4	0	83.70%	0.06
717	1991/11/29 19:00:00	1991/11/29 22:00:00	4	0	83.90%	0.06
718	1991/12/08 17:00:00	1991/12/08 20:00:00	4	0	84.00%	0.06
719	1991/12/09 23:00:00	1991/12/11 12:00:00	38	0	84.10%	0.06
720	1992/03/06 18:00:00	1992/03/08 09:00:00	40	0	84.20%	0.06
721	1992/03/29 11:00:00	1992/03/29 13:00:00	3	0	84.30%	0.06
722	1992/05/05 22:00:00	1992/05/05 23:00:00	2	0	84.40%	0.06
723	1992/05/22 17:00:00	1992/05/22 21:00:00	5	0	84.60%	0.06
724	1992/08/13 16:00:00	1992/08/13 18:00:00	3	0	84.70%	0.06
725	1992/10/21 16:00:00	1992/10/21 18:00:00	3	0	84.80%	0.06
726	1992/10/23 04:00:00	1992/10/23 12:00:00	9	0	84.90%	0.06
727	1992/10/28 23:00:00	1992/10/29 07:00:00	9	0	85.00%	0.06
728	1992/11/20 16:00:00	1992/11/20 19:00:00	4	0	85.10%	0.06
729	1992/11/22 23:00:00	1992/11/23 02:00:00	4	0	85.30%	0.06
730	1992/12/11 17:00:00	1992/12/12 02:00:00	10	0	85.40%	0.06
731	1993/02/22 06:00:00	1993/02/22 09:00:00	4	0	85.50%	0.06
732	1993/02/26 15:00:00	1993/02/27 14:00:00	24	0	85.60%	0.06
733	1993/10/16 06:00:00	1993/10/16 08:00:00	3	0	85.70%	0.06
734	1993/11/11 05:00:00	1993/11/12 20:00:00	40	0	85.80%	0.06
735	1993/12/19 04:00:00	1993/12/19 11:00:00	8	0	86.00%	0.06
736	1994/02/11 07:00:00	1994/02/11 10:00:00	4	0	86.10%	0.06
737	1994/04/24 04:00:00	1994/04/24 07:00:00	4	0	86.20%	0.06
738	1994/05/08 09:00:00	1994/05/08 10:00:00	2	0	86.30%	0.06
739	1994/05/15 02:00:00	1994/05/15 03:00:00	2	0	86.40%	0.06
740	1994/11/18 03:00:00	1994/11/18 11:00:00	9	0	86.50%	0.06
741	1994/11/26 11:00:00	1994/11/26 14:00:00	4	0	86.70%	0.06
742	1994/12/13 06:00:00	1994/12/13 09:00:00	4	0	86.80%	0.06
743	1994/12/17 15:00:00	1994/12/17 19:00:00	5	0	86.90%	0.06
744	1994/12/22 07:00:00	1994/12/23 02:00:00	20	0	87.00%	0.06

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
745	1995/04/07 10:00:00	1995/04/07 13:00:00	4	0	87.10%	0.06
746	1995/05/06 02:00:00	1995/05/06 14:00:00	13	0	87.30%	0.06
747	1995/05/13 07:00:00	1995/05/13 13:00:00	7	0	87.40%	0.06
748	1995/05/14 21:00:00	1995/05/15 05:00:00	9	0	87.50%	0.06
749	1995/05/23 13:00:00	1995/05/23 14:00:00	2	0	87.60%	0.06
750	1995/07/16 08:00:00	1995/07/16 09:00:00	2	0	87.70%	0.06
751	1995/10/01 01:00:00	1995/10/01 03:00:00	3	0	87.80%	0.06
752	1995/11/01 03:00:00	1995/11/01 11:00:00	9	0	88.00%	0.06
753	1995/12/13 04:00:00	1995/12/14 12:00:00	33	0	88.10%	0.06
754	1996/01/16 19:00:00	1996/01/17 08:00:00	14	0	88.20%	0.06
755	1996/01/25 11:00:00	1996/01/25 23:00:00	13	0	88.30%	0.06
756	1996/01/28 08:00:00	1996/01/28 11:00:00	4	0	88.40%	0.06
757	1996/05/24 15:00:00	1996/05/24 16:00:00	2	0	88.50%	0.06
758	1996/07/10 14:00:00	1996/07/10 15:00:00	2	0	88.70%	0.06
759	1996/07/19 10:00:00	1996/07/19 11:00:00	2	0	88.80%	0.06
760	1996/10/25 22:00:00	1996/10/26 00:00:00	3	0	88.90%	0.06
761	1996/11/29 02:00:00	1996/11/29 06:00:00	5	0	89.00%	0.06
762	1996/12/27 16:00:00	1996/12/28 12:00:00	21	0	89.10%	0.06
763	1997/01/02 01:00:00	1997/01/02 07:00:00	7	0	89.20%	0.06
764	1997/02/17 18:00:00	1997/02/18 16:00:00	23	0	89.40%	0.06
765	1997/04/08 10:00:00	1997/04/08 12:00:00	3	0	89.50%	0.06
766	1997/05/24 07:00:00	1997/05/24 08:00:00	2	0	89.60%	0.06
767	1997/12/18 15:00:00	1997/12/18 21:00:00	7	0	89.70%	0.06
768	1997/12/21 08:00:00	1997/12/22 19:00:00	36	0	89.80%	0.06
769	1998/01/02 16:00:00	1998/01/05 02:00:00	59	0	89.90%	0.06
770	1998/01/13 11:00:00	1998/01/13 23:00:00	13	0	90.10%	0.06
771	1998/01/15 15:00:00	1998/01/16 20:00:00	30	0	90.20%	0.06
772	1998/03/01 17:00:00	1998/03/01 18:00:00	2	0	90.30%	0.06
773	1998/03/15 11:00:00	1998/03/15 22:00:00	12	0	90.40%	0.06
774	1998/04/06 17:00:00	1998/04/07 19:00:00	27	0	90.50%	0.06
775	1998/04/19 15:00:00	1998/04/19 19:00:00	5	0	90.60%	0.06
776	1998/04/28 11:00:00	1998/04/28 20:00:00	10	0	90.80%	0.06
777	1998/05/26 17:00:00	1998/05/26 17:00:00	1	0	90.90%	0.06
778	1998/06/12 17:00:00	1998/06/12 17:00:00	1	0	91.00%	0.06
779	2000/01/01 09:00:00	2000/01/02 20:00:00	36	0	91.10%	0.06
780	2000/01/17 17:00:00	2000/01/17 19:00:00	3	0	91.20%	0.06
781	2000/01/25 12:00:00	2000/01/25 22:00:00	11	0	91.30%	0.06
782	2000/02/11 09:00:00	2000/02/11 23:00:00	15	0	91.50%	0.06
783	2000/02/28 15:00:00	2000/02/28 19:00:00	5	0	91.60%	0.06
784	2000/04/14 22:00:00	2000/04/15 00:00:00	3	0	91.70%	0.06
785	2000/04/21 19:00:00	2000/04/22 07:00:00	13	0	91.80%	0.06
786	2000/05/25 23:00:00	2000/05/26 02:00:00	4	0	91.90%	0.06
787	2000/09/23 02:00:00	2000/09/23 04:00:00	3	0	92.00%	0.06
788	2000/10/06 13:00:00	2000/10/06 15:00:00	3	0	92.20%	0.06
789	2000/10/10 08:00:00	2000/10/11 11:00:00	28	0	92.30%	0.06
790	2000/10/21 18:00:00	2000/10/21 21:00:00	4	0	92.40%	0.06
791	2000/10/26 09:00:00	2000/10/27 04:00:00	20	0	92.50%	0.06

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
792	2000/11/22 21:00:00	2000/11/23 00:00:00	4	0	92.60%	0.06
793	2001/01/15 21:00:00	2001/01/16 00:00:00	4	0	92.70%	0.06
794	2001/08/20 15:00:00	2001/08/21 17:00:00	27	0	92.90%	0.06
795	2001/11/04 16:00:00	2001/11/04 19:00:00	4	0	93.00%	0.06
796	2001/11/12 17:00:00	2001/11/13 21:00:00	29	0	93.10%	0.06
797	2001/11/29 09:00:00	2001/11/30 01:00:00	17	0	93.20%	0.06
798	2001/12/14 11:00:00	2001/12/15 19:00:00	33	0	93.30%	0.06
799	2001/12/30 16:00:00	2001/12/30 20:00:00	5	0	93.50%	0.06
800	2002/01/03 17:00:00	2002/01/03 19:00:00	3	0	93.60%	0.06
801	2002/01/28 03:00:00	2002/01/29 14:00:00	36	0	93.70%	0.06
802	2002/02/17 17:00:00	2002/02/18 19:00:00	27	0	93.80%	0.06
803	2002/03/16 06:00:00	2002/03/16 13:00:00	8	0	93.90%	0.06
804	2002/03/24 02:00:00	2002/03/24 06:00:00	5	0	94.00%	0.06
805	2002/04/15 09:00:00	2002/04/15 10:00:00	2	0	94.20%	0.06
806	2002/04/24 11:00:00	2002/04/24 19:00:00	9	0	94.30%	0.06
807	2002/04/26 09:00:00	2002/04/26 10:00:00	2	0	94.40%	0.06
808	2002/05/20 23:00:00	2002/05/21 00:00:00	2	0	94.50%	0.06
809	2002/09/06 16:00:00	2002/09/06 18:00:00	3	0	94.60%	0.06
810	2002/12/29 16:00:00	2002/12/29 20:00:00	5	0	94.70%	0.06
811	2003/03/04 16:00:00	2003/03/04 19:00:00	4	0	94.90%	0.06
812	2003/04/05 17:00:00	2003/04/05 17:00:00	1	0	95.00%	0.06
813	2003/04/17 11:00:00	2003/04/17 21:00:00	11	0	95.10%	0.06
814	2003/05/07 17:00:00	2003/05/07 17:00:00	1	0	95.20%	0.06
815	2003/06/10 17:00:00	2003/06/11 17:00:00	25	0	95.30%	0.06
816	2003/06/20 17:00:00	2003/06/20 17:00:00	1	0	95.40%	0.06
817	2003/07/30 07:00:00	2003/07/30 08:00:00	2	0	95.60%	0.06
818	2003/11/01 05:00:00	2003/11/01 08:00:00	4	0	95.70%	0.06
819	2003/11/03 18:00:00	2003/11/04 02:00:00	9	0	95.80%	0.06
820	2003/11/16 01:00:00	2003/11/16 08:00:00	8	0	95.90%	0.06
821	2003/12/07 21:00:00	2003/12/08 06:00:00	10	0	96.00%	0.06
822	2003/12/11 17:00:00	2003/12/11 20:00:00	4	0	96.10%	0.06
823	2004/01/02 19:00:00	2004/01/03 07:00:00	13	0	96.30%	0.06
824	2004/01/19 08:00:00	2004/01/19 13:00:00	6	0	96.40%	0.06
825	2004/01/25 03:00:00	2004/01/25 06:00:00	4	0	96.50%	0.06
826	2004/01/31 07:00:00	2004/01/31 10:00:00	4	0	96.60%	0.05
827	2004/03/26 10:00:00	2004/03/26 12:00:00	3	0	96.70%	0.05
828	2004/11/12 12:00:00	2004/11/12 15:00:00	4	0	96.80%	0.05
829	2004/12/08 07:00:00	2004/12/08 10:00:00	4	0	97.00%	0.05
830	2005/01/26 02:00:00	2005/01/27 06:00:00	29	0	97.10%	0.05
831	2005/02/07 08:00:00	2005/02/07 11:00:00	4	0	97.20%	0.05
832	2005/03/18 17:00:00	2005/03/20 10:00:00	42	0	97.30%	0.05
833	2005/05/06 02:00:00	2005/05/06 03:00:00	2	0	97.40%	0.05
834	2005/07/23 05:00:00	2005/07/23 06:00:00	2	0	97.50%	0.05
835	2005/12/03 02:00:00	2005/12/03 05:00:00	4	0	97.70%	0.05
836	2006/03/03 17:00:00	2006/03/03 19:00:00	3	0	97.80%	0.05
837	2006/03/07 01:00:00	2006/03/08 12:00:00	36	0	97.90%	0.05
838	2006/03/26 00:00:00	2006/03/26 06:00:00	7	0	98.00%	0.05

Rank	Start Date	End Date	Duration (hr)	Peak (cfs)	Frequency (%)	Return Period (Yr)
839	2006/04/23 06:00:00	2006/04/23 08:00:00	3	0	98.10%	0.05
840	2006/07/29 00:00:00	2006/07/29 06:00:00	7	0	98.20%	0.05
841	2006/07/30 08:00:00	2006/07/31 08:00:00	25	0	98.40%	0.05
842	2006/11/27 10:00:00	2006/11/28 05:00:00	20	0	98.50%	0.05
843	2006/12/22 08:00:00	2006/12/22 11:00:00	4	0	98.60%	0.05
844	2006/12/27 07:00:00	2006/12/27 17:00:00	11	0	98.70%	0.05
845	2007/01/04 22:00:00	2007/01/05 05:00:00	8	0	98.80%	0.05
846	2007/02/11 12:00:00	2007/02/11 18:00:00	7	0	98.90%	0.05
847	2007/02/27 00:00:00	2007/02/27 03:00:00	4	0	99.10%	0.05
848	2007/03/21 04:00:00	2007/03/21 14:00:00	11	0	99.20%	0.05
849	2007/03/27 05:00:00	2007/03/27 18:00:00	14	0	99.30%	0.05
850	2007/05/23 01:00:00	2007/05/23 04:00:00	4	0	99.40%	0.05
851	2007/09/22 11:00:00	2007/09/22 13:00:00	3	0	99.50%	0.05
852	2007/10/13 03:00:00	2007/10/13 09:00:00	7	0	99.60%	0.05
853	2007/10/17 09:00:00	2007/10/17 11:00:00	3	0	99.80%	0.05
854	2008/01/21 08:00:00	2008/01/21 15:00:00	8	0	99.90%	0.05
-End of Data-----						



Compare Post-Development Curve to Pre-Development Curve							
Flow Control Upper Limit: 2.1 (cfs)							
Flow Control Lower Limit: 0.15 (cfs)							
post-development SWMM file: V:\22\22060\Engineering\Storm-TM\Working Files\Hydmod\working files after 2nd pcc\22060-Post-Development-1.out							
post-development time stamp: 3/31/2023 10:57:26 AM							
Compared to:							
pre-development SWMM file: V:\22\22060\Engineering\Storm-TM\Working Files\Hydmod\working files after 2nd pcc\22060-Pre-Development.out							
pre-development time stamp: 3/30/2023 5:56:07 PM							
Post PT #	Flow Rate (cfs)	Post Dev % Exceed	Pre Dev % Exceed	%Ex post < %Ex pre	%Ex post > %Ex pre	%Ex post > 110% %Ex pre	Pass/Fail
0	0.20	0.40	0.40	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
1	0.20	0.30	0.30	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
2	0.20	0.30	0.30	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
3	0.20	0.30	0.30	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
4	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
5	0.20	0.20	0.20	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
6	0.30	0.20	0.20	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
7	0.30	0.20	0.20	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
8	0.30	0.20	0.20	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
9	0.30	0.20	0.20	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
10	0.30	0.20	0.20	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
11	0.40	0.10	0.20	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
12	0.40	0.10	0.10	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
13	0.40	0.10	0.10	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
14	0.40	0.10	0.10	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
15	0.40	0.10	0.10	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
16	0.50	0.10	0.10	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
17	0.50	0.10	0.10	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
18	0.50	0.10	0.10	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
19	0.50	0.10	0.10	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
20	0.50	0.10	0.10	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
21	0.60	0.10	0.10	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
22	0.60	0.10	0.10	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
23	0.60	0.10	0.10	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
24	0.60	0.10	0.10	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
25	0.60	0.10	0.10	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
26	0.70	0.10	0.10	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
27	0.70	0.10	0.10	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
28	0.70	0.00	0.10	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
29	0.70	0.00	0.10	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration

Post PT #	Flow Rate (cfs)	Post Dev % Exceed	Pre Dev % Exceed	%Ex post < %Ex pre	%Ex post > %Ex pre	%Ex post > 110% %Ex pre	Pass/Fail
30	0.70	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
31	0.80	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
32	0.80	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
33	0.80	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
34	0.80	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
35	0.80	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
36	0.90	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
37	0.90	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
38	0.90	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
39	0.90	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
40	0.90	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
41	1.00	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
42	1.00	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
43	1.00	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
44	1.00	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
45	1.00	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
46	1.10	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
47	1.10	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
48	1.10	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
49	1.10	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
50	1.10	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
51	1.20	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
52	1.20	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
53	1.20	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
54	1.20	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
55	1.20	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
56	1.30	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
57	1.30	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
58	1.30	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
59	1.30	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
60	1.30	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
61	1.40	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
62	1.40	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
63	1.40	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
64	1.40	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
65	1.40	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
66	1.40	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
67	1.50	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
68	1.50	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
69	1.50	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration

Post PT #	Flow Rate (cfs)	Post Dev % Exceed	Pre Dev % Exceed	%Ex post < %Ex pre	%Ex post > %Ex pre	%Ex post > 110% %Ex pre	Pass/Fail
70	1.50	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
71	1.50	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
72	1.60	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
73	1.60	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
74	1.60	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
75	1.60	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
76	1.60	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
77	1.70	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
78	1.70	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
79	1.70	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
80	1.70	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
81	1.70	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
82	1.80	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
83	1.80	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
84	1.80	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
85	1.80	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
86	1.80	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
87	1.90	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
88	1.90	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
89	1.90	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
90	1.90	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
91	1.90	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
92	2.00	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
93	2.00	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
94	2.00	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
95	2.00	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
96	2.00	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
97	2.10	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
98	2.10	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration
99	2.10	0.00	0.00	TRUE	FALSE	FALSE	Pass: Post Duration <= Pre Duration

Duration Table Summary at Project Discharge Point				
file name: V:\22\22060\Engineering\Storm-TM\Working Files\Hydmod\working files after 2nd pcc\22060-Pre-Development.out				
time stamp: 3/30/2023 5:56:07 PM				
DISCHARGE		Number of periods when discharge was equal to or greater than DISCHARGE column but less than that shown on the next line		
Bin Number	Discharge Rate (cfs)	Number of Periods	Total Periods Exceeding	Percent Time Exceeded
1	0.2	123	1365	0.357
2	0.2	107	1242	0.324
3	0.2	102	1135	0.297
4	0.2	83	1033	0.270
5	0.2	97	950	0.248
6	0.2	70	853	0.223
7	0.3	59	783	0.205
8	0.3	41	724	0.189
9	0.3	38	683	0.178
10	0.3	36	645	0.169
11	0.3	33	609	0.159
12	0.4	28	576	0.150
13	0.4	26	548	0.143
14	0.4	27	522	0.136
15	0.4	21	495	0.129
16	0.4	27	474	0.124
17	0.5	28	447	0.117
18	0.5	32	419	0.109
19	0.5	38	387	0.101
20	0.5	34	349	0.091
21	0.5	29	315	0.082
22	0.6	28	286	0.075
23	0.6	14	258	0.067
24	0.6	13	244	0.064
25	0.6	9	231	0.060
26	0.6	7	222	0.058
27	0.7	8	215	0.056
28	0.7	6	207	0.054
29	0.7	9	201	0.053
30	0.7	9	192	0.050
31	0.7	10	183	0.048
32	0.8	12	173	0.045
33	0.8	11	161	0.042
34	0.8	11	150	0.039
35	0.8	8	139	0.036
36	0.8	11	131	0.034
37	0.9	13	120	0.031
38	0.9	4	107	0.028
39	0.9	6	103	0.027
40	0.9	2	97	0.025
41	0.9	4	95	0.025
42	1.0	4	91	0.024
43	1.0	3	87	0.023
44	1.0	2	84	0.022
45	1.0	3	82	0.021
46	1.0	2	79	0.021
47	1.1	3	77	0.020
48	1.1	4	74	0.019
49	1.1	2	70	0.018
50	1.1	3	68	0.018
51	1.1	1	65	0.017

Bin Number	Discharge Rate (cfs)	Number of Periods	Total Periods Exceeding	Percent Time Exceeded
52	1.2	2	64	0.017
53	1.2	7	62	0.016
54	1.2	2	55	0.014
55	1.2	4	53	0.014
56	1.2	2	49	0.013
57	1.3	2	47	0.012
58	1.3	0	45	0.012
59	1.3	2	45	0.012
60	1.3	2	43	0.011
61	1.3	0	41	0.011
62	1.4	3	41	0.011
63	1.4	1	38	0.010
64	1.4	1	37	0.010
65	1.4	4	36	0.009
66	1.4	1	32	0.008
67	1.5	1	31	0.008
68	1.5	0	30	0.008
69	1.5	3	30	0.008
70	1.5	3	27	0.007
71	1.5	2	24	0.006
72	1.5	1	22	0.006
73	1.6	1	21	0.005
74	1.6	1	20	0.005
75	1.6	0	19	0.005
76	1.6	1	19	0.005
77	1.6	0	18	0.005
78	1.7	1	18	0.005
79	1.7	0	17	0.004
80	1.7	1	17	0.004
81	1.7	2	16	0.004
82	1.7	0	14	0.004
83	1.8	3	14	0.004
84	1.8	0	11	0.003
85	1.8	1	11	0.003
86	1.8	1	10	0.003
87	1.8	1	9	0.002
88	1.9	2	8	0.002
89	1.9	3	6	0.002
90	1.9	0	3	0.001
91	1.9	0	3	0.001
92	1.9	1	3	0.001
93	2.0	0	2	0.001
94	2.0	1	2	0.001
95	2.0	0	1	0.000
96	2.0	1	1	0.000
97	2.0	0	0	0.000
98	2.1	0	0	0.000
99	2.1	0	0	0.000
100	2.1	0	0	0.000
-----End of Data-----				

Duration Table Summary at Project Discharge Point				
file name: V:\22\22060\Engineering\Storm-TM\Working Files\Hydmod\working files after 2nd pcc\22060-Post-Development-1.out				
time stamp: 3/31/2023 10:57:26 AM				
DISCHARGE		Number of periods when discharge was equal to or greater than DISCHARGE column but less than that shown on the next line		
Bin Number	Discharge Rate (cfs)	Number of Periods	Total Periods Exceeding	Percent Time Exceeded
1	0.2	267	1537	0.402
2	0.2	156	1270	0.332
3	0.2	94	1114	0.291
4	0.2	70	1020	0.266
5	0.2	72	950	0.248
6	0.2	65	878	0.229
7	0.3	47	813	0.212
8	0.3	71	766	0.200
9	0.3	74	695	0.182
10	0.3	34	621	0.162
11	0.3	45	587	0.153
12	0.4	26	542	0.142
13	0.4	21	516	0.135
14	0.4	27	495	0.129
15	0.4	20	468	0.122
16	0.4	24	448	0.117
17	0.5	25	424	0.111
18	0.5	21	399	0.104
19	0.5	20	378	0.099
20	0.5	24	358	0.094
21	0.5	18	334	0.087
22	0.6	30	316	0.083
23	0.6	27	286	0.075
24	0.6	12	259	0.068
25	0.6	26	247	0.065
26	0.6	10	221	0.058
27	0.7	15	211	0.055
28	0.7	10	196	0.051
29	0.7	8	186	0.049
30	0.7	11	178	0.047
31	0.7	9	167	0.044
32	0.8	9	158	0.041
33	0.8	13	149	0.039
34	0.8	11	136	0.036
35	0.8	12	125	0.033
36	0.8	6	113	0.030
37	0.9	8	107	0.028
38	0.9	6	99	0.026
39	0.9	7	93	0.024
40	0.9	3	86	0.022
41	0.9	4	83	0.022
42	1.0	3	79	0.021
43	1.0	5	76	0.020
44	1.0	4	71	0.019
45	1.0	4	67	0.018
46	1.0	5	63	0.016
47	1.1	4	58	0.015
48	1.1	2	54	0.014
49	1.1	4	52	0.014
50	1.1	4	48	0.013
51	1.1	7	44	0.011

Bin Number	Discharge Rate (cfs)	Number of Periods	Total Periods Exceeding	Percent Time Exceeded
52	1.2	3	37	0.010
53	1.2	4	34	0.009
54	1.2	2	30	0.008
55	1.2	2	28	0.007
56	1.2	0	26	0.007
57	1.3	3	26	0.007
58	1.3	1	23	0.006
59	1.3	2	22	0.006
60	1.3	0	20	0.005
61	1.3	2	20	0.005
62	1.4	0	18	0.005
63	1.4	1	18	0.005
64	1.4	1	17	0.004
65	1.4	2	16	0.004
66	1.4	1	14	0.004
67	1.5	0	13	0.003
68	1.5	0	13	0.003
69	1.5	1	13	0.003
70	1.5	0	12	0.003
71	1.5	2	12	0.003
72	1.5	1	10	0.003
73	1.6	0	9	0.002
74	1.6	0	9	0.002
75	1.6	0	9	0.002
76	1.6	4	9	0.002
77	1.6	0	5	0.001
78	1.7	0	5	0.001
79	1.7	0	5	0.001
80	1.7	0	5	0.001
81	1.7	0	5	0.001
82	1.7	0	5	0.001
83	1.8	0	5	0.001
84	1.8	0	5	0.001
85	1.8	0	5	0.001
86	1.8	0	5	0.001
87	1.8	0	5	0.001
88	1.9	0	5	0.001
89	1.9	4	5	0.001
90	1.9	0	1	0.000
91	1.9	0	1	0.000
92	1.9	0	1	0.000
93	2.0	1	1	0.000
94	2.0	0	0	0.000
95	2.0	0	0	0.000
96	2.0	0	0	0.000
97	2.0	0	0	0.000
98	2.1	0	0	0.000
99	2.1	0	0	0.000
100	2.1	0	0	0.000
-----End of Data-----				

END OF STATISTICS ANALYSIS

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

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Biofiltration

BMP MAINTENANCE FACT SHEET FOR STRUCTURAL BMP BF-1 BIOFILTRATION

Biofiltration facilities are vegetated surface water systems that filter water through vegetation, and soil or engineered media prior to discharge via underdrain or overflow to the downstream conveyance system. Biofiltration facilities have limited or no infiltration. They are typically designed to provide enough hydraulic head to move flows through the underdrain connection to the storm drain system. Typical biofiltration components include:

- Inflow distribution mechanisms (e.g., perimeter flow spreader or filter strips)
- Energy dissipation mechanism for concentrated inflows (e.g., splash blocks or riprap)
- Shallow surface ponding for captured flows
- Side slope and basin bottom vegetation selected based on climate and ponding depth
- Non-floating mulch layer
- Media layer (planting mix or engineered media) capable of supporting vegetation growth
- Filter course layer consisting of aggregate to prevent the migration of fines into uncompacted native soils or the aggregate storage layer
- Aggregate storage layer with underdrain(s)
- Impermeable liner or uncompacted native soils at the bottom of the facility
- Overflow structure

Normal Expected Maintenance

Biofiltration requires routine maintenance to: remove accumulated materials such as sediment, trash or debris; maintain vegetation health; maintain infiltration capacity of the media layer; replenish mulch; and maintain integrity of side slopes, inlets, energy dissipators, and outlets. A summary table of standard inspection and maintenance indicators is provided within this Fact Sheet.

Non-Standard Maintenance or BMP Failure

If any of the following scenarios are observed, the BMP is not performing as intended to protect downstream waterways from pollution and/or erosion. Corrective maintenance, increased inspection and maintenance, BMP replacement, or a different BMP type will be required.

- The BMP is not drained between storm events. Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health, and surface ponding longer than approximately 96 hours following a storm event poses a risk of vector (mosquito) breeding. Poor drainage can result from clogging of the media layer, filter course, aggregate storage layer, underdrain, or outlet structure. The specific cause of the drainage issue must be determined and corrected.
- Sediment, trash, or debris accumulation greater than 25% of the surface ponding volume within one month. This means the load from the tributary drainage area is too high, reducing BMP function or clogging the BMP. This would require pretreatment measures within the tributary area draining to the BMP to intercept the materials. Pretreatment components, especially for sediment, will extend the life of components that are more expensive to replace such as media, filter course, and aggregate layers.
- Erosion due to concentrated storm water runoff flow that is not readily corrected by adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan. If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.

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Biofiltration

Other Special Considerations

Biofiltration is a vegetated structural BMP. Vegetated structural BMPs that are constructed in the vicinity of, or connected to, an existing jurisdictional water or wetland could inadvertently result in creation of expanded waters or wetlands. As such, vegetated structural BMPs have the potential to come under the jurisdiction of the United States Army Corps of Engineers, SDRWQCB, California Department of Fish and Wildlife, or the United States Fish and Wildlife Service. This could result in the need for specific resource agency permits and costly mitigation to perform maintenance of the structural BMP. Along with proper placement of a structural BMP, routine maintenance is key to preventing this scenario.

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Biofiltration

SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR BF-1 BIOFILTRATION

The property owner is responsible to ensure inspection, operation and maintenance of permanent BMPs on their property unless responsibility has been formally transferred to an agency, community facilities district, homeowners association, property owners association, or other special district.

Maintenance frequencies listed in this table are average/typical frequencies. Actual maintenance needs are site-specific, and maintenance may be required more frequently. Maintenance must be performed whenever needed, based on maintenance indicators presented in this table. The BMP owner is responsible for conducting regular inspections to see when maintenance is needed based on the maintenance indicators. During the first year of operation of a structural BMP, inspection is recommended at least once prior to August 31 and then monthly from September through May. Inspection during a storm event is also recommended. After the initial period of frequent inspections, the minimum inspection and maintenance frequency can be determined based on the results of the first year inspections.

Threshold/Indicator	Maintenance Action	Typical Maintenance Frequency
Accumulation of sediment, litter, or debris	Remove and properly dispose of accumulated materials, without damage to the vegetation or compaction of the media layer.	- Inspect monthly. If the BMP is 25% full* or more in one month, increase inspection frequency to monthly plus after every 0.1-inch or larger storm event. - Remove any accumulated materials found at each inspection.
Obstructed inlet or outlet structure	Clear blockage.	- Inspect monthly and after every 0.5-inch or larger storm event. - Remove any accumulated materials found at each inspection.
Damage to structural components such as weirs, inlet or outlet structures	Repair or replace as applicable	- Inspect annually. - Maintenance when needed.
Poor vegetation establishment	Re-seed, re-plant, or re-establish vegetation per original plans.	- Inspect monthly. - Maintenance when needed.
Dead or diseased vegetation	Remove dead or diseased vegetation, re-seed, re-plant, or re-establish vegetation per original plans.	- Inspect monthly. - Maintenance when needed.
Overgrown vegetation	Mow or trim as appropriate.	- Inspect monthly. - Maintenance when needed.
2/3 of mulch has decomposed, or mulch has been removed	Remove decomposed fraction and top off with fresh mulch to a total depth of 3 inches.	- Inspect monthly. - Replenish mulch annually, or more frequently when needed based on inspection.

*"25% full" is defined as $\frac{1}{4}$ of the depth from the design bottom elevation to the crest of the outflow structure (e.g., if the height to the outflow opening is 12 inches from the bottom elevation, then the materials must be removed when there is 3 inches of accumulation – this should be marked on the outflow structure).

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Biofiltration

SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR BF-1 BIOFILTRATION (Continued from previous page)		
Threshold/Indicator	Maintenance Action	Typical Maintenance Frequency
Erosion due to concentrated irrigation flow	Repair/re-seed/re-plant eroded areas and adjust the irrigation system.	• Inspect monthly. • Maintenance when needed.
Erosion due to concentrated storm water runoff flow	Repair/re-seed/re-plant eroded areas, and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan. If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.	• Inspect after every 0.5-inch or larger storm event. If erosion due to storm water flow has been observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed. If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.
Standing water in BMP for longer than 24 hours following a storm event Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health	Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, clearing underdrains, or repairing/replacing clogged or compacted soils.	• Inspect monthly and after every 0.5-inch or larger storm event. If standing water is observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed.
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology	If mosquitos/larvae are observed: first, immediately remove any standing water by dispersing to nearby landscaping; second, make corrective measures as applicable to restore BMP drainage to prevent standing water. If mosquitos persist following corrective measures to remove standing water, or if the BMP design does not meet the 96-hour drawdown criteria due to release rates controlled by an orifice installed on the underdrain, the [City Engineer] shall be contacted to determine a solution. A different BMP type, or a Vector Management Plan prepared with concurrence from the County of San Diego Department of Environmental Health, may be required.	• Inspect monthly and after every 0.5-inch or larger storm event. If mosquitos are observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed.
Underdrain clogged	Clear blockage.	• Inspect if standing water is observed for longer than 24-96 hours following a storm event. • Maintenance when needed.

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Biofiltration

References

- American Mosquito Control Association.
<http://www.mosquito.org/>
- California Storm Water Quality Association (CASQA). 2003. Municipal BMP Handbook.
<https://www.casqa.org/resources/bmp-handbooks/municipal-bmp-handbook>
- County of San Diego. 2014. Low Impact Development Handbook.
<http://www.sandiegocounty.gov/content/sdc/dpw/watersheds/susmp/lid.html>
- San Diego County Copermittees. 2016. Model BMP Design Manual, Appendix E, Fact Sheet BF-1.
http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=250&Itemid=220

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Biofiltration

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Biofiltration

Date:	Inspector:	BMP ID No.: BMP-A
Permit No.:	APN(s): 219-115-33	
Property / Development Name:		Responsible Party Name and Phone Number:
Property Address of BMP:		Responsible Party Address:

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 1 of 5			
Threshold/Indicator	Maintenance Recommendation	Date	Description of Maintenance Conducted
Accumulation of sediment, litter, or debris Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove and properly dispose of accumulated materials, without damage to the vegetation ☐ If sediment, litter, or debris accumulation exceeds 25% of the surface ponding volume within one month (25% full*), add a forebay or other pre-treatment measures within the tributary area draining to the BMP to intercept the materials. ☐ Other / Comments:		
Poor vegetation establishment Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Re-seed, re-plant, or re-establish vegetation per original plans ☐ Other / Comments:		

*"25% full" is defined as ¼ of the depth from the design bottom elevation to the crest of the outflow structure (e.g., if the height to the outflow opening is 12 inches from the bottom elevation, then the materials must be removed when there is 3 inches of accumulation – this should be marked on the outflow structure).

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Biofiltration

Date:	Inspector:	BMP ID No.: BMP-A
Permit No.:	APN(s): 219-115-33	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 2 of 5			
Threshold/Indicator	Maintenance Recommendation	Date	Description of Maintenance Conducted
Dead or diseased vegetation Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove dead or diseased vegetation, re-seed, re-plant, or re-establish vegetation per original plans ☐ Other / Comments:		
Overgrown vegetation Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Mow or trim as appropriate ☐ Other / Comments:		
2/3 of mulch has decomposed, or mulch has been removed Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove decomposed fraction and top off with fresh mulch to a total depth of 3 inches ☐ Other / Comments:		

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Biofiltration

Date:	Inspector:	BMP ID No.: BMP-A
Permit No.:	APN(s): 219-115-33	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 3 of 5			
Threshold/Indicator	Maintenance Recommendation	Date	Description of Maintenance Conducted
Erosion due to concentrated irrigation flow Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Repair/re-seed/re-plant eroded areas and adjust the irrigation system ☐ Other / Comments:		
Erosion due to concentrated storm water runoff flow Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Repair/re-seed/re-plant eroded areas, and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan ☐ If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction ☐ Other / Comments:		

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Biofiltration

Date:	Inspector:	BMP ID No.: BMP-A
Permit No.:	APN(s): 219-115-33	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 4 of 5			
Threshold/Indicator	Maintenance Recommendation	Date	Description of Maintenance Conducted
Obstructed inlet or outlet structure Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Clear blockage ☐ Other / Comments:		
Underdrain clogged (inspect underdrain if standing water is observed for longer than 24-96 hours following a storm event) Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Clear blockage ☐ Other / Comments:		
Damage to structural components such as weirs, inlet or outlet structures Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Repair or replace as applicable ☐ Other / Comments:		

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Biofiltration

Date:	Inspector:	BMP ID No.: BMP-A
Permit No.:	APN(s): 219-115-33	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 5 of 5			
Threshold/Indicator	Maintenance Recommendation	Date	Description of Maintenance Conducted
Standing water in BMP for longer than 24-96 hours following a storm event* Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, clearing underdrains, or repairing/replacing clogged or compacted soils ☐ Other / Comments:		
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Apply corrective measures to remove standing water in BMP when standing water occurs for longer than 24-96 hours following a storm event.** ☐ Other / Comments:		

*Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health, and surface ponding longer than approximately 96 hours following a storm event poses a risk of vector (mosquito) breeding. Poor drainage can result from clogging of the media layer, filter course, aggregate storage layer, underdrain, or outlet structure. The specific cause of the drainage issue must be determined and corrected.

**If mosquitos persist following corrective measures to remove standing water, or if the BMP design does not meet the 96-hour drawdown criteria due to release rates controlled by an orifice installed on the underdrain, the [City Engineer] shall be contacted to determine a solution. A different BMP type, or a Vector Management Plan prepared with concurrence from the County of San Diego Department of Environmental Health, may be required.

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Biofiltration

Date:	Inspector:	BMP ID No.: BMP-B
Permit No.:	APN(s): 219-115-33	
Property / Development Name:		Responsible Party Name and Phone Number:
Property Address of BMP:		Responsible Party Address:

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 1 of 5			
Threshold/Indicator	Maintenance Recommendation	Date	Description of Maintenance Conducted
Accumulation of sediment, litter, or debris Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove and properly dispose of accumulated materials, without damage to the vegetation ☐ If sediment, litter, or debris accumulation exceeds 25% of the surface ponding volume within one month (25% full*), add a forebay or other pre-treatment measures within the tributary area draining to the BMP to intercept the materials. ☐ Other / Comments:		
Poor vegetation establishment Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Re-seed, re-plant, or re-establish vegetation per original plans ☐ Other / Comments:		

*"25% full" is defined as ¼ of the depth from the design bottom elevation to the crest of the outflow structure (e.g., if the height to the outflow opening is 12 inches from the bottom elevation, then the materials must be removed when there is 3 inches of accumulation – this should be marked on the outflow structure).

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Biofiltration

Date:	Inspector:	BMP ID No.: BMP-B
Permit No.:	APN(s): 219-115-33	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 2 of 5			
Threshold/Indicator	Maintenance Recommendation	Date	Description of Maintenance Conducted
Dead or diseased vegetation Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove dead or diseased vegetation, re-seed, re-plant, or re-establish vegetation per original plans ☐ Other / Comments:		
Overgrown vegetation Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Mow or trim as appropriate ☐ Other / Comments:		
2/3 of mulch has decomposed, or mulch has been removed Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove decomposed fraction and top off with fresh mulch to a total depth of 3 inches ☐ Other / Comments:		

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Biofiltration

Date:	Inspector:	BMP ID No.: BMP-B
Permit No.:	APN(s): 219-115-33	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 3 of 5			
Threshold/Indicator	Maintenance Recommendation	Date	Description of Maintenance Conducted
Erosion due to concentrated irrigation flow Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Repair/re-seed/re-plant eroded areas and adjust the irrigation system ☐ Other / Comments:		
Erosion due to concentrated storm water runoff flow Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Repair/re-seed/re-plant eroded areas, and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan ☐ If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction ☐ Other / Comments:		

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Biofiltration

Date:	Inspector:	BMP ID No.: BMP-B
Permit No.:	APN(s): 219-115-33	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 4 of 5			
Threshold/Indicator	Maintenance Recommendation	Date	Description of Maintenance Conducted
Obstructed inlet or outlet structure Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Clear blockage ☐ Other / Comments:		
Underdrain clogged (inspect underdrain if standing water is observed for longer than 24-96 hours following a storm event) Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Clear blockage ☐ Other / Comments:		
Damage to structural components such as weirs, inlet or outlet structures Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Repair or replace as applicable ☐ Other / Comments:		

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Biofiltration

Date:	Inspector:	BMP ID No.: BMP-B
Permit No.:	APN(s): 219-115-33	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 5 of 5			
Threshold/Indicator	Maintenance Recommendation	Date	Description of Maintenance Conducted
Standing water in BMP for longer than 24-96 hours following a storm event* Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, clearing underdrains, or repairing/replacing clogged or compacted soils ☐ Other / Comments:		
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Apply corrective measures to remove standing water in BMP when standing water occurs for longer than 24-96 hours following a storm event.** ☐ Other / Comments:		

*Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health, and surface ponding longer than approximately 96 hours following a storm event poses a risk of vector (mosquito) breeding. Poor drainage can result from clogging of the media layer, filter course, aggregate storage layer, underdrain, or outlet structure. The specific cause of the drainage issue must be determined and corrected.

**If mosquitos persist following corrective measures to remove standing water, or if the BMP design does not meet the 96-hour drawdown criteria due to release rates controlled by an orifice installed on the underdrain, the [City Engineer] shall be contacted to determine a solution. A different BMP type, or a Vector Management Plan prepared with concurrence from the County of San Diego Department of Environmental Health, may be required.

If These Sources Will Be on the Project Site ...	... Then Your SWQMP Must Consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
A. Onsite storm drain inlets Not Applicable	Locations of inlets.	Mark all inlets with the words “No Dumping! Flows to Bay” or similar. See stencil template provided in Appendix I-4	Maintain and periodically repaint or replace inlet markings. Provide storm water pollution prevention information to new site owners, lessees, or operators. See applicable operational BMPs in Fact Sheet SC-44, “Drainage System Maintenance,” in the CASQA Storm Water Quality Handbooks at www.casqa.org/resources/bmp-handbooks/municipal-bmp-handbook. Include the following in lease agreements: “Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains.”

If These Sources Will Be on the Project Site ...	... Then Your SWQMP must consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
B. Interior floor drains and elevator shaft sump pumps Not Applicable		State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.	Inspect and maintain drains to prevent blockages and overflow.
C. Interior parking garages Not Applicable		State that parking garage floor drains will be plumbed to the sanitary sewer.	Inspect and maintain drains to prevent blockages and overflow.
D1. Need for future indoor & structural pest control Not Applicable		Note building design features that discourage entry of pests.	Provide Integrated Pest Management information to owners, lessees, and operators.

If These Sources Will Be on the Project Site ...	... Then Your SWQMP must consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
D2. Landscape/ Outdoor Pesticide Use Not Applicable	Show locations of existing trees or areas of shrubs and ground cover to be undisturbed and retained. Show self-retaining landscape areas, if any. Show storm water treatment facilities.	State that final landscape plans will accomplish all of the following. Preserve existing drought tolerant trees, shrubs, and ground cover to the maximum extent possible. Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to storm water pollution. Where landscaped areas are used to retain or detain storm water, specify plants that are tolerant of periodic saturated soil conditions. Consider using pest-resistant plants, especially adjacent to hardscape. To ensure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	Maintain landscaping using minimum or no pesticides. See applicable operational BMPs in Fact Sheet SC-41, “Building and Grounds Maintenance,” in the CASQA Storm Water Quality Handbooks at www.casqa.org/resources/bmp-handbooks/municipal-bmp-handbook. Provide IPM information to new owners, lessees and operators.

If These Sources Will Be on the Project Site ...	... Then Your SWQMP must consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
E. Pools, spas, ponds, decorative fountains, and other water features. Not Applicable	Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet.	If the local municipality requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.	See applicable operational BMPs in Fact Sheet SC-72, “Fountain and Pool Maintenance,” in the CASQA Storm Water Quality Handbooks at www.casqa.org/resources/bmp-handbooks/municipal-bmp-handbook.
F. Food service Not Applicable	For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment. On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer. All cleaning for restaurant facility will be done indoors. Indoor kitchen area is connected to grease interceptor.	Describe the location and features of the designated cleaning area. Describe the items to be cleaned in this facility and how it has been sized to ensure that the largest items can be accommodated.	

If These Sources Will Be on the Project Site ...	... Then Your SWQMP must consider These Source Control BMPs		
1 Potential Sources of	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
G. Refuse areas Not Applicable	Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas. If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area. Also show how the designated area will be protected from wind dispersal. Any drains from dumpsters, compactors, and tallow bin areas must be connected to a grease removal device before discharge to sanitary sewer.	State how site refuse will be handled and provide supporting detail to what is shown on plans. State that signs will be posted on or near dumpsters with the words “Do not dump hazardous materials here” or similar.	State how the following will be implemented: Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post “no hazardous materials” signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, “Waste Handling and Disposal” in the CASQA Storm Water Quality Handbooks at www.casqa.org/resources/bmp-handbooks/municipal-bmp-handbook.

If These Sources Will Be on the Project Site ...	... Then Your SWQMP must consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative Table and Narrative
H. Industrial processes. Not Applicable	Show process area.	If industrial processes are to be located onsite, state: “All process activities to be performed indoors. No processes to drain to exterior or to storm drain system.”	See Fact Sheet SC-10, “Non-Storm Water Discharges” in the CASQA Storm Water Quality Handbooks at https://www.casqa.org/resources/bmp-handbooks .
I. Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.) Not Applicable	Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or runoff from area and protected from wind dispersal. Storage of non-hazardous liquids must be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults. Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.	Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains. Where appropriate, reference documentation of compliance with the requirements of local Hazardous Materials Programs for: ▪ Hazardous Waste Generation ▪ Hazardous Materials Release Response and Inventory ▪ California Accidental Release Prevention Program ▪ Aboveground Storage Tank ▪ Uniform Fire Code Article 80 Section 103(b) & (c) 1991 ▪ Underground Storage Tank	See the Fact Sheets SC-31, “Outdoor Liquid Container Storage” and SC-33, “Outdoor Storage of Raw Materials” in the CASQA Storm Water Quality Handbooks at www.casqa.org/resources/bmp-handbooks/municipal-bmp-handbook .

If These Sources Will Be on the Project Site ...	... Then Your SWQMP must consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
J. Vehicle and Equipment Cleaning Not Applicable	Show on drawings as appropriate: (1) Commercial/industrial facilities having vehicle /equipment cleaning needs must either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses. (2) Multi-dwelling complexes must have a paved, bermed, and covered car wash area (unless car washing is prohibited onsite and hoses are provided with an automatic shut-off to discourage such use). (3) Washing areas for cars, vehicles, and equipment must be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer. (4) Commercial car wash facilities must be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility must discharge to the sanitary sewer, or a wastewater reclamation system must be installed.	If a car wash area is not provided, describe measures taken to discourage onsite car washing and explain how these will be enforced.	Describe operational measures to implement the following (if applicable): Washwater from vehicle and equipment washing operations must not be discharged to the storm drain system. Car dealerships and similar may rinse cars with water only. See Fact Sheet SC-21, “Vehicle and Equipment Cleaning,” in the CASQA Storm Water Quality Handbooks at www.casqa.org/resources/bmp-handbooks/municipal-bmp-handbook.

If These Sources Will Be on the Project Site ...	... Then Your SWQMP must consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
K. Vehicle/Equipment Repair and Maintenance Not Applicable	Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to protect from rainfall, run-on runoff, and wind dispersal. Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains must not be installed within the secondary containment areas. Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained.	State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area. State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements. State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.	In the report, note that all of the following restrictions apply to use the site: No person must dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains. No vehicle fluid removal must be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids must be contained or drained from the vehicle immediately. No person must leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment.

If These Sources Will Be on the Project Site ...	... Then Your SWQMP must consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
L. Fuel Dispensing Areas Not Applicable	Fueling areas¹⁶ must have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are (1) graded at the minimum slope necessary to prevent ponding; and (2) separated from the rest of the site by a grade break that prevents run-on of storm water to the MEP. Fueling areas must be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area¹.] The canopy [or cover] must not drain onto the fueling area.		The property owner must dry sweep the fueling area routinely. See the Business Guide Sheet, “Automotive Service—Service Stations” in the CASQA Storm Water Quality Handbooks at https://www.casqa.org/resources/bmp-handbooks.

¹⁶ The fueling area must be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.

If These Sources Will Be on the Project Site ...	... Then Your SWQMP must consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in	4 Operational BMPs—Include in Table and Narrative
M. Loading Docks Not Applicable	Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks must be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts must be positioned to direct storm water away from the loading area. Water from loading dock areas should be drained to the sanitary sewer where feasible. Direct connections to storm drains from depressed loading docks are prohibited. Loading dock areas draining directly to the sanitary sewer must be equipped with a spill control valve or equivalent device, which must be kept closed during periods of operation. Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.		Move loaded and unloaded items indoors as soon as possible. See Fact Sheet SC-30, “Outdoor Loading and Unloading,” in the CASQA Storm Water Quality Handbooks at www.casqa.org/resources/bmp-handbooks/municipal-bmp-handbook.

If These Sources Will Be on the Project Site ...	... Then Your SWQMP must consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
N. Fire Sprinkler Test Water Not Applicable		Provide a means to drain fire sprinkler test water to the sanitary sewer.	See the note in Fact Sheet SC-41, “Building and Grounds Maintenance,” in the CASQA Storm Water Quality Handbooks at www.casqa.org/resources/bmp-handbooks/municipal-bmp-handbook
O. Miscellaneous Drain or Wash Water Boiler drain lines Condensate drain lines Rooftop equipment Drainage sumps Roofing, gutters, and trim Not Applicable		Boiler drain lines must be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system. Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. Rooftop mounted equipment with potential to produce pollutants must be roofed and/or have secondary containment. Any drainage sumps onsite must feature a sediment sump to reduce the quantity of sediment in pumped water. Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.	

If These Sources Will Be on the Project Site ...	... Then Your SWQMP must consider These Source Control BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Drawings	3 Permanent Controls—List in Table and Narrative	4 Operational BMPs—Include in Table and Narrative
P. Plazas, sidewalks, and parking lots. Not Applicable			Plazas, sidewalks, and parking lots must be swept regularly to prevent the accumulation of litter and debris. Debris from pressure washing must be collected to prevent entry into the storm drain system. Washwater containing any cleaning agent or degreaser must be collected and discharged to the sanitary sewer and not discharged to a storm drain.

**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).

ATTACHMENT 4
Copy of Plan Sheets Showing 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:

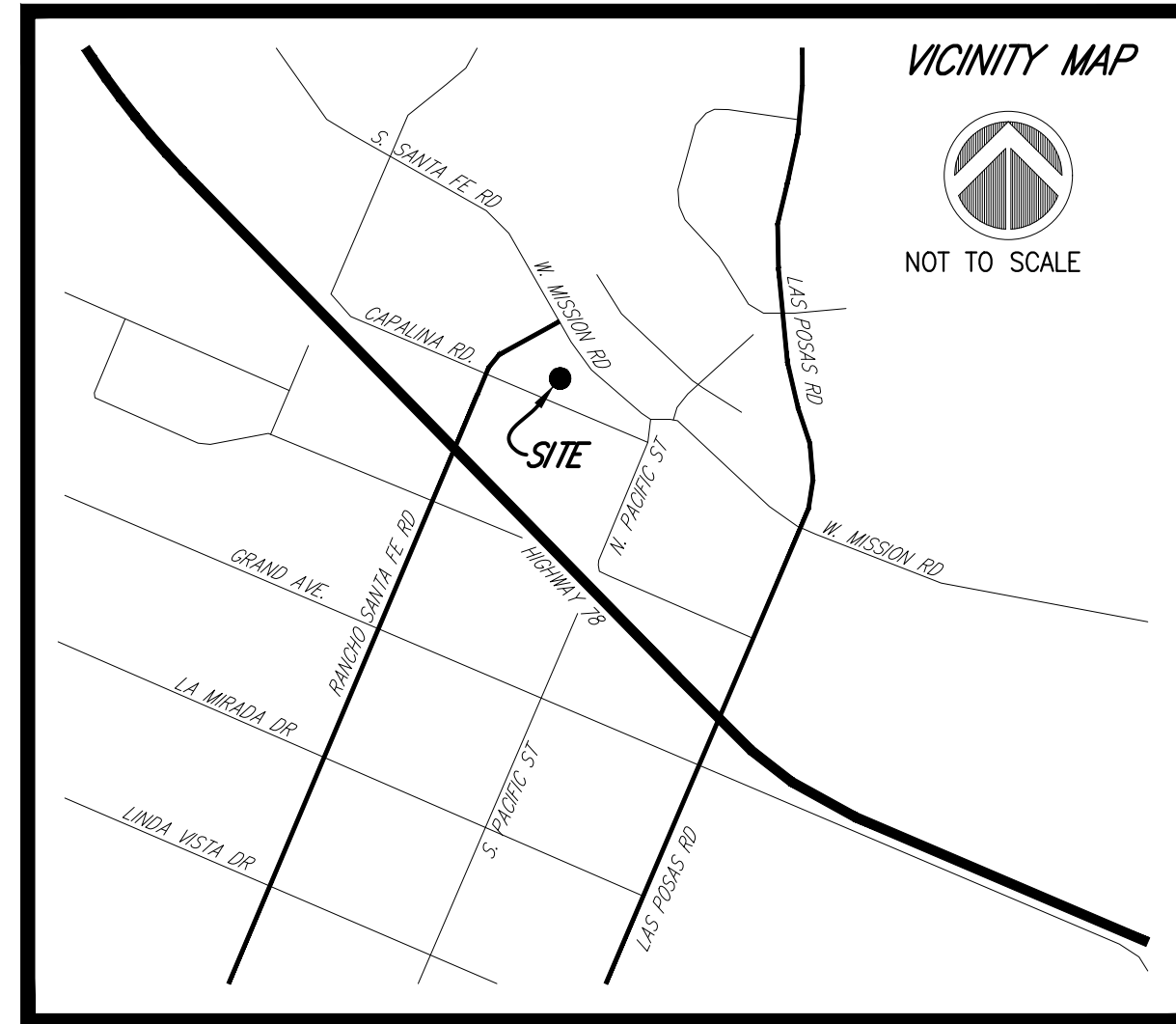
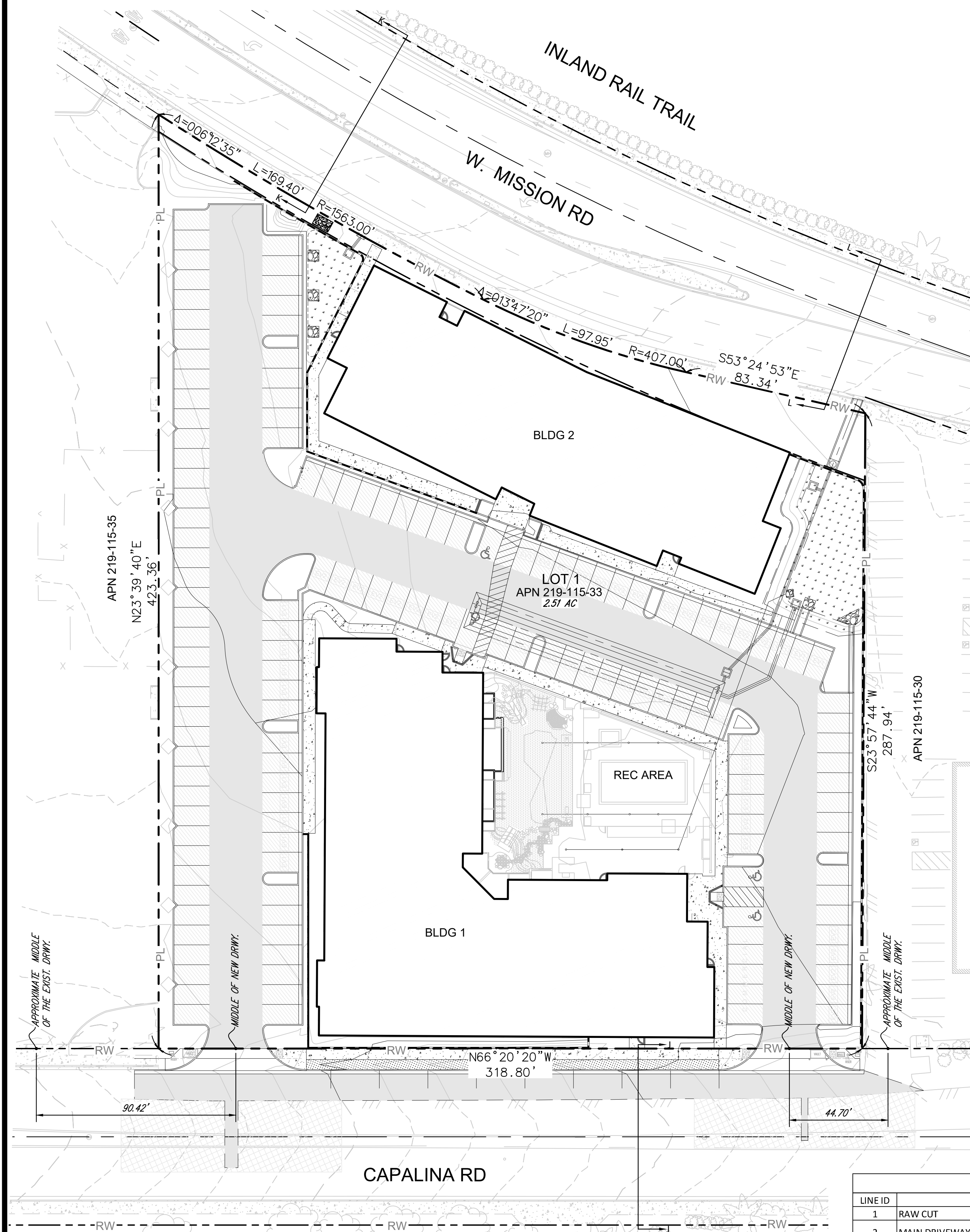
The plans must identify:

- ☒ 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.

need to update

gp

V:\22122060\Engineering\TM 021 TM P001 1 TITLE.dwg 4/6/2023 2:22 PM ORIGINAL PLOT SIZE: 1/4"=120'00"



CAPALINA APARTMENTS AT SAN MARCOS PRELIMINARY GRADING PLAN

LEGAL DESCRIPTION FOR APN 219-115-33-00

PARCEL 2 OF PARCEL MAP NO. 2003, IN THE CITY OF SAN MARCOS, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, PER MAP FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, OCTOBER 23, 1973 AS FILE NO. 73-296977 OF OFFICIAL RECORDS.

EXCEPTING THEREFROM ALL THAT PORTION CONNECTED TO THE CITY OF SAN MARCOS FOR STREET PURPOSES, RECORDED MARCH 19, 2004 AS FILE NO. 2004-0229021 OF OFFICIAL RECORDS.

SOURCE OF TOPOGRAPHY

THE TOPOGRAPHY SHOWN ON THIS SURVEY WAS CREATED FROM AN AERIAL DRONE SURVEY BY CAPTO DRONE SERVICES, FLIGHT DATE: JULY 6, 2022.

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA COORDINATE SYSTEM 1983 (CCS83), ZONE 6, 2017.50 EPOCH, AND IS DETERMINED BY GPS MEASUREMENTS TAKEN ON JUNE 28, 2022 AT CITY OF SAN MARCOS SURVEY CONTROL POINT STATION NAMES "CP-018" AND "CP-022" DERIVED FROM GEODETIC VALUES PUBLISHED RECORD PER ROS 23731.

THE BEARING BETWEEN "CP-018" AND "CP-022": NORTH 82° 10' 38" WEST

QUOTED BEARINGS FROM REFERENCE MAPS OR DEEDS MAY OR MAY NOT BE IN TERMS OF SAID SYSTEM.

THE COMBINED FACTOR AT "CP-022": 0.99995935
GRID DISTANCE = GROUND DISTANCE x COMBINED GRID FACTOR.
ELEVATION AT "CP-022": 584.17 DATUM: NAVD88

ALL DIMENSIONS SHOWN HEREON ARE GROUND DISTANCES, UNLESS NOTED OTHERWISE.

BENCHMARK

THE BENCHMARK FOR THIS SURVEY IS THE CITY OF SAN MARCOS SURVEY CONTROL POINT STATION NAME: "CP-022", LOCATED IN THE CENTER MEDIAN OF RANCHO SANTA FE ROAD, APPROXIMATELY 150' SOUTHWESTERLY OF THE INTERSECTION OF RANCHO SANTA FE ROAD AND DESCANSO AVE, RECORD PER ROS 23731.

ELEVATION: 584.17 DATUM: NAVD88

EXISTING EASEMENTS

SEE SHEET 2 FOR DESCRIPTIONS & LOCATIONS.

PROPERTY ADDRESS

CAPALINA ROAD
SAN MARCOS, CA 92069

EXISTING ZONING

MIXED-USE-3 (MU-3)

PROPOSED ZONING

MIXED-USE-2 (MU-2)

LOTS

TOTAL LOT(S) EXISTING: 1
TOTAL LOT(S) PROPOSED: 1

UTILITIES

FIRE	SAN MARCOS FIRE PROTECTION DISTRICT
SCHOOL	SAN MARCOS UNIFIED SCHOOL DISTRICT
SEWER	VALLECITOS WATER DISTRICT
WATER	VALLECITOS WATER DISTRICT
TELEPHONE	COX COMMUNICATIONS
GAS	SAN DIEGO GAS & ELECTRIC
ELECTRIC	SAN DIEGO GAS & ELECTRIC

PROPOSED ONSITE UTILITIES

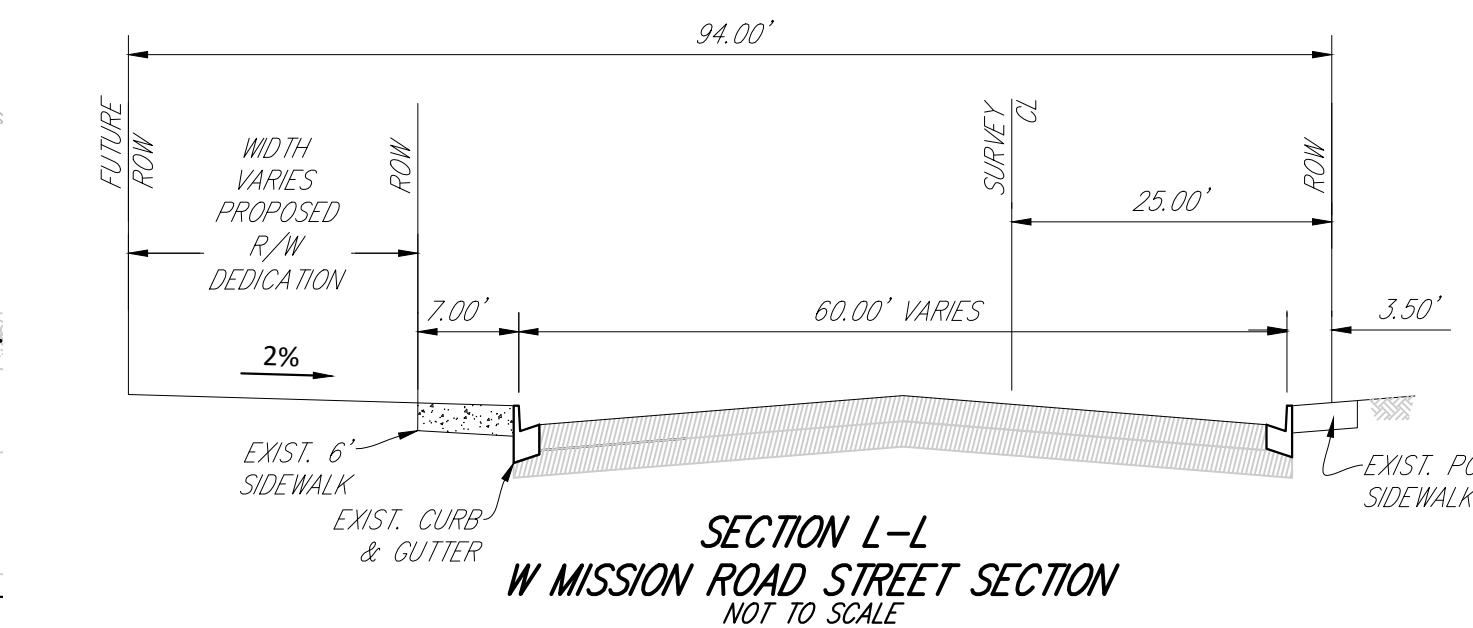
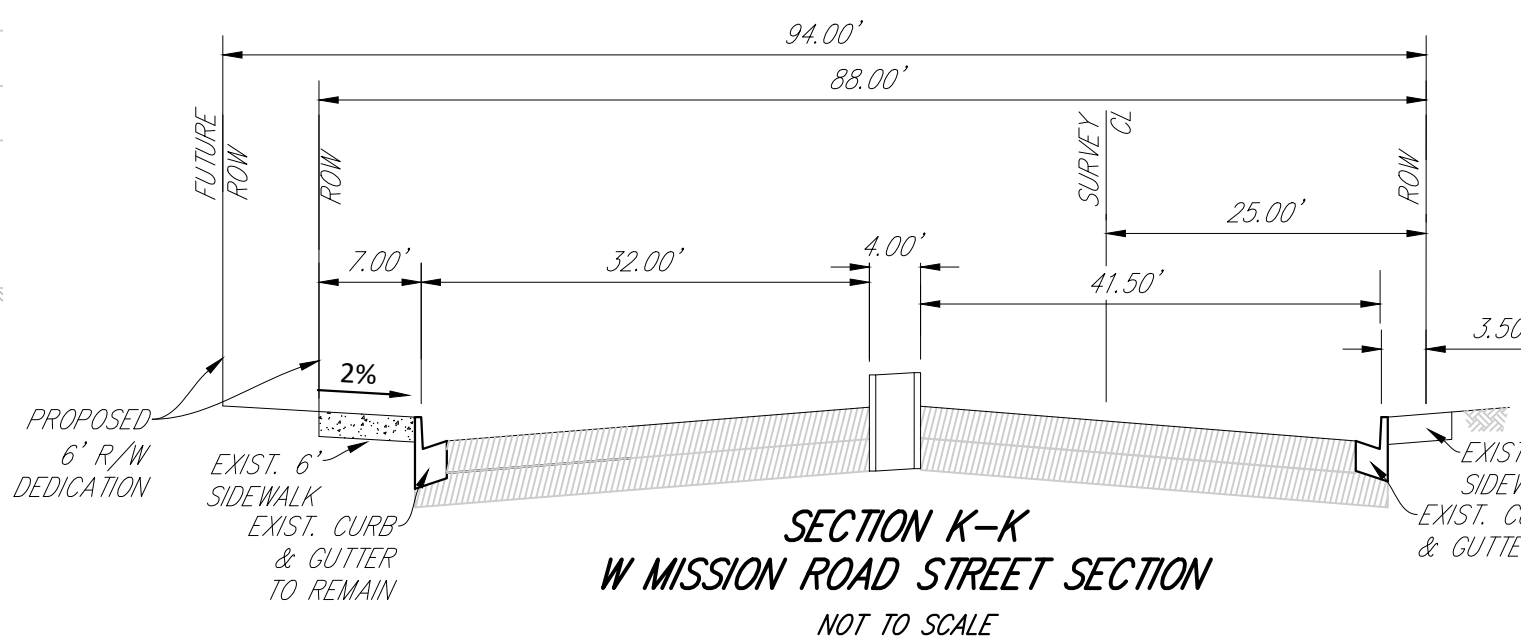
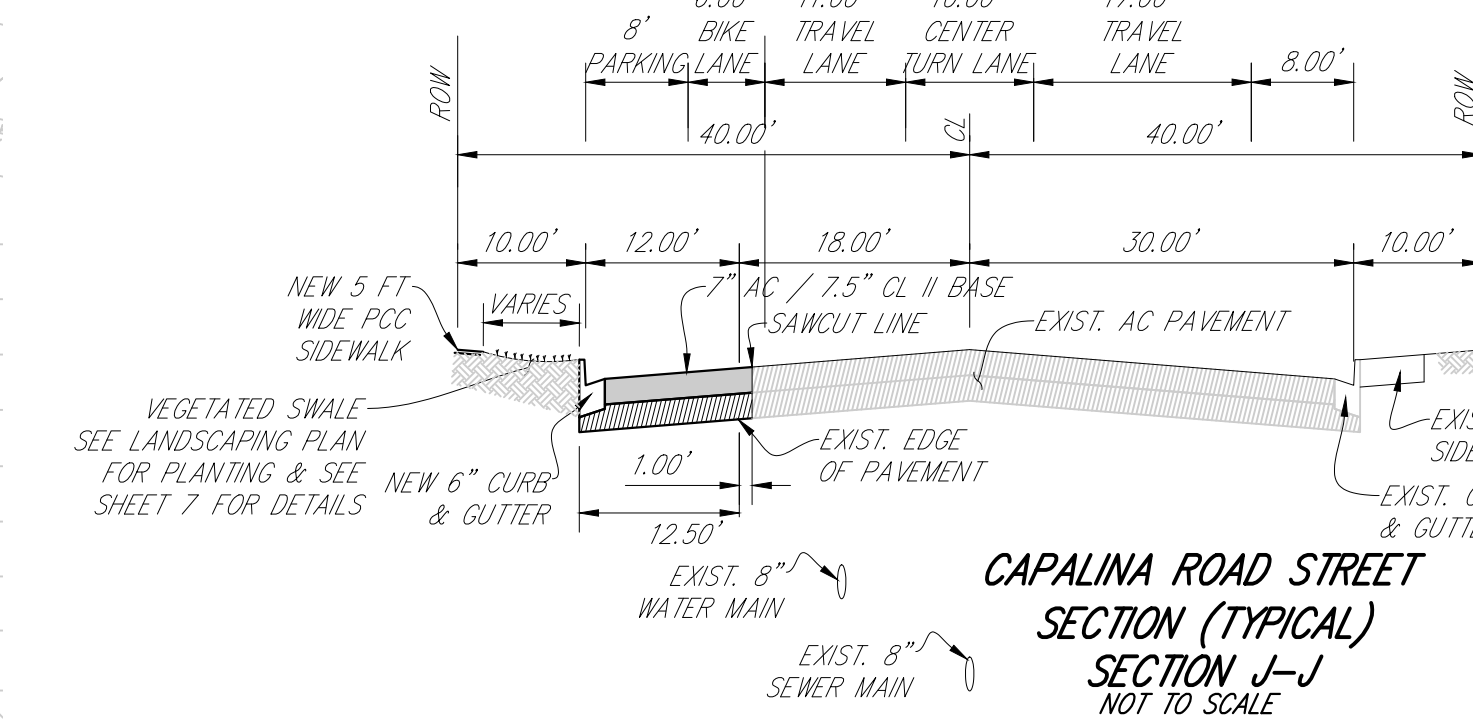
WATER	PRIVATE
FIRE SYSTEM	PRIVATE
SEWER	PRIVATE
STORM DRAIN	PRIVATE

DRY UTILITY NOTE

AS THIS PROJECT IS IN THE ENTITLEMENT STAGE, THERE IS CURRENTLY NO PLANS & DESIGN FOR THE DRY UTILITIES. THE EXISTING DRY UTILITIES ALONG THE RIGHT OF WAY SHALL BE RELOCATED OR ADJUSTED AS NEEDED TO AVOID CONFLICT WITH ADA ACCESSIBILITY. DESIGN & LOCATIONS SHALL BE SHOWN ON THE CONSTRUCTION DOCUMENTS. THE RELOCATION MAY INCLUDE THE GRANTING OF ON-SITE EASEMENTS.

DESIGN EXCEPTION NOTE

AS SHOWN HEREON, THIS PROJECT INCLUDES DESIGN EXCEPTION FOR DRIVEWAY DISTANCE/LOCATION.



EARTHWORK CALCULATION TABLE				
LINE ID	ITEM DESCRIPTION	AREA (SF)	SECTION/LENGTH (FT)	ROUNDED
1	RAW CUT			522.18
2	MAIN DRIVEWAY & PARKING	61,540.00	0.75	1,709.44
3	PUBLIC ST	4,955.00	0.83	152.93
4	BLDG FLOOR SECTION	34,575.00	0.75	960.42
5	WQ BASINS	2,550.00	5.00	472.22
6	DETENTION PIPES (4' DIA PIPE, 550 LF)	12.57	370.00	172.21
7	TOTAL CUT			3,989.40
8				4,030.00
9	RAW FILL			12,266.55
10	SHRINKAGE 0% (APPLIED TO RAW CUT)	522.18	0.00	0.00
11	TOTAL FILL			12,266.55
12	IMPORT			-8,277.15
13	FOR PERMITTING PURPOSES, IMPORT AT (CY)		8,240.00	-8,240.00

DEVELOPER / APPLICANT

CAPALINA SMA, LLC
179 CALLE MAGDALENA #201
ENCINITAS, CA 92024
ATTN: JON RILLING

OWNER'S CERTIFICATE

WE HEREBY CERTIFY THAT WE ARE THE RECORD OWNERS OF THE PROPERTY SHOWN ON THE ATTACHED PRELIMINARY GRADING PLAN AND THAT SAID MAP SHOWS OUR ENTIRE CONTIGUOUS OWNERSHIP. WE UNDERSTAND THAT PROPERTY IS CONSIDERED CONTIGUOUS EVEN IF IT IS SEPARATED BY ROADS, STREETS UTILITY EASEMENTS OR RAILROAD RIGHT OF WAY.

APPLICANT / AGENT FOR OWNERS

SEE AGREEMENT DOC. NO. _____ DATE: _____

OWNER

SABA FAMILY TRUST

MAP PREPARED BY

EXCEL ENGINEERING
440 STATE PLACE
ESCONDIDO, CA 92029
(760)745-8118

SURVEYING BY: MICHAEL D. LEVIN DATE: 04-6-2023

ENGINEERING BY: ROBERT D. DENTINO DATE: 4/6/2023

PREPARATION DATE

OCTOBER 2022

LAND AREA

2.51 ACRES

APN

APN 219-115-33

FLOOD ZONE DESIGNATION

FLOOD ZONE INFORMATION PER THE FEDERAL EMERGENCY MANAGEMENT AGENCY WEBSITE.

THIS SITE IS PART OF FEMA FLOOD PANEL NO. 06073C0789H AND WAS REVISED: MAY 16, 2012

THE PROPERTY IS LOCATED WITHIN ZONE X - AREA DETERMINED TO BE OF MINIMAL FLOOD HAZARD.

SHEET 1 OF 7 SHEETS

TITLE

CAPALINA APARTMENTS
PRELIMINARY GRADING PLAN

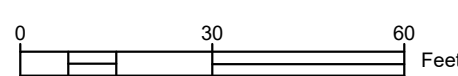
APN 219-115-33
CAPALINA ROAD, SAN MARCOS CA



DATE	REMARKS
04/2023	PLANNING SUBMITTAL



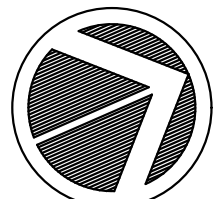
SCALE 1"=30'



SHEET INDEX

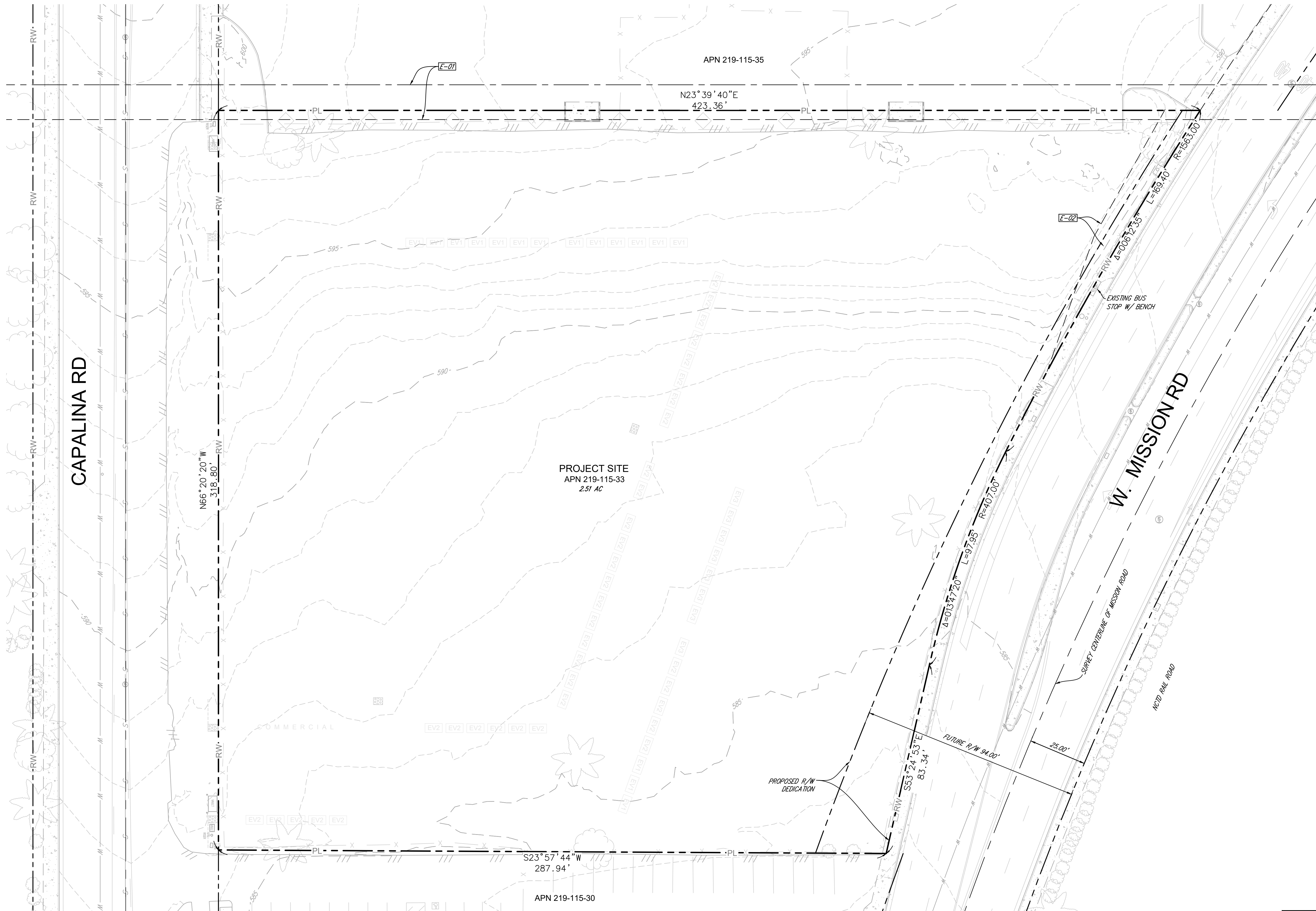
SHEET 1	TITLE
SHEET 2	EXISTING CONDITION
SHEET 3	GRADING
SHEET 4	SECTIONS AND PROFILES
SHEET 5	UTILITIES
SHEET 6	CIRCULATION
SHEET 7	SWQMP BMP

1/2" (2122060) Engineering 1/16" (2122060) Planning 1/16" (2122060) Existing Condition 4/6/2023 2:22 PM ORIGINAL PLOT SIZE: -----



SCALE 1"=20'

0 20 40 Feet



- EXISTING EASEMENTS**
- E-01** AN EASEMENT GRANTED TO SAN DIEGO COUNTY WATER AUTHORITY FOR PIPE LINES, INGRESS & EGRESS & RIGHTS INCIDENTAL THERETO RECORDED AUGUST 11, 1958, IN BOOK 7206, PAGE 315 OF OFFICIAL RECORDS.
- E-02** AN EASEMENT GRANTED TO THE CITY OF SAN MARCOS FOR EMBANKMENT SLOPES & RIGHTS INCIDENTAL THERETO RECORDED MARCH 19, 2004, AS DOCUMENT NO. 2004-0229021 OF OFFICIAL RECORDS.

LEGEND	
PROJECT BOUNDARY	---
PROPERTY LINE	-PL-
RIGHT OF WAY	-RW-
EXIST. MAJOR CONTOUR	---100---
EXIST. MINOR CONTOUR	---
EXIST. GEOGRID TYPE RETAINING	=====
EXIST. CMU TYPE RETAINING	=====
EXIST. SOIL NAIL TYPE RETAINING	=====
EXIST. WATER MAIN	W
EXIST. SEWER MAIN	S
EXIST. FLOW LINE	←→
EXIST. PCC BROW DITCH	⇒⇒⇒
EXIST. FIRE LINE	F
EXIST. FIRE HYDRANT	⊙
EXIST. STREET/PARKING LIGHT	⊙
EXIST. STORM DRAIN INLETS/CLEANOUTS	⊙
EXIST. WATER SERVICE LATERAL	⊙
EXIST. SEWER SERVICE LATERAL	⊙
EXIST. FIRE SERVICE LATERAL	⊙
EXIST. PCC CURB	=====
EXIST. PCC CURB & GUTTER	=====

SHEET 2 OF 7 SHEETS
EXISTING CONDITION

CAPALINA APARTMENTS
PRELIMINARY GRADING PLAN
APN 219-115-33
CAPALINA ROAD, SAN MARCOS CA

EXCEL
ENGINEERING
LAND PLANNING • ENGINEERING • SURVEYING
440 SHINE BLVD, SUITE 100, SAN MARCOS, CA 92069
PH (760) 745-8818 FX (760) 745-8854

DATE	REMARKS
04/2023	PLANNING SUBMITTAL

CONSTRUCTION NOTES
UTILITY IMPROVEMENTS

- UT-01 FIRELINE MAIN
UT-02 DDCV
UT-03 FIRE HYDRANT
UT-04 BLDG FIRE SERVICE LATERAL
UT-05 PIV/FDC
UT-06 DOMESTIC WATER SERVICE LATERAL
UT-07 IRRIGATION WATER SERVICE LATERAL
UT-08 SEWER SERVICE LATERAL (PUBLIC)
UT-09 SEWER MAINLINE (PRIVATE)
UT-10 BLDG SEWER SERVICE LATERAL
UT-11 8" PUBLIC WATER MAIN

- STORM DRAIN / WATER QUALITY IMPROVEMENTS
SD-01 STORM DRAIN INLET
SD-02 STORM DRAIN PIPE
SD-03 48" OF SD DETENTION PIPE (SEE DETAIL ON SHEET 7 & PROFILE ON SHEET 4).
SD-04 STORM DRAIN PIPE (OUTLET)
SD-05 WATER QUALITY BASIN. SEE DETAILS ON SHEET 7.
SD-06 WQ BASIN OUTLET. SEE DETAILS ON SHEET 7.
SD-07 WQ BASIN OVERFLOW INLET.
SD-08 STORM DRAIN CURB OUTLET PER SDRSD D-25
SD-09 PCC CHUTE
SD-10 ENERGY VELOCITY DISSIPATOR PER DETAIL THIS SHEET
SD-11 AREA DRAIN
SD-12 4" AREA DRAIN PIPE

- SURFACE IMPROVEMENTS
SI-01 3" AC/6.5 CLASS II BASE (DRIVE AISLE)
SI-02 4" AC/7.5 CLASS II (PARKING)
SI-03 6" PCC CURB (SDRSD G-2)
SI-04 6" PCC CURB & GUTTER (SDRSD G-2)
SI-05 PCC RAMP
SI-06 CMU TYPE RETAINING WALL
SI-07 PCC SIDEWALK
SI-08 3" WIDE CURB CUT @ 9' O.C. WITH ENERGY VELOCITY DISSIPATOR
SI-09 ADA COMPLAINT PLANTER COVER
SI-10 R=20' RADIUS TYPE DRIVEWAY PER CITY STANDARD
SI-11 AC PAVEMENT (STREET WIDENING)
SI-12 1.5" WIDE CURB CUT @ 20' O.C.
SI-13 2" GRIND & OVERLAY PER CITY STANDARD

FENCING NOTE
NOTE ON RETAINING WALL WITH FENCE ON TOP. FENCING FINAL DESIGN PER LANDSCAPING PLAN ON THE CONSTRUCTION DOCUMENTS.

LEGEND

- PROJECT BOUNDARY
PROPERTY LINE
RIGHT OF WAY
EXIST MAJOR CONTOUR
EXIST MINOR CONTOUR
PROPOSE MAJOR CONTOUR
PROPOSE MINOR CONTOUR
GEOGRID TYPE RETAINING
CMU TYPE RETAINING
SOIL NAIL TYPE RETAINING
EXIST WATER MAIN
EXIST SEWER MAIN
NEW WATER MAIN
NEW SEWER MAIN
FLOW LINE
PCC BROW DITCH
EXIST. FIRE LINE
FIRE HYDRANT
STREET/PARKING LIGHT
STORM DRAIN
INLETS/CLEANOUTS
WATER SERVICE LATERAL
SEWER SERVICE LATERAL
FIRE SERVICE LATERAL
PCC CURB
PCC CURB & GUTTER

SHEET 3 OF 7 SHEETS
GRADING

CAPALINA APARTMENTS
PRELIMINARY GRADING PLAN
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CAPALINA ROAD, SAN MARCOS CA

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440 S. RIVER ST., SUITE 200, SAN MARCOS, CA 93366
TEL: (760) 366-1111 FAX: (760) 366-1112

DATE	REMARKS
04/2023	PLANNING SUBMITTAL

EXISTING EASEMENTS

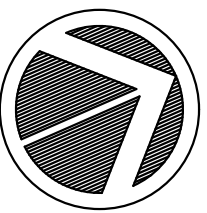
- E-01 AN EASEMENT GRANTED TO SAN DIEGO COUNTY WATER AUTHORITY FOR PIPE LINES, INGRESS & EGRESS & RIGHTS INCIDENTAL THERETO RECORDED AUGUST 11, 1958, IN BOOK 7206, PAGE 315 OF OFFICIAL RECORDS.
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4"-6" CLEAN-WASHED ROCK UNDERLAIN BY GEOTEXTILE FABRIC UNLESS SPECIFIED BY PLANS (MIRAFI OR EQUIVALENT).
MIN WIDTH=5'; MIN LENGTH=10'

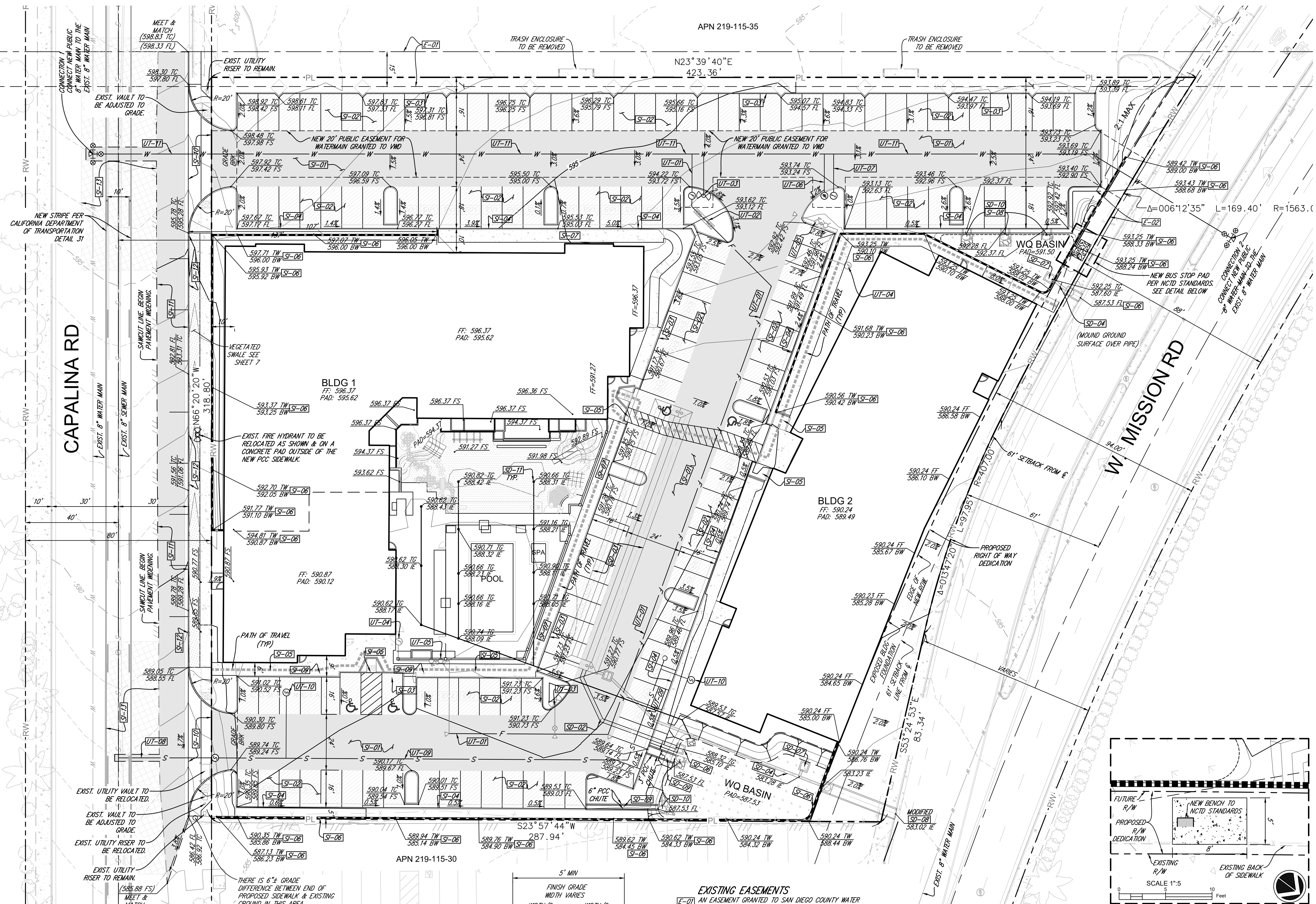
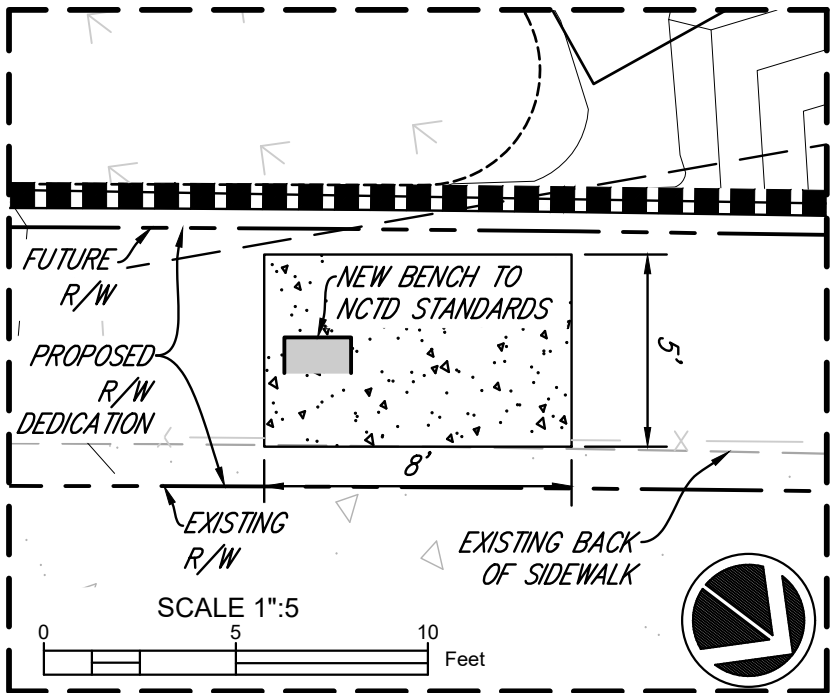
SD-10 ENERGY VELOCITY DISSIPATER
NOT TO SCALE

DRY UTILITY NOTE

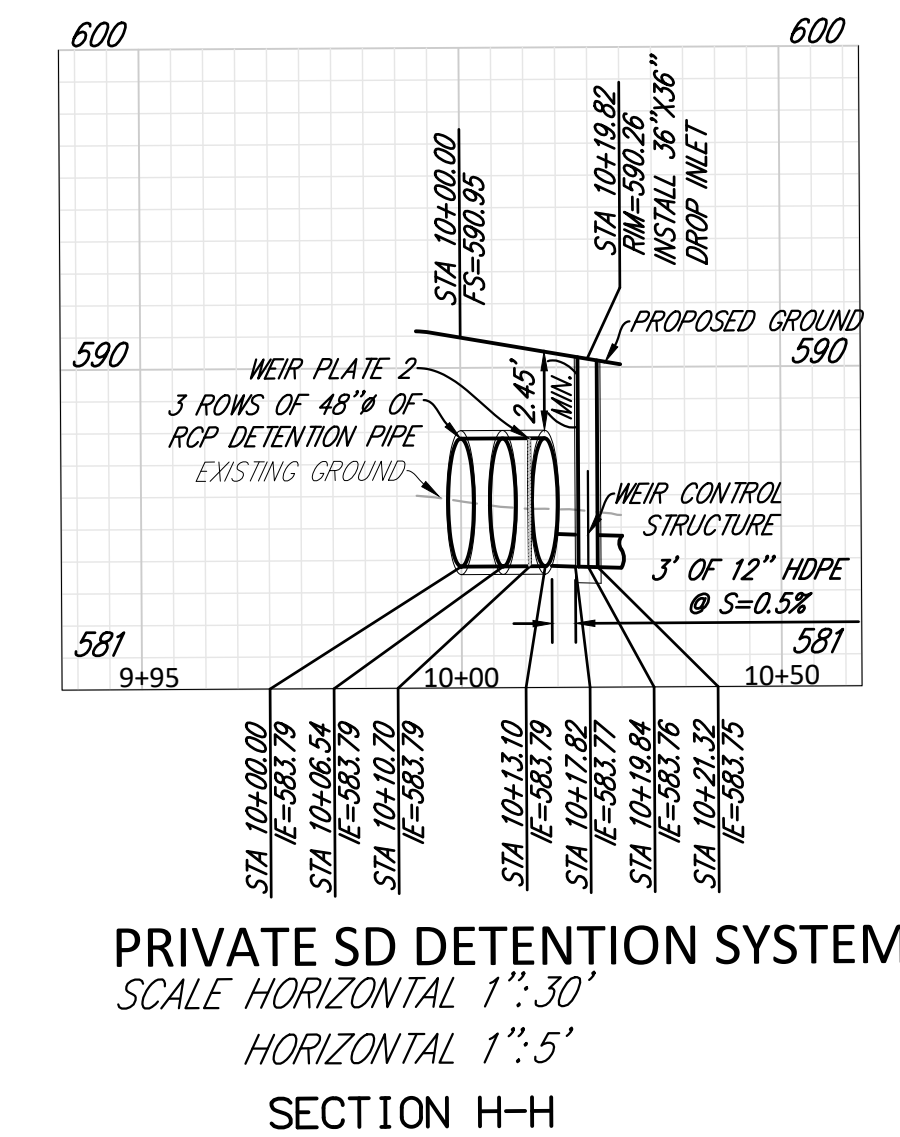
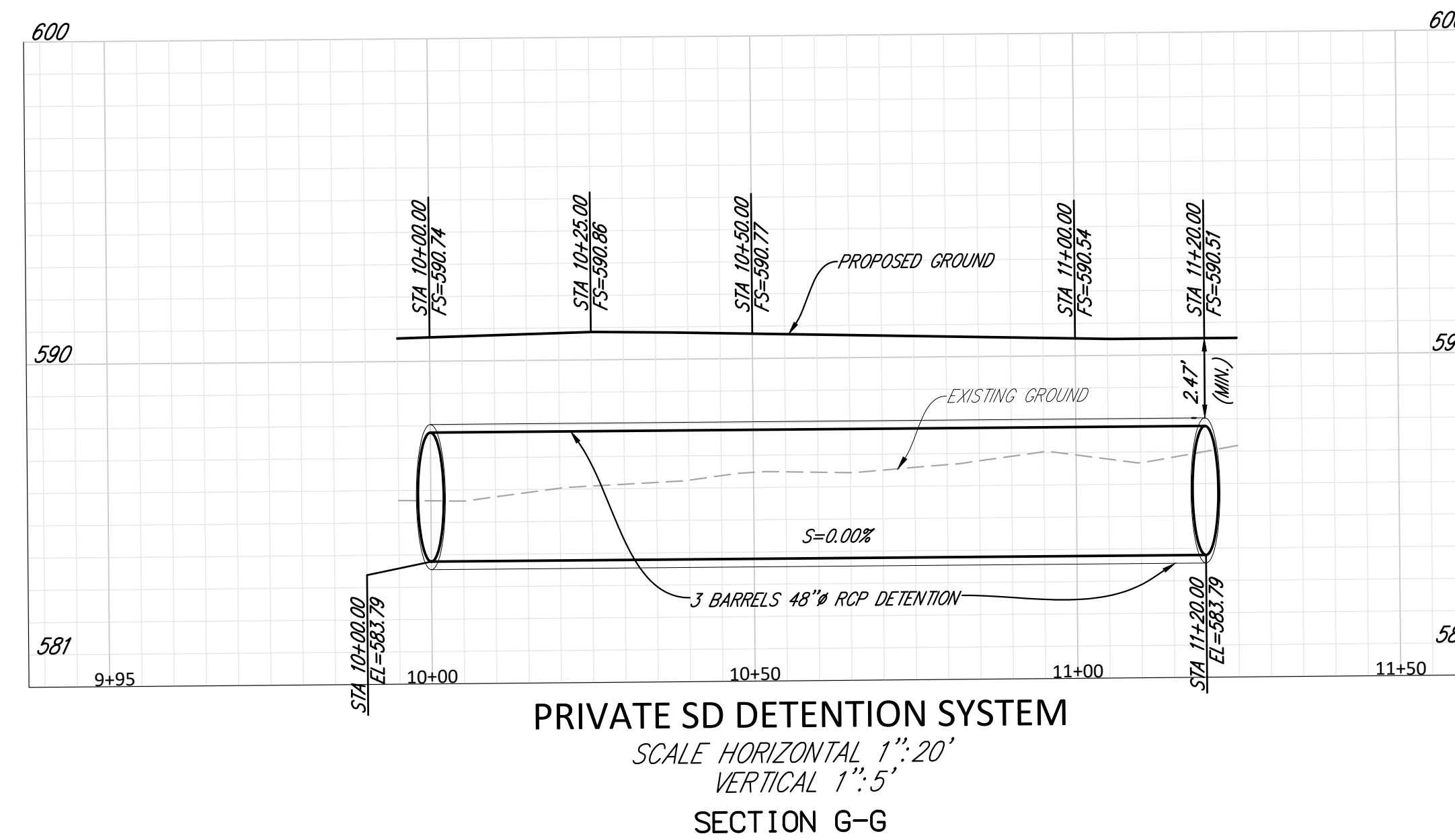
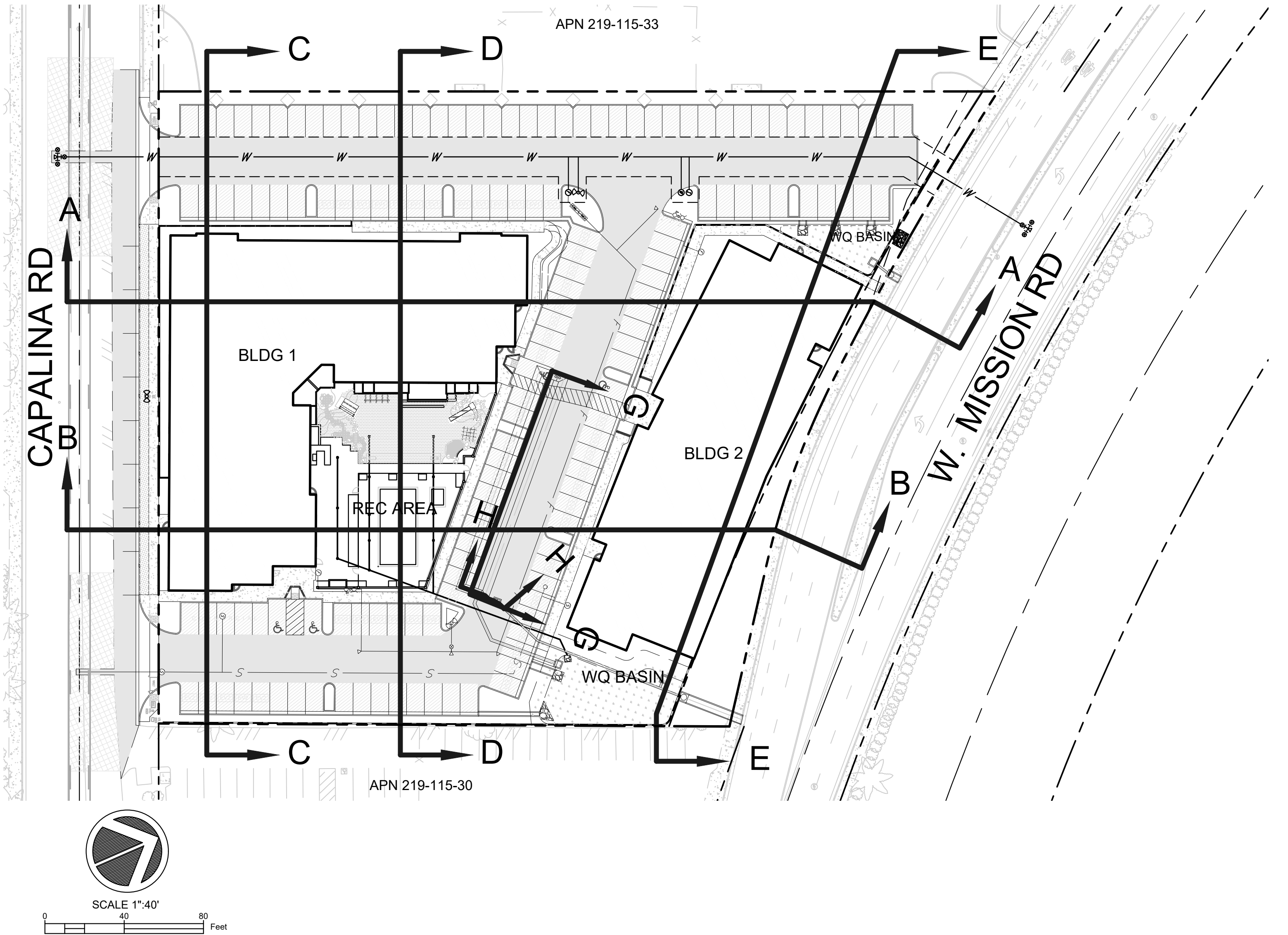
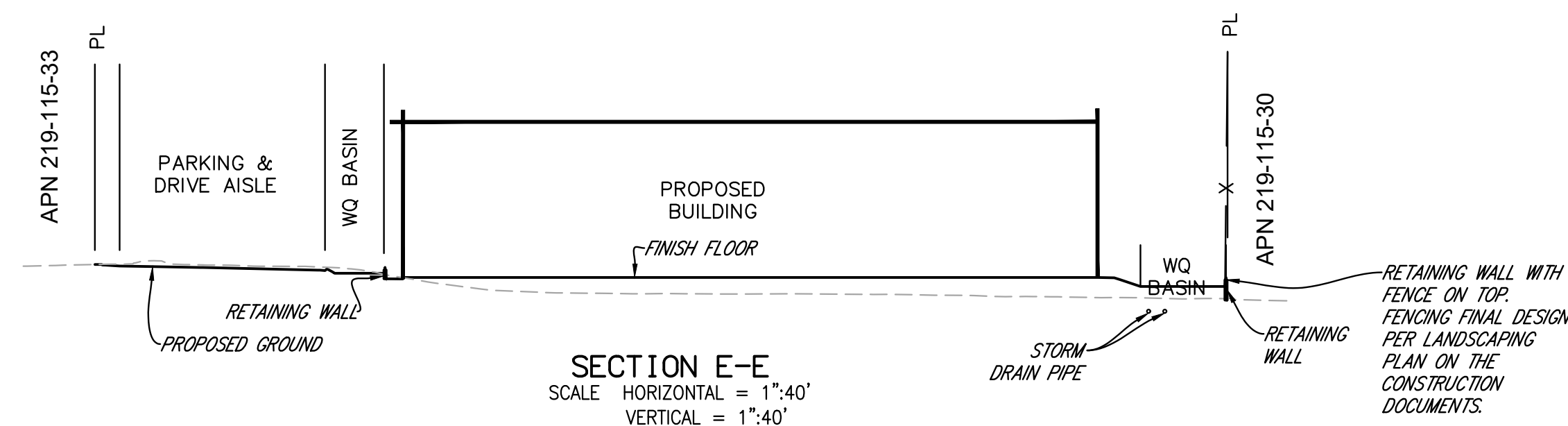
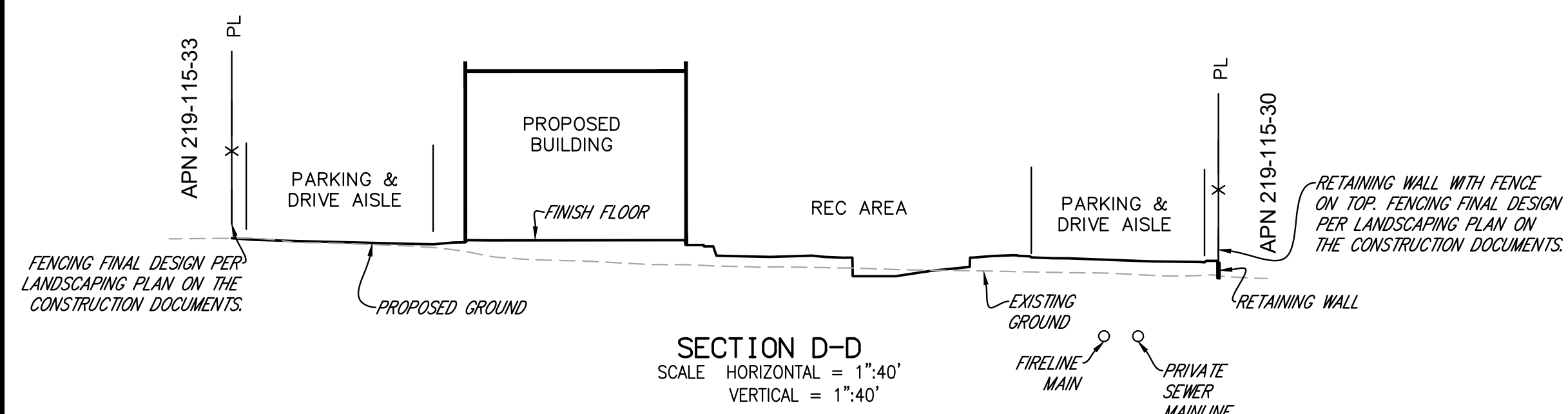
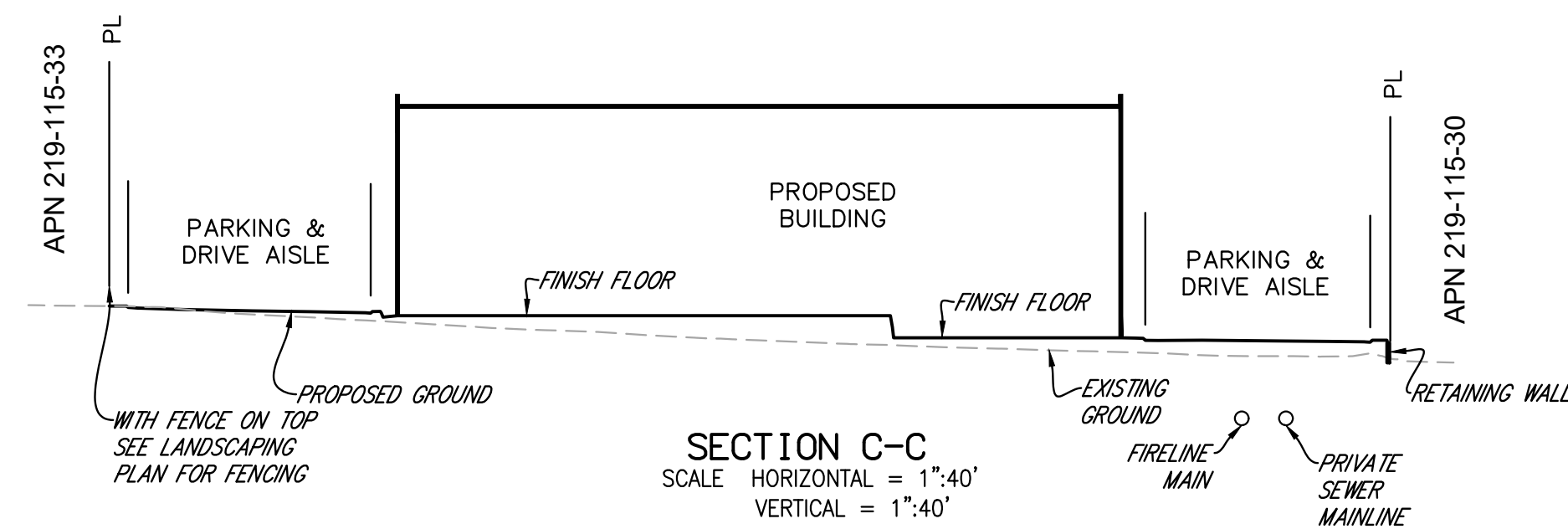
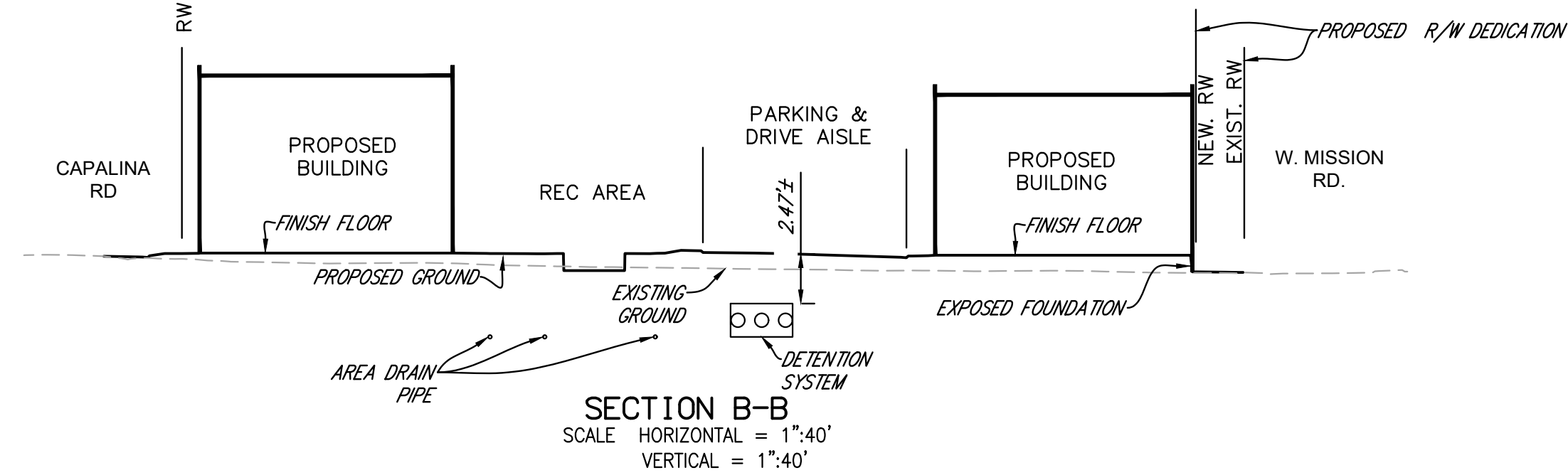
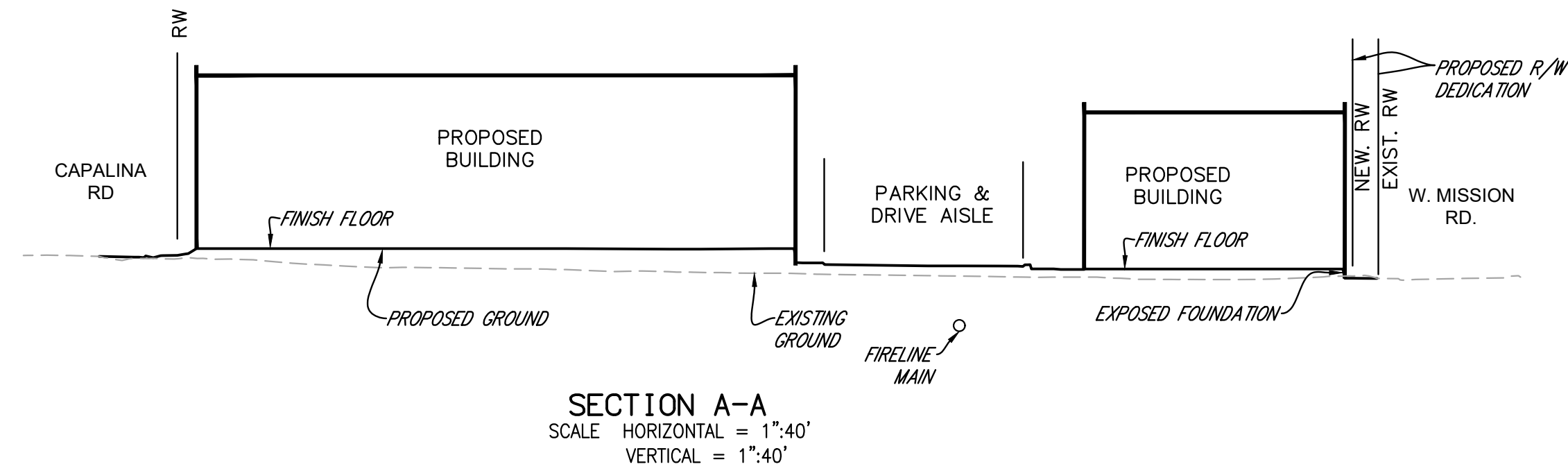
AS THIS PROJECT IS IN THE ENTITLEMENT STAGE, THERE IS CURRENTLY NO PLANS & DESIGN FOR THE DRY UTILITIES. THE EXISTING DRY UTILITIES ALONG THE RIGHT OF WAY SHALL BE RELOCATED OR ADJUSTED AS NEEDED TO AVOID CONFLICT WITH ADA ACCESSIBILITY, DESIGN & LOCATIONS SHALL BE SHOWN ON THE CONSTRUCTION DOCUMENTS. THE RELOCATION MAY INCLUDE THE GRANTING OF ON-SITE EASEMENTS.



SCALE 1"=20'
0 20 40 Feet



\\122122060\Engineering\TM\TM 02\TM P0014 SECTIONS AND PROFILES.dwg 4/16/2023 2:22 PM ORIGINAL PLOT SIZE: 11" x 17"



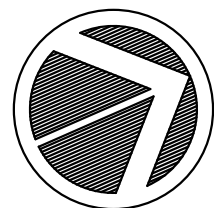
DATE	REMARKS
04/2023	PLANNING SUBMITTAL



SHEET 4 OF 7 SHEETS
SECTIONS AND PROFILES

CAPALINA APARTMENTS
PRELIMINARY GRADING PLAN
APN 219-115-33
CAPALINA ROAD, SAN MARCOS CA

V:\22122060\Engineering\1M\1M_02\1M_P001\5 UTILITIES.dwg 4/6/2023 2:23 PM ORIGINAL PLOT SIZE: 1/4"=1'-0"



SCALE 1"=20'
0 20 40 Feet

CAPALINA RD

EXIST. 8" WATER MAIN
EXIST. 8" SEWER MAIN

EXIST. FIRE HYDRANT TO BE RELOCATED AS SHOWN & ON A CONCRETE PAD OUTSIDE OF THE NEW PCC SIDEWALK.

EXIST. UTILITY VAULT TO BE RELOCATED.
EXIST. UTILITY RISER TO BE RELOCATED.
EXIST. UTILITY RISER TO REMAIN.

DRY UTILITY NOTE

AS THIS PROJECT IS IN THE ENTITLEMENT STAGE, THERE IS CURRENTLY NO PLANS & DESIGN FOR THE DRY UTILITIES. THE EXISTING DRY UTILITIES ALONG THE RIGHT OF WAY SHALL BE RELOCATED OR ADJUSTED AS NEEDED TO AVOID CONFLICT WITH ADA ACCESSIBILITY. DESIGN & LOCATIONS SHALL BE SHOWN ON THE CONSTRUCTION DOCUMENTS. THE RELOCATION MAY INCLUDE THE GRANTING OF ON-SITE EASEMENTS.

BLDG 1

REC AREA

SEE WEIR CONTROL
STRUCTURE DETAIL ON
SHEET 7

S23°57'44"W
287.94'

N23°39'40"E
423.36'

BLDG 2

EXIST. DRIVEWAY

OUTLET SHALL BE DESIGN
AS TO NOT INTRODUCE
ON-SITE DEBRIS INTO
PUBLIC STREET.

EXIST. TELECOM
VAULT TO REMAIN.

DATE	REMARKS
04/2023	PLANNING SUBMITTAL



CONSTRUCTION NOTES

UTILITY IMPROVEMENTS

- UT-01 FIRELINE MAIN
- UT-02 DDCV
- UT-03 FIRE HYDRANT
- UT-04 BLDG FIRE SERVICE LATERAL
- UT-05 PW/FDC
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- UT-07 IRRIGATION WATER SERVICE LATERAL
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- UT-09 SEWER MAINLINE (PRIVATE)
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- SD-01 STORM DRAIN INLET
- SD-02 STORM DRAIN PIPE
- SD-03 48" Ø OF SD DETENTION PIPE (SEE DETAIL ON SHEET 7 & PROFILE ON SHEET 4).
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- SD-05 WATER QUALITY BASIN. SEE DETAILS ON SHEET 7.
- SD-06 WQ BASIN OUTLET. SEE DETAILS ON SHEET 7.
- SD-07 WQ BASIN OVERFLOW INLET.
- SD-08 STORM DRAIN CURB OUTLET PER SDRSD D-25
- SD-09 PCC CHUTE
- SD-10 ENERGY VELOCITY DISSIPATOR PER DETAIL ON SHEET 4
- SD-11 AREA DRAIN
- SD-12 4" AREA DRAIN PIPE

SURFACE IMPROVEMENTS

- S-01 3" AC/6.5 CLASS II BASE (DRIVE AISLE)
- S-02 4" AC/7.5 CLASS II (PARKING)
- S-03 6" PCC CURB (SDRSD G-2)
- S-04 6" PCC CURB & GUTTER (SDRSD G-2)
- S-05 PCC RAMP
- S-06 CMU TYPE RETAINING WALL
- S-07 PCC SIDEWALK
- S-08 3' WIDE CURB CUT @ 9' O.C. WITH ENERGY VELOCITY DISSIPATOR
- S-09 ADA COMPLAINT PLANTER COVER
- S-10 R=20' RADIUS TYPE DRIVEWAY PER CITY STANDARD
- S-11 AC PAVEMENT (STREET WIDENING)
- S-12 1.5' WIDE CURB CUT @ 20' O.C.
- S-13 2" GRIND & OVERLAY PER CITY STANDARD

LEGEND

PROJECT BOUNDARY	---
PROPERTY LINE	-PL-
RIGHT OF WAY	-RW-
EXIST MAJOR CONTOUR	---100---
EXIST MINOR CONTOUR	---100---
PROPOSE MAJOR CONTOUR	---100---
PROPOSE MINOR CONTOUR	---100---
GEOGRID TYPE RETAINING	=====
CMU TYPE RETAINING	=====
SOIL NAIL TYPE RETAINING	=====
EXIST WATER MAIN	—W—
EXIST SEWER MAIN	—S—
NEW WATER MAIN	—W—
NEW SEWER MAIN	—S—
FLOW LINE	→→→→→
PCC BROW DITCH	→→→→→
EXIST. FIRE LINE	—F—
FIRE HYDRANT	⊗
STREET/PARKING LIGHT	⊙
STORM DRAIN INLETS/CLEANOUTS	□
WATER SERVICE LATERAL	—X—
SEWER SERVICE LATERAL	—S—
FIRE SERVICE LATERAL	—F—
PCC CURB	=====
PCC CURB & GUTTER	=====

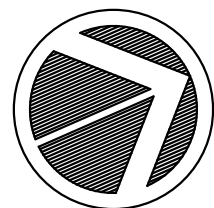
SHEET 5 OF 7 SHEETS

UTILITIES

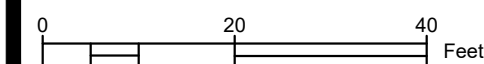
CAPALINA APARTMENTS
PRELIMINARY GRADING PLAN

APN 219-115-33
CAPALINA ROAD, SAN MARCOS CA

I:\22122060\Engineering\TM\TM 021TM POP\6 CIRCULATION.dwg 4/16/2023 2:23 PM ORIGINAL PLOT SIZE: 11" x 17"



SCALE 1"=20'



CAPALINA RD

BLDG 1

REC AREA

BLDG 2

W. MISSION RD

N23°39'40"E
423.36'

EXIST. FIRE HYDRANT TO BE
RELOCATED AS SHOWN & ON
A CONCRETE PAD OUTSIDE OF
THE NEW POC SIDEWALK.

NEW FIRE
HYDRANT

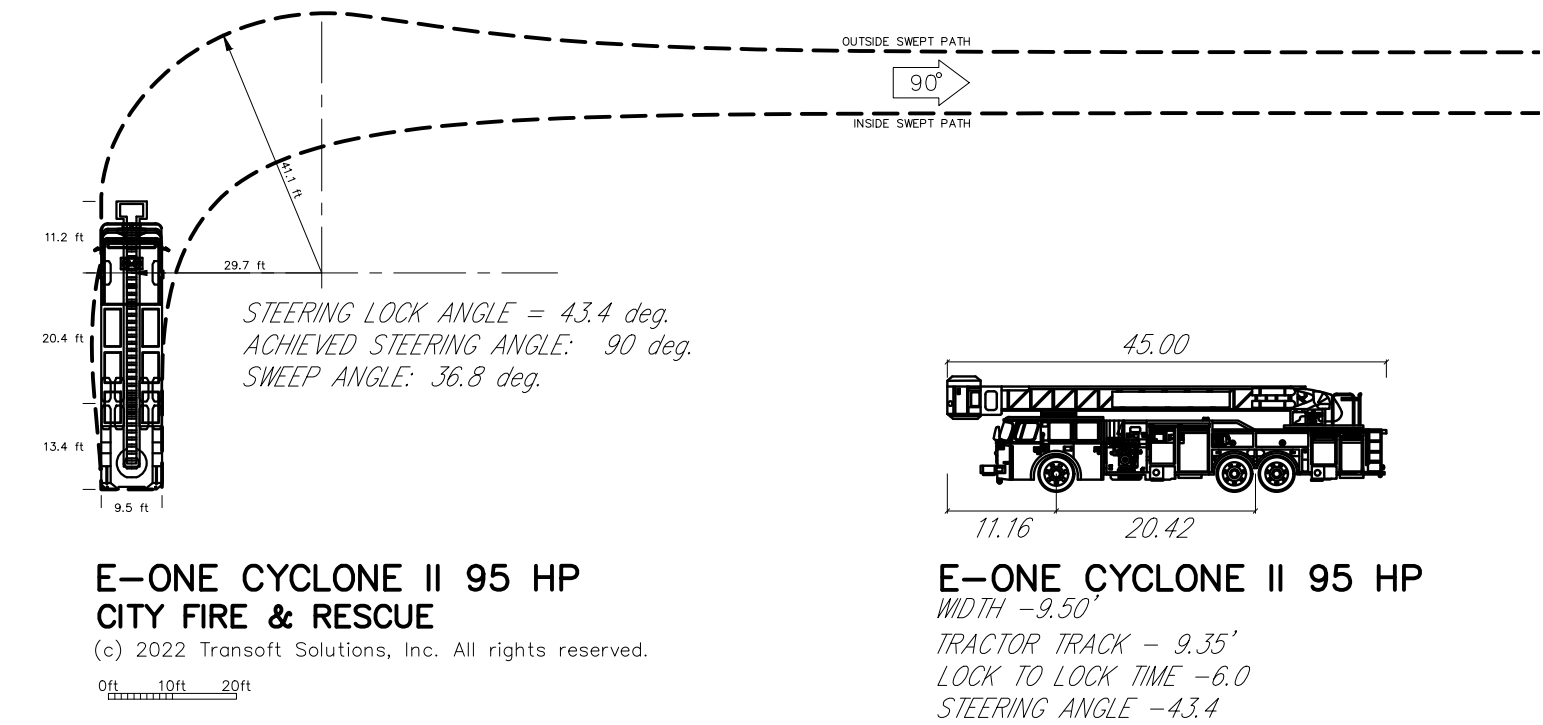
S23°57'44"W
287.94'

APN 219-115-30

WQ BASIN

WQ BASIN

EMERGENCY VEHICLE USED IN
THIS AUTOTURN SIMULATION



SHEET 6 OF 7 SHEETS
CIRCULATION

CAPALINA APARTMENTS
PRELIMINARY GRADING PLAN
APN 219-115-33
CAPALINA ROAD, SAN MARCOS CA

EXCEL
ENGINEERING
LAND PLANNING • ENGINEERING • SURVEYING
440 SWEET PACE, ESCROWDA, CA 92625
PH (760) 465-8111 FX (760) 465-8154

DATE	REMARKS
04/2023	PLANNING SUBMITTAL

need to update

gp

