CITY OF SAN MARCOS

PRIORITY DEVELOPMENT PROJECT (PDP)
STORM WATER QUALITY MANAGEMENT PLAN (SWQMP)
FOR
MISSION SAN MARCOS INDUSTRIAL PARK
SDP22-0009

528 EAST MISSION ROAD
SAN MAROCS, CA 92069

ASSESSOR'S PARCEL NUMBER(S):
220-210-38-00

ENGINEER OF WORK:

_____

Bret Thorpe, P.E.

PREPARED FOR:

CRP III MISSION, LLC
1300 DOVE STREET, SUITE 200
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PDP SWQMP PREPARED BY:

DAVID EVANS AND ASSOCIATES
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DATE OF SWQMP:
SEPTEMBER 30, 2022
Revised March 9, 2026

PLANS PREPARED BY:

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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: Mission San Marcos Industrial Park
Permit Application Number: SDP22-0009

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.



No. 82754 Exp. 9-30-26

Engineer of Work's Signature, PE Number & Expiration Date

Bret Thorpe

Print Name

David Evans and Associates, Inc.

Company

12/22/2025

Date

Engineer's Seal:



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PDP SWQMP PROJECT OWNER'S CERTIFICATION PAGE

Project Name: Mission San Marcos Industrial Park
Permit Application Number: SDP22-0009

PROJECT OWNER'S CERTIFICATION

This PDP SWQMP has been prepared for CRP III MISSION, LLC by DAVID EVANS AND ASSOCIATES. The PDP SWQMP is intended to comply with the PDP requirements of the City of San Marcos BMP Design Manual, which is a design manual for compliance with local City of San Marcos and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2015-0100) requirements for storm water management.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan. Once the undersigned transfers its interests in the property, its successor-in-interest shall bear the aforementioned responsibility to implement the best management practices (BMPs) described within this plan, including ensuring on-going operation and maintenance of structural BMPs. A signed copy of this document shall be available on the subject property into perpetuity.

DS RG

Signed by: Patrick Daniels
0813813F90D84D5...

Project Owner's Signature

Patrick Daniels

Print Name

CRP III Mission, LLC

Company

1/16/2026 | 9:48 AM PST

Date

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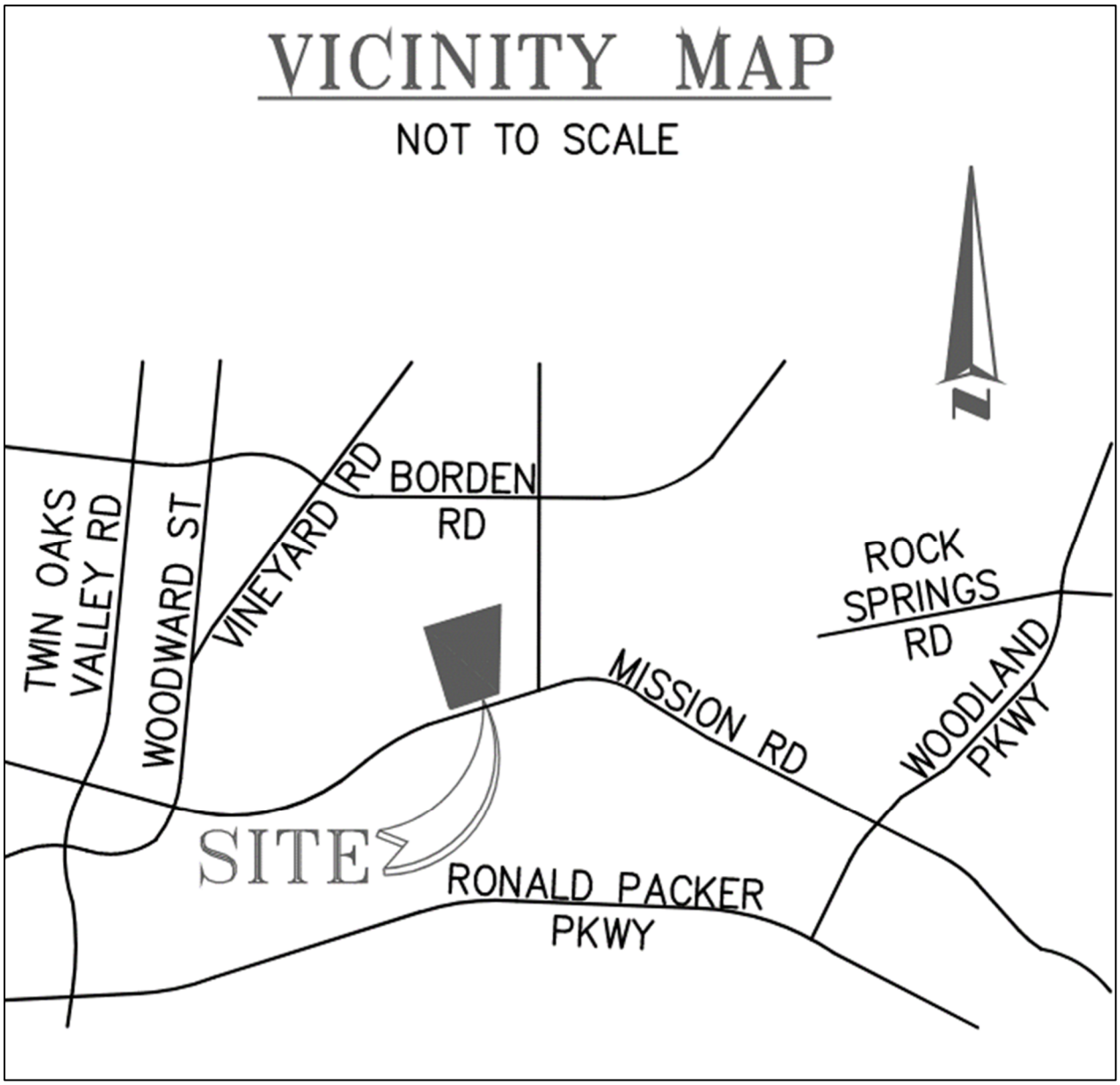
SUBMITTAL RECORD

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 plan check comments is included. When applicable, insert response to plan check comments behind this page.

Submittal Number	Date	Project Status	Summary of Changes
1	09/30/2022	☒ Preliminary Design / Planning/ CEQA ☐ Final Design	Initial Submittal
2	03/15/2023	☒ Preliminary Design / Planning/ CEQA ☐ Final Design	2nd Submittal
3	09/05/2023	☒ Preliminary Design / Planning/ CEQA ☐ Final Design	3Rd Submittal
4	04/19/2024	☒ Preliminary Design / Planning/ CEQA ☐ Final Design	4th Submittal
5		☐ Preliminary Design / Planning/ CEQA ☐ Final Design	

PROJECT VICINITY MAP

Project Name: Mission San Marcos Industrial Park
Permit Application Number: SDP22-0009



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: Mission San Marcos Industrial Park

Description: Entitlement for three industrial buildings total 10.83 acres in the City of San Marcos.

Permit Application Number (if applicable): | Date:09/30/2022

Project Address: 528 East Mission 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 not a "development project" (e.g., the project includes *only* interior remodels within an existing building):		
Step 2: Is the project a Standard Project, Priority Development Project (PDP), or exception to PDP definitions? **To answer this item, complete Form I-2, Project Type Determination. See Section 1.4 of the BMP Design Manual *in its entirety* for guidance.** **In addition to Section 1.4, please refer to the City's SWQMP Submittal Requirements form.**	☐ Standard Project	Only Standard Project requirements apply, including Standard Project SWQMP. **STOP.**
	☒ PDP	Standard and PDP requirements apply, including PDP SWQMP. **Go to Step 3 on the following page.**
	☐ Exception to PDP definitions	Standard Project requirements apply, and any additional requirements specific to the type of project. Provide discussion and list any additional requirements below. Prepare Standard Project SWQMP. **STOP.**
Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:		

Form I-1 Page 2, Form Date: March 15, 2016		
Step 3 (PDPs only). Please answer the list of questions in this section to determine if hydromodification requirements reply to the proposed PDP. Does the project:		
Step 3a. Discharge storm water runoff directly to the Pacific Ocean?	☐ Yes	**STOP**. Hydromodification requirements do not apply.
	☒ No	Continue to Step 3b.
Step 3b. Discharge storm water runoff directly to an enclosed embayment, not within protected areas?	☐ Yes	**STOP**. Hydromodification requirements do not apply.
	☒ No	Continue to Step 3c.
Step 3c. Discharge storm water runoff directly to a water storage reservoir or lake, below spillway or normal operating level?	☐ Yes	**STOP**. Hydromodification requirements do not apply.
	☒ No	Continue to Step 3d.
Step 3d. Discharge storm water runoff directly to an area identified in WMAA?	☐ Yes	**STOP**. Hydromodification requirements do not apply.
	☒ No	Hydromodification requirements apply to the project. Go to Step 4.
Discussion / justification if hydromodification control requirements do <u>not</u> 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. Based on the Potential Critical Coarse Sediment Yield Area Map in the Regional WMAA the project site is not in an area of concern. Stop.

Project Type Determination Checklist			Form I-2 [March 15, 2016]
Project Information			
Project Name/Description: Mission San Marcos Industrial Park			
Permit Application Number (if applicable):			Date:09/30/2022
Project Address: 528 East Mission 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: _279,640_ ft^2 (___6.4___) acres			
Is the project in any of the following categories, (a) through (f)?			
Yes ☐	No ☒	(a)	New development projects that create 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☒	No ☐	(b)	Redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☐	No ☒	(c)	New and redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site), and support one or more of the following uses: (i) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (Standard Industrial Classification (SIC) code 5812). (ii) Hillside development projects. This category includes development on any natural slope that is twenty-five percent or greater. (iii) Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce. (iv) Streets, roads, highways, freeways, and driveways. This category is defined as any paved impervious surface used for the transportation of automobiles, trucks, motorcycles, and other vehicles.

Form I-2 Page 2, Form Date: March 15, 2016			
Yes ☐	No ☒	(d)	New or redevelopment projects that create and/or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharging directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands). *Note: ESAs are areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Board and San Diego Water Board; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and San Diego Water Board; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees. See BMP Design Manual Section 1.4.2 for additional guidance.*
Yes ☐	No ☒	(e)	New development projects, or redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface, that support one or more of the following uses: (i) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. (ii) Retail gasoline outlets (RGOs). This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.
Yes ☒	No ☐	(f)	New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction. *Note: See BMP Design Manual Section 1.4.2 for additional guidance.*

Does the project meet the definition of one or more of the Priority Development Project categories (a) through (f) listed above?

☐ No – the project is 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: _271,741_ ft^2 (A)

The total proposed newly created or replaced impervious area is _279,640_ ft^2 (B)

Percent impervious surface created or replaced (B/A)*100: _103_ %

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	Mission San Marcos Industrial Park
Project Address	528 East Mission Road San Marcos, CA 92069
Assessor's Parcel Number(s) (APN(s))	220-210-38-00
Permit Application Number	SDP22-0009
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)	Carlsbad, San Marcos 904.5
Parcel Area (total area of Assessor's Parcel(s) associated with the project)	10.4 Acres (451,282 Square Feet)
Area to be Disturbed by the Project (Project Area)	7.6 Acres (329,246 Square Feet)
Project Proposed Impervious Area (subset of Project Area)	6.4 Acres (279,640 Square Feet)
Project Proposed Pervious Area (subset of Project Area)	1.8 Acres (79,320 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):

- [x] Existing development
- [ ] Previously graded but not built out
- [ ] Demolition completed without new construction
- [ ] Agricultural or other non-impervious use
- [x] Vacant, undeveloped/natural

Description / Additional Information:
A natural area on a slope drains to an existing industrial site located on the flat section of the site.

Existing Land Cover Includes (select all that apply):

- [x] Vegetative Cover
- [ ] Non-Vegetated Pervious Areas
- [x] Impervious Areas

Description / Additional Information:
A natural area on a slope drains to an existing industrial site located on the flat section of the site.

Underlying Soil belongs to Hydrologic Soil Group (select all that apply):

- [ ] NRCS Type A
- [ ] NRCS Type B
- [x] NRCS Type C
- [x] NRCS Type D

Approximate Depth to Groundwater (GW):

- [ ] GW Depth < 5 feet
- [x] 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
- [x] 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 consists of approximately 2.7 acres of a natural cover hill and 7.6 acres of industrial development. Flows drain north to south predominantly as sheet flow. A concrete swale located on the existing commercial site helps convey some of the flows to culverts located at the south side of the lot near Mission Road.

Offsite flows from the northern residential development discharge from an energy dissipator at the northeast corner of the site and sheet flow through the existing commercial site towards the culverts, reports of flooding have been documented.

All flows drain towards culverts that convey the flow under Mission Road to San Marcos Creek. The culverts have a capacity of 830 cfs.

A concurrent project proposes a 12’x4’ RCB to run under the east side of the project and connect to the existing culverts under Mission Blvd. This proposed improvement would remove the offsite flows to the project site.

Description of Proposed Site Development

Project Description / Proposed Land Use and/or Activities:

The proposed redevelopment replaces 7.6 acres of the site with new industrial building. The 2.7 acre existing hillside will remain in its current condition.

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

Three industrial buildings and parking lots will be constructed on 6.4 acres of the site.

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

Landscaped medians and a water quality basin will cover the remaining 1.8 acres of the project site.

Does the project include grading and changes to site topography?

☒ Yes
☐ No

Description / Additional Information:

The site will include grading associated with the buildings, parking lots and proposed basin.

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:

Inlets, storm drains, concrete swales, and a water quality basin will be provided. The basin will discharge to the existing culverts that pass under Mission Road. The proposed drainage area is the same as the existing condition, 8.2 acres.

The preliminary hydrology from the Preliminary Hydrology and Hydraulics Report utilized rational method to estimate the 100-year peak flowrate and found the proposed condition slightly increases the flow compared to the exiting condition flow. The proposed hydromodification basin and underground storage provides attenuations which decreases the flow below existing condition.

Existing condition flow: 41.8 cfs
Proposed condition flow: 43.97 cfs
Mitigated/Attenuated flow: 41.55 cfs

Identify whether any of the following features, activities, and/or pollutant source areas will be present (select all that apply):

- [x] On-site storm drain inlets
- [ ] Interior floor drains and elevator shaft sump pumps
- [ ] Interior parking garages
- [ ] Need for future indoor & structural pest control
- [x] Landscape/Outdoor Pesticide Use
- [ ] Pools, spas, ponds, decorative fountains, and other water features
- [ ] Food service
- [x] Refuse areas
- [ ] Industrial processes
- [ ] Outdoor storage of equipment or materials
- [ ] Vehicle and Equipment Cleaning
- [ ] Vehicle/Equipment Repair and Maintenance
- [ ] Fuel Dispensing Areas
- [x] Loading Docks
- [x] Fire Sprinkler Test Water
- [ ] Miscellaneous Drain or Wash Water
- [x] 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 site flows are discharged to existing culverts located under Mission Road. The flows discharge on the south side of Mission Road to San Marcos Creek. San Marcos Creek discharges to Batiquitos Lagoon which is tributary 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	Pathogens	Indicator Bacteria
Batiquitos Lagoon	Total Toxics	Toxicity

Identification of Project Site Pollutants*

***Identification of project site pollutants is only required if flow-thru treatment BMPs are implemented onsite in lieu of retention or biofiltration BMPs (note the project must also participate in an alternative compliance program unless prior lawful approval to meet earlier PDP requirements is demonstrated)**

Identify pollutants expected from the project site based on all proposed use(s) of the site (see BMP Design Manual Appendix B.6):

Pollutant	Not Applicable to the Project Site	Expected from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment		✓	
Nutrients		✓	
Heavy Metals		✓	
Organic Compounds		✓	
Trash & Debris		✓	
Oxygen Demanding Substances	✓		
Oil & Grease		✓	
Bacteria & Viruses	✓		✓
Pesticides		✓	

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.

POC-1 will provide hydromodification control for the entire project site. This basin drains to culverts that ultimately discharge to San Marcos Creek.

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.

Not applicable.

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: Mission San Marcos Industrial Park

Permit Application Number

Source Control BMPs

All development projects must implement source control BMPs SC-1 through SC-6 where applicable and feasible. See Chapter 4 and Appendix E of the Model BMP Design Manual for information to implement source control BMPs shown in this checklist.

Answer each category below pursuant to the following.

- "Yes" means the project will implement the source control BMP as described in Chapter 4 and/or Appendix E of the Model BMP Design Manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas). Discussion / justification may be provided.

Source Control Requirement	Applied?		
SC-1 Prevention of Illicit Discharges into the MS4	☒ Yes	☐ No	☐ N/A
Discussion / justification if SC-1 not implemented:			
SC-2 Storm Drain Stenciling or Signage	☒ Yes	☐ No	☐ N/A
Discussion / justification if SC-2 not implemented:			
SC-3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☒ N/A
Discussion / justification if SC-3 not implemented:			
SC-4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☒ N/A
Discussion / justification if SC-4 not implemented:			

Form I-4 Page 2 of 2, Form Date: March 15, 2016			
Source Control Requirement	**Applied?**		
SC-5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☒ Yes	☐ No	☐ N/A
Discussion / justification if SC-5 not implemented:			
SC-6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below)			
☐ On-site storm drain inlets	☒ Yes	☐ No	☐ N/A
☐ Interior floor drains and elevator shaft sump pumps	☐ Yes	☐ No	☒ N/A
☐ Interior parking garages	☐ Yes	☐ No	☒ N/A
☐ Need for future indoor & structural pest control	☐ Yes	☐ No	☒ N/A
☐ Landscape/Outdoor Pesticide Use	☒ Yes	☐ No	☐ N/A
☐ Pools, spas, ponds, decorative fountains, and other water features	☐ Yes	☐ No	☒ N/A
☐ Food service	☐ Yes	☐ No	☒ N/A
☐ Refuse areas	☒ Yes	☐ No	☐ N/A
☐ Industrial processes	☐ Yes	☐ No	☒ N/A
☐ Outdoor storage of equipment or materials	☐ Yes	☐ No	☒ N/A
☐ Vehicle and Equipment Cleaning	☐ Yes	☐ No	☒ N/A
☐ Vehicle/Equipment Repair and Maintenance	☐ Yes	☐ No	☒ N/A
☐ Fuel Dispensing Areas	☐ Yes	☐ No	☒ N/A
☐ Loading Docks	☒ Yes	☐ No	☐ N/A
☐ Fire Sprinkler Test Water	☒ Yes	☐ No	☐ N/A
☐ Miscellaneous Drain or Wash Water	☐ Yes	☐ No	☒ N/A
☐ Plazas, sidewalks, and parking lots	☒ Yes	☐ No	☐ N/A
Discussion / justification if SC-6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for <u>all</u> "No" answers shown above.			

Site Design BMP Checklist for All Development Projects (Standard Projects and Priority Development Projects)	Form I-5 [March 15, 2016]

Project Identification

Project Name: Mission San Marcos Industrial Park

Permit Application Number:

Site Design BMPs

All development projects must implement site design BMPs SD-1 through SD-8 where applicable and feasible. See Chapter 4 and Appendix E of the Model BMP Design Manual for information to implement site design BMPs shown in this checklist.

Answer each category below pursuant to the following.

- "Yes" means the project will implement the site design BMP as described in Chapter 4 and/or Appendix E of the Model BMP Design Manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project site has no existing natural areas to conserve). Discussion / justification may be provided.

Site Design Requirement	Applied?		
SD-1 Maintain Natural Drainage Pathways and Hydrologic Features	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-1 not implemented:			
SD-2 Conserve Natural Areas, Soils, and Vegetation	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-2 not implemented:			
SD-3 Minimize Impervious Area	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-3 not implemented:			
SD-4 Minimize Soil Compaction	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-4 not implemented:			
SD-5 Impervious Area Dispersion	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-5 not implemented:			

Form I-5 Page 2 of 2, Form Date: March 15, 2016			
Site Design Requirement	**Applied?**		
SD-6 Runoff Collection	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-6 not implemented:			
SD-7 Landscaping with Native or Drought Tolerant Species	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-7 not implemented:			
SD-8 Harvesting and Using Precipitation	☐ Yes	☒ No	☐ N/A
Discussion / justification if SD-8 not implemented: Harvest and reuse is not feasible because there is not significant water demand for the site.			

Summary of PDP Structural BMPs	Form I-6 (PDPs) [March 15, 2016]

Project Identification

Project Name: Mission San Marcos Industrial Park

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.

The hydrologic soil type for the basin location is Type D, it is assumed the infiltration rates will be extremely low. Additionally, due to the proximity to a groundwater basin it is also assumed that the depth to the ground water will be shallow. For these reasons infiltration was determined to be infeasible. There is not significant use for harvest and reuse so a biofiltration was determined to be the best alternative for water quality treatment.

The site discharges to San Marcos Creek which is unlined so hydromodification is required. A stream susceptibility study was not prepared so hydromodification management flow control is $0.1Q_2$ to Q_{10}.

A single basin located at the southern end of the site will provide biofiltration and hydromodification mitigation.

(Continue on page 2 as necessary.)

Form I-6 Page 2 of 4, Form Date: March 15, 2016
(Page reserved for continuation of description of general strategy for structural BMP implementation at the site)
(Continued from page 1)

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

Structural BMP ID No. A1

Construction Plan Sheet No.

Type of structural BMP:
☐ Retention by harvest and use (HU-1)
☐ Retention by infiltration basin (INF-1)
☐ Retention by bioretention (INF-2)
☐ Retention by permeable pavement (INF-3)
☐ Partial retention by biofiltration with partial retention (PR-1)
☒ Biofiltration (BF-1)
☐ Biofiltration with Nutrient Sensitive Media Design (BF-2)
☐ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F
☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)
☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)
☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)
☐ Detention pond or vault for hydromodification management
☐ Other (describe in discussion section below)

Purpose:
☐ Pollutant control only
☐ Hydromodification control only
☒ Combined pollutant control and hydromodification control
☐ Pre-treatment/forebay for another structural BMP
☐ Other (describe in discussion section below)

Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	Engineer of Work
Who will be the final owner of this BMP?	CRP III MISSION, LLC
Who will maintain this BMP into perpetuity?	CRP III MISSION, LLC
What is the funding mechanism for maintenance?	Owner to provide.

Form I-6 Page 3 of 4 (Copy as many as needed) Form Date: March 15, 2016	
Structural BMP Summary Information **(Copy this page as needed to provide information for each individual proposed structural BMP)**	
Structural BMP ID No. A2	
Construction Plan Sheet No.	
Type of structural BMP: ☐ Retention by harvest and use (HU-1) ☐ Retention by infiltration basin (INF-1) ☐ Retention by bioretention (INF-2) ☐ Retention by permeable pavement (INF-3) ☐ Partial retention by biofiltration with partial retention (PR-1) ☐ Biofiltration (BF-1) ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☒ Detention pond or vault for hydromodification management ☐ Other (describe in discussion section below)	
Purpose: ☐ Pollutant control only ☒ Hydromodification control only ☐ Combined pollutant control and hydromodification control ☐ Pre-treatment/forebay for another structural BMP ☐ Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the BMP Design Manual)	Engineer of Work
Who will be the final owner of this BMP?	CRP III MISSION, LLC
Who will maintain this BMP into perpetuity?	CRP III MISSION, LLC
What is the funding mechanism for maintenance?	Owner to provide.

Form I-6 Page 4 of 4 (Copy as many as needed) , Form Date: March 15, 2016
Structural BMP ID No.
Construction Plan Sheet No.
Discussion (as needed):

ATTACHMENT 1
BACKUP FOR PDP POLLUTANT CONTROL BMPS

This is the cover sheet for Attachment 1.

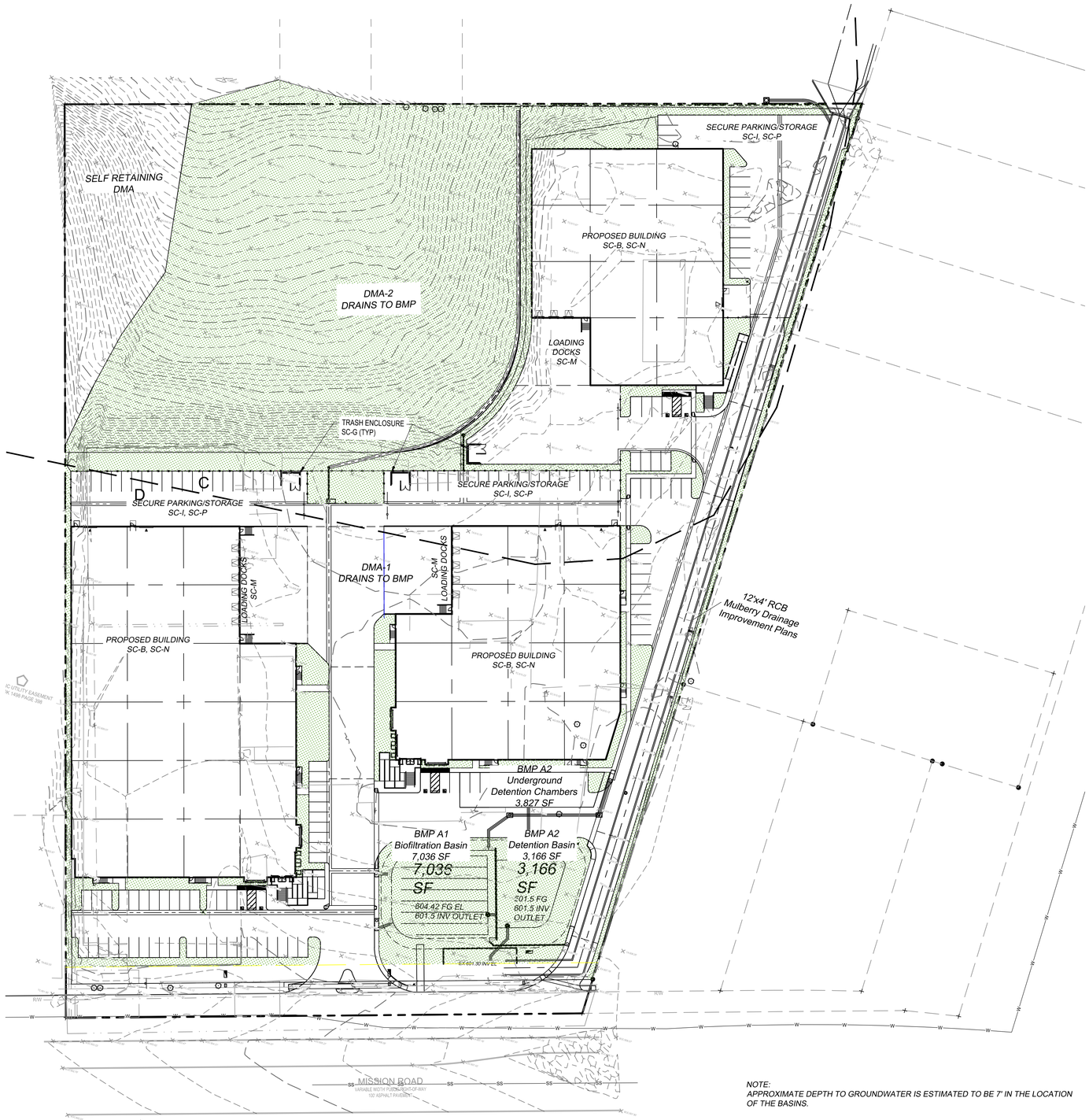
Indicate which Items are Included behind this cover sheet:

Attachment Sequence	**Contents**	**Checklist**
Attachment 1a	DMA Exhibit (Required) See DMA Exhibit Checklist on the back of this Attachment cover sheet.	☒ Included
Attachment 1b	Tabular Summary of DMAs Showing DMA ID matching DMA Exhibit, DMA Area, and DMA Type (Required)* *Provide table in this Attachment OR on DMA Exhibit in Attachment 1a	☒ Included on DMA Exhibit in Attachment 1a ☐ Included as Attachment 1b, separate from DMA Exhibit
Attachment 1c	Form I-7, Harvest and Use Feasibility Screening Checklist (Required unless the entire project will use infiltration BMPs) Refer to Appendix B.3-1 of the BMP Design Manual to complete Form I-7.	☒ Included ☐ Not included because the entire project will use infiltration BMPs
Attachment 1d	Form I-8, Categorization of Infiltration Feasibility Condition (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the BMP Design Manual to complete Form I-8.	☒ Included ☐ Not included because the entire project will use harvest and use BMPs
Attachment 1e	Pollutant Control BMP Design Worksheets / Calculations (Required) Refer to Appendices B and E of the BMP Design Manual for structural pollutant control BMP design guidelines	☒ Included

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

The DMA Exhibit must identify:

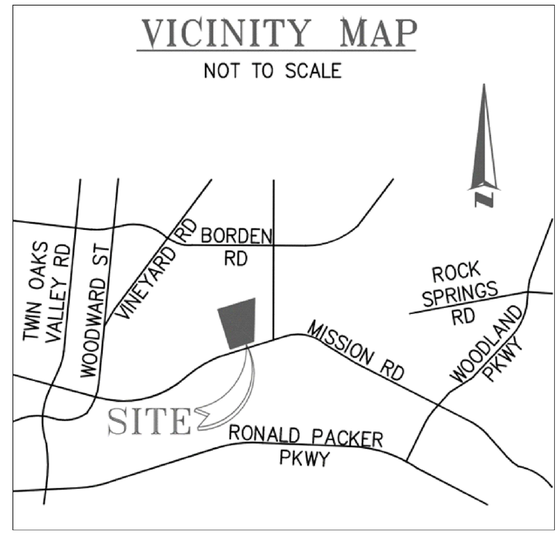
☒ Underlying hydrologic soil group
☒ Approximate depth to groundwater (To be provided on next submittal)
☒ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
☒ Critical coarse sediment yield areas to be protected
☒ Existing topography and impervious areas
☒ Existing and proposed 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)

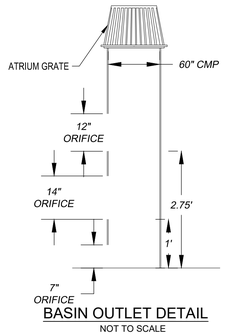


NOTE:
APPROXIMATE DEPTH TO GROUNDWATER IS ESTIMATED TO BE 7' IN THE LOCATION OF THE BASINS.

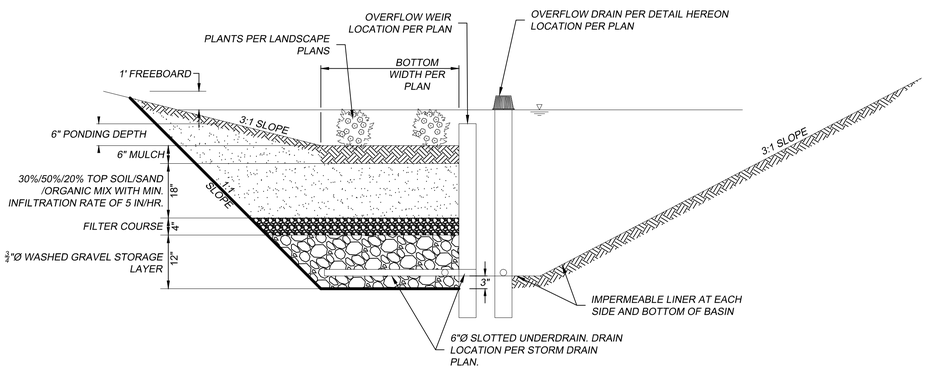
Legend

- DMA-1 (Impervious)
- DMA-2 (Pervious)
- Soil Type (C / D)





BASIN OUTLET DETAIL
NOT TO SCALE



BIO-FILTRATION BASIN WITH SLOTTED UNDERDRAIN PIPE
NOT TO SCALE

DMA SUMMARY

DMA ID	AREA (SF)	TYPE
SELF RETAINING DMA	21,267	LANDSCAPE
DMA-1	279,640	ASPHALT/ROOF
DMA-1	79,320	LANDSCAPE
DMA-2	71,350	LANDSCAPE

50' 0' 25' 50'
SCALE: 1" = 50'

PREPARED BY:
DAVID EVANS AND ASSOCIATES INC.
17782 17th Street Suite 200
Tustin California 92780-1947
Phone: 714.665.4500

MISSION SAN MARCOS INDUSTRIAL PARK
DMA EXHIBIT
SAN MARCOS, CA

PROJECT NO.
CPRKMARC-0001
DATE:
12/17/25
SHEET:
1 OF 1

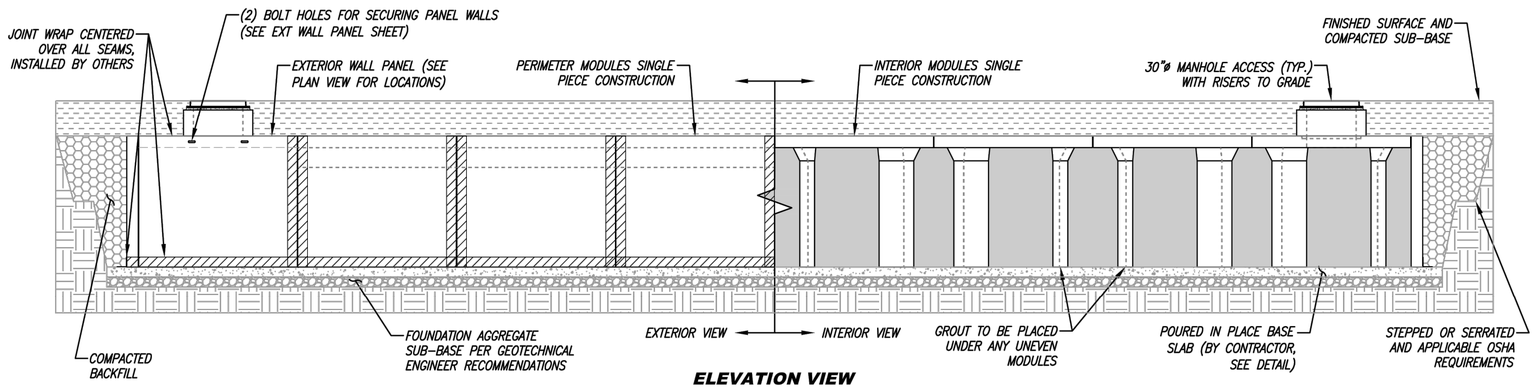
P:\CPRKMARC\0001\0400\CIDE\Exhibit\SWM\Water Quality Map.dwg 3-05-26-5:47 PM

PARCEL MAP NO. _____

SHEET 6 OF 9 SHEETS

CITY OF SAN MARCOS PARCEL MAP TPM NO._____

DETAIL SHEET



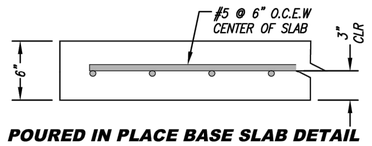
ELEVATION VIEW

INSTALLATION NOTES

1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURER'S SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURER'S CONTRACT.
2. UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER REQUIRES A POURED IN PLACE CONCRETE BASE SLAB. SOIL COMPACTION REQUIREMENTS PER GEOTECHNICAL ENGINEER. CONTRACTOR IS RESPONSIBLE FOR VERIFYING RECOMMENDED COMPACTION AND BASE SPECIFICATIONS. A GRAVEL OR AGGREGATE LAYER OF SUB-BASE IS RECOMMENDED BELOW THE POURED IN PLACE BASE SLAB.
3. CONTRACTOR TO PLACE GROUT BELOW ANY URBANPOND MODULE LEGS/WALLS THAT HAVE GAPS BETWEEN THE BASE SLAB TO PREVENT SPALLING.
4. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. PIPES CANNOT INTRUDE BEYOND FLUSH. INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR UNLESS OTHERWISE NOTED. ALL GAPS AROUND PIPES SHALL BE SEALED WATERTIGHT WITH A NON-SHRINK GROUT PER MANUFACTURER'S STANDARD CONNECTION DETAIL AND SHALL MEET OR EXCEED REGIONAL PIPE CONNECTION STANDARDS.
5. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLE FRAMES AND COVERS. CONTRACTOR TO USE GROUT AND/OR BRICKS TO MATCH COVERS WITH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
6. THE URBANPOND MODULE SYSTEM IS TO BE INSTALLED IN ACCORDANCE WITH ASTM C891-90, INSTALLATION OF UNDERGROUND PRECAST UTILITY STRUCTURES. PROJECT PLAN AND SPECIFICATIONS MUST BE FOLLOWED ALONG WITH ANY APPLICABLE REGULATIONS.
7. DESIGNATED EMBEDDED LIFTERS MUST BE USED. USE PROPER RIGGING TO ENSURE ALL LIFTERS ARE EQUALLY ENGAGED WITH A MINIMUM 60 DEGREE ANGLE ON SLINGS AS NOTED AND IN ACCORDANCE WITH MANUFACTURER'S LIFTING PROCEDURES. USE RIGGING THAT EQUALIZES THE LOAD BETWEEN ALL LIFTERS.
8. CONTECH RECOMMENDS BEGINNING INSTALLATION WITH THE OUTLET MODULE.
9. MODULES MUST BE PLACED AS CLOSE TOGETHER AS POSSIBLE, AND GAPS SHALL NOT BE GREATER THAN 3/4".
10. ALL EXTERIOR SYSTEM JOINTS (SIDES AND TOP, AS WELL AS JOINT BETWEEN MODULE AND POURED IN PLACE SLAB) SHALL BE COVERED WITH 12" WIDE JOINT WRAP CENTERED ON THE JOINT.
11. INSTALL PANEL WALLS AT DESIGNATED LOCATIONS ON THE PLAN VIEW DRAWING. SECURE PANEL WALLS WITH 2 BOLTS ON TOP.
12. THE FILL PLACED AROUND THE URBANPOND MODULES MUST BE DEPOSITED EVENLY, AT APPROXIMATELY THE SAME ELEVATION, AROUND ALL SIDES. AT NO TIME SHALL THE FILL BEHIND ONE SIDE BE MORE THAN 1'-0" HIGHER THAN THE FILL ON THE OPPOSITE SIDE. BACKFILL SHALL BE COMPACTED AND/OR VIBRATED TO ENSURE THAT BACKFILL MATERIAL IS WELL SEATED AND PROPERLY INTERLOCKED. CARE SHALL BE TAKEN TO PREVENT ANY WEDGING ACTION AGAINST THE STRUCTURE, AND ALL SLOPES WITHIN THE AREA TO BE BACKFILLED MUST BE STEPPED OR SERRATED TO PREVENT WEDGING ACTION. CARE SHALL ALSO BE TAKEN SO AS NOT TO DISRUPT THE JOINT WRAP FROM THE JOINT DURING THE BACKFILL PROCESS. BACKFILL MATERIAL CAN BE NATIVE MATERIAL UNLESS OTHERWISE SPECIFIED IN GEOTECHNICAL REPORT. IF NATIVE MATERIAL IS SUSCEPTIBLE TO MIGRATION, CONFIRM WITH GEOTECHNICAL ENGINEER AND PROVIDE PROTECTION AS REQUIRED.
13. AT NO TIME SHALL MACHINERY OR VEHICLES GREATER THAN THE DESIGN HS-20 LOADING CRITERIA TRAVEL ON TOP OF THE SYSTEM WITHOUT THE MINIMUM DESIGN COVERAGE. IF TRAVEL IS NECESSARY OVER THE SYSTEM PRIOR TO ACHIEVING THE MINIMUM DESIGN COVER, IT MAY BE NECESSARY TO REDUCE THE ULTIMATE LOAD/BURDEN OF THE OPERATING MACHINERY SO AS NOT TO EXCEED THE CAPACITY OF THE SYSTEM. IN SOME CASES HAND OPERATED COMPACTION EQUIPMENT MAY BE NECESSARY IN ORDER TO NOT EXCEED THE ALLOTTED DESIGN LOADING.
14. A PRE-CONSTRUCTION MEETING IS REQUIRED PRIOR TO PLACEMENT OF URBANPOND.

GENERAL NOTES

1. MANUFACTURER TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS AND ACCESSORIES PLEASE CONTACT MANUFACTURER.
3. ANY VARIATION FOUND DURING CONSTRUCTION FROM THE SITE AND SYSTEM ANALYSIS MUST BE REPORTED TO THE PROJECT DESIGN ENGINEER.
6. FOR USE ONLY IN SEISMIC DESIGN CATEGORY A AND B.
7. ALLOWABLE LOAD HS20 DIRECT TRAFFIC.
8. CONCRETE BASE SLAB F'C = 4,000 PSI AT 28 DAYS
   FY = 60,000 PSI
   GROUT (NON-SHRINK) FM = 6,500 PSI



POURED IN PLACE BASE SLAB DETAIL

12/11/23 SCOTT SPITZER

1:60 SCALE	REVISION A – FIRST RELEASE

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING US PATENTS: D795,385; D828,902; D828,903; 10,151,083; 10,151,096. RELATED FOREIGN PATENTS OR OTHER PATENTS PENDING.

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CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com

URBANPOND
PRECAST CONCRETE STORMWATER DETENTION
GENERAL ELEVATION DETAILS

DAVID EVANS AND ASSOCIATES INC.
4141 E INLAND EMPIRE BLVD STE 250
ONTARIO CA 91764
Phone: (909) 481-5750

Plot Date: 3/9/2026 3:33 PM
Save Date: 12/23/2025 9:47 AM
By: Cole Stubitz
By: Cjst
File: P:\C\CPRKMARC00011\0400CAD\SHEET\STPMEC-RG-CPRKMARC0001-TPM.dwg

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.

[Provide a summary of calculations here]

3. Calculate the DCV using worksheet B-2.1.

DCV = _____ (cubic feet)

3a. Is the 36 hour demand greater than or equal to the DCV?	3b. Is the 36 hour demand greater than 0.25DCV but less than the full DCV?	3c. Is the 36 hour demand less than 0.25DCV?
☐ Yes / ☑ No ⇨ ⇩	☐ Yes / ☑ No ⇨ ⇩	☑ Yes ⇩
Harvest and use appears to be feasible. Conduct more detailed evaluation and sizing calculations to confirm that DCV can be used at an adequate rate to meet drawdown criteria.	Harvest and use may be feasible. Conduct more detailed evaluation and sizing calculations to determine feasibility. Harvest and use may only be able to be used for a portion of the site, or (optionally) the storage may need to be upsized to meet long term capture targets while draining in longer than 36 hours.	Harvest and use is considered to be infeasible.

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.

Categorization of Infiltration Feasibility Condition	Form I-8

Part 1 - Full Infiltration Feasibility Screening Criteria

Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
1	**Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		✓

Provide basis:

The mapped hydrologic soil group according to NRCS Web Soil Survey are C, D and is corroborated by available site soil data.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

2	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.		✓

Provide basis:

No, infiltration rates are low and the groundwater is less than 10-feet below the site surface.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

Form I-8 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: No, infiltration rates are low and the groundwater is less than 10-feet below the site surface. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		✓
Provide basis: No, infiltration rates are low and the groundwater is less than 10-feet below the site surface. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			

Part 1 Result*	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2	

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

Form I-8 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: No, infiltration rates are low and the groundwater is less than 10-feet below the site surface. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
8	**Can infiltration be allowed without violating downstream water rights**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		✓
Provide basis: No, infiltration rates are low and the groundwater is less than 10-feet below the site surface. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
Part 2 Result *	If all answers from row 5-8 are yes then partial infiltration design is potentially feasible. The feasibility screening category is **Partial Infiltration.** If any answer from row 5-8 is no, then infiltration of any volume is considered to be **infeasible** within the drainage area. The feasibility screening category is **No Infiltration.**		

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by City Engineer to substantiate findings

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

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
Standard Drainage Basin Inputs	1	Drainage Basin ID or Name	POC-1										unitless
	2	85th Percentile 24-hr Storm Depth	0.63										inches
	3	Impervious Surfaces Not Directed to Dispersion Area (C=0.90)	279,640										sq-ft
	4	Semi-Pervious Surfaces Not Serving as Dispersion Area (C=0.30)											sq-ft
	5	Engineered Pervious Surfaces Not Serving as Dispersion Area (C=0.10)	79,320										sq-ft
	6	Natural Type A Soil Not Serving as Dispersion Area (C=0.10)											sq-ft
	7	Natural Type B Soil Not Serving as Dispersion Area (C=0.14)											sq-ft
	8	Natural Type C Soil Not Serving as Dispersion Area (C=0.23)	71,350										sq-ft
	9	Natural Type D Soil Not Serving as Dispersion Area (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	No	No	No	No	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											#
	21	Average Rain Barrel Size											gal
Initial Runoff Factor Calculation	22	Total Tributary Area	430,310	0	0	0	0	0	0	0	0	0	sq-ft
	23	Initial Runoff Factor for Standard Drainage Areas	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	24	Initial Runoff Factor for Dispersed & Dispersion Areas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	25	Initial Weighted Runoff Factor	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	26	Initial Design Capture Volume	14,458	0	0	0	0	0	0	0	0	0	cubic-feet
Dispersion Area Adjustments	27	Total Impervious Area Dispersed to Pervious Surface	0	0	0	0	0	0	0	0	0	0	sq-ft
	28	Total Pervious Dispersion Area	0	0	0	0	0	0	0	0	0	0	sq-ft
	29	Ratio of Dispersed Impervious Area to Pervious Dispersion Area	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	ratio
	30	Adjustment Factor for Dispersed & Dispersion Areas	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	ratio
	31	Runoff Factor After Dispersion Techniques	0.64	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	unitless
	32	Design Capture Volume After Dispersion Techniques	14,458	0	0	0	0	0	0	0	0	0	cubic-feet
Tree & Barrel Adjustments	33	Total Tree Well Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
	34	Total Rain Barrel Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
Results	35	Final Adjusted Runoff Factor	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	36	Final Effective Tributary Area	275,398	0	0	0	0	0	0	0	0	0	sq-ft
	37	Initial Design Capture Volume Retained by Site Design Elements	0	0	0	0	0	0	0	0	0	0	cubic-feet
	38	Final Design Capture Volume Tributary to BMP	14,458	0	0	0	0	0	0	0	0	0	cubic-feet

No Warning Messages

Automated Worksheet B.2: Retention Requirements (V2.0)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
Basic Analysis	1	Drainage Basin ID or Name	POC-1	-	-	-	-	-	-	-	-	-	unitless
	2	85th Percentile Rainfall Depth	0.63	-	-	-	-	-	-	-	-	-	inches
	3	Predominant NRCS Soil Type Within BMP Location	D										unitless
	4	Is proposed BMP location Restricted or Unrestricted for Infiltration Activities?	Restricted										unitless
	5	Nature of Restriction	Groundwater										unitless
	6	Do Minimum Retention Requirements Apply to this Project?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	yes/no
	7	Are Habitable Structures Greater than 9 Stories Proposed?	No										yes/no
Advanced Analysis	8	Has Geotechnical Engineer Performed an Infiltration Analysis?	No										yes/no
	9	Design Infiltration Rate Recommended by Geotechnical Engineer											in/hr
Result	10	Design Infiltration Rate Used To Determine Retention Requirements	0.000	-	-	-	-	-	-	-	-	-	in/hr
	11	Percent of Average Annual Runoff that Must be Retained within DMA	1.5%	-	-	-	-	-	-	-	-	-	percentage
	12	Fraction of DCV Requiring Retention	0.01	-	-	-	-	-	-	-	-	-	ratio
	13	Required Retention Volume	145	-	-	-	-	-	-	-	-	-	cubic-feet

No Warning Messages

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

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
BMP Inputs	1	Drainage Basin ID or Name	POC-1	-	-	-	-	-	-	-	-	-	sq-ft
	2	Design Infiltration Rate Recommended	0.000	-	-	-	-	-	-	-	-	-	in/hr
	3	Design Capture Volume Tributary to BMP	14,458	-	-	-	-	-	-	-	-	-	cubic-feet
	4	Is BMP Vegetated or Unvegetated?	Vegetated										unitless
	5	Is BMP Impermeably Lined or Unlined?	Lined										unitless
	6	Does BMP Have an Underdrain?	Underdrain										unitless
	7	Does BMP Utilize Standard or Specialized Media?	Standard										unitless
	8	Provided Surface Area	7,036										sq-ft
	9	Provided Surface Ponding Depth	6										inches
	10	Provided Soil Media Thickness	24										inches
	11	Provided Gravel Thickness (Total Thickness)	12										inches
	12	Underdrain Offset	3										inches
	13	Diameter of Underdrain or Hydromod Orifice (Select Smallest)	2.25										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
	17	Specialized Gravel Media Pore Space											unitless
Retention Calculations	18	Volume Infiltrated Over 6 Hour Storm	0	0	0	0	0	0	0	0	0	0	cubic-feet
	19	Ponding Pore Space Available for Retention	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	unitless
	20	Soil Media Pore Space Available for Retention	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	unitless
	21	Gravel Pore Space Available for Retention (Above Underdrain)	0.00	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	unitless
	22	Gravel Pore Space Available for Retention (Below Underdrain)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	unitless
	23	Effective Retention Depth	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	24	Fraction of DCV Retained (Independent of Drawdown Time)	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	25	Calculated Retention Storage Drawdown Time	120	0	0	0	0	0	0	0	0	0	hours
	26	Efficacy of Retention Processes	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	27	Volume Retained by BMP (Considering Drawdown Time)	1,747	0	0	0	0	0	0	0	0	0	cubic-feet
	28	Design Capture Volume Remaining for Biofiltration	12,711	0	0	0	0	0	0	0	0	0	cubic-feet
Biofiltration Calculations	29	Max Hydromod Flow Rate through Underdrain	0.2362	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	cfs
	30	Max Soil Filtration Rate Allowed by Underdrain Orifice	1.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	in/hr
	31	Soil Media Filtration Rate per Specifications	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	in/hr
	32	Soil Media Filtration Rate to be used for Sizing	1.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	in/hr
	33	Depth Biofiltered Over 6 Hour Storm	8.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	34	Ponding Pore Space Available for Biofiltration	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	35	Soil Media Pore Space Available for Biofiltration	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	unitless
	36	Gravel Pore Space Available for Biofiltration (Above Underdrain)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	unitless
	37	Effective Depth of Biofiltration Storage	14.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	38	Drawdown Time for Surface Ponding	4	0	0	0	0	0	0	0	0	0	hours
	39	Drawdown Time for Effective Biofiltration Depth	10	0	0	0	0	0	0	0	0	0	hours
	40	Total Depth Biofiltered	23.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	41	Option 1 - Biofilter 1.50 DCV: Target Volume	19,067	0	0	0	0	0	0	0	0	0	cubic-feet
	42	Option 1 - Provided Biofiltration Volume	13,545	0	0	0	0	0	0	0	0	0	cubic-feet
	43	Option 2 - Store 0.75 DCV: Target Volume	9,534	0	0	0	0	0	0	0	0	0	cubic-feet
	44	Option 2 - Provided Storage Volume	8,443	0	0	0	0	0	0	0	0	0	cubic-feet
	45	Portion of Biofiltration Performance Standard Satisfied	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
Result	46	Do Site Design Elements and BMPs Satisfy Annual Retention Requirements?	Yes	-	-	-	-	-	-	-	-	-	yes/no
	47	Overall Portion of Performance Standard Satisfied (BMP Efficacy Factor)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	48	**Deficit of Effectively Treated Stormwater**	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	cubic-feet

Attention!

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

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

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
Drainage Basin Info	1	Drainage Basin ID or Name	POC-1	-	-	-	-	-	-	-	-	-	unitless
	2	Final Effective Tributary Area	275,398	-	-	-	-	-	-	-	-	-	sq-ft
	3	Provided BMP Surface Area	7,036	-	-	-	-	-	-	-	-	-	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"	100%										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"											percentage
	15	Percentage "Vacant/Open Space"											percentage
	16	Percentage "Steep Hillslopes"											percentage
Result	17	Total Percentage of Above Land Uses	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	percentage
	18	Average TSS Concentration for Tributary After Pretreatment	113	0	0	0	0	0	0	0	0	0	mg/L
	19	Average Annual Runoff Volume	321,298	0	0	0	0	0	0	0	0	0	cubic-feet
	20	Average Annual TSS Load	2,267	0	0	0	0	0	0	0	0	0	lb/yr
	21	Available Sediment Storage within BMP	14,072	0	0	0	0	0	0	0	0	0	lb
	22	Anticipated Major Maintenance Frequency	6.2	-	-	-	-	-	-	-	-	-	years

Attention!

-Reduced size BMPs should have a major maintenance interval of 10 years or more unless specifically approved by County staff.

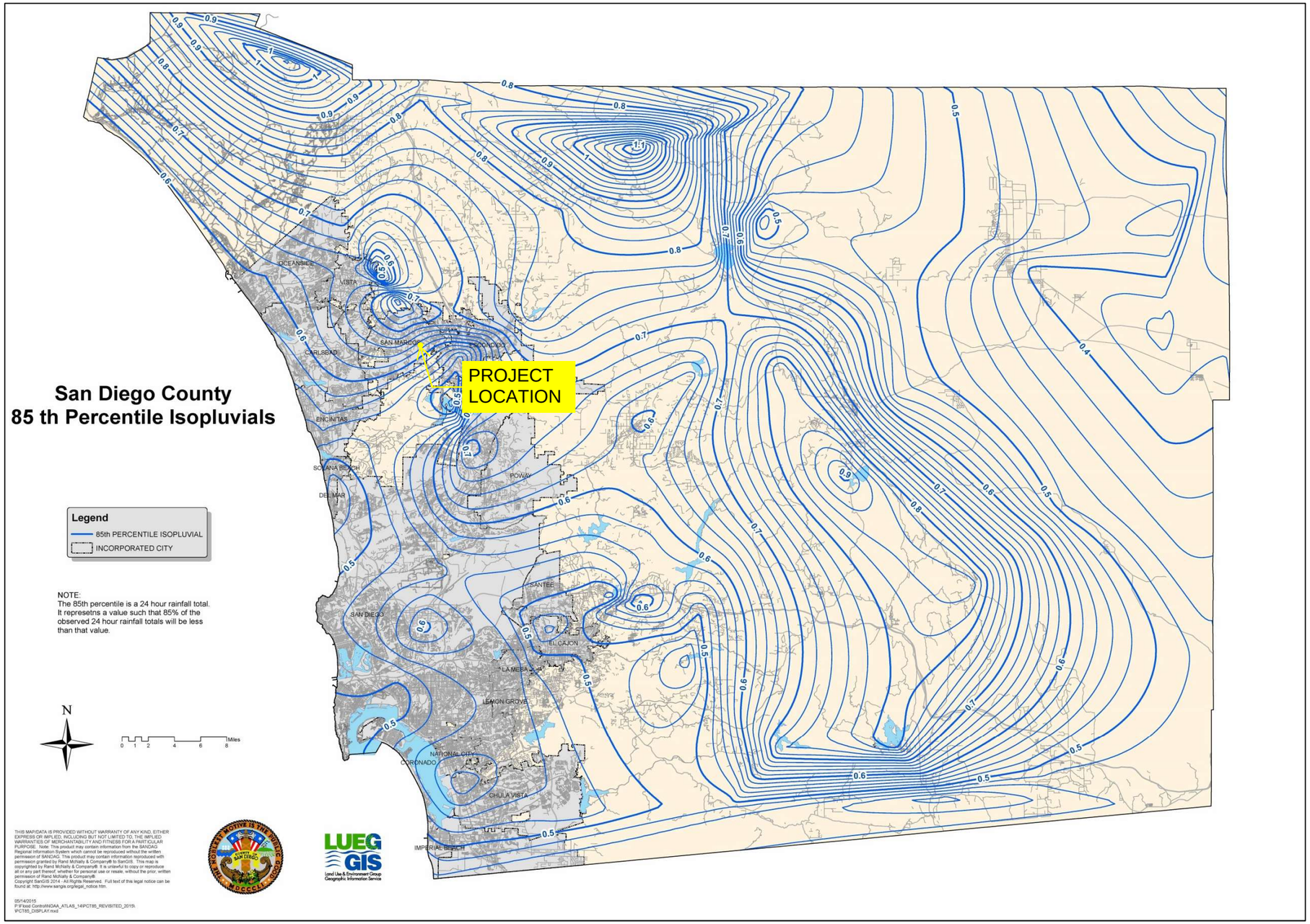


Figure B.1-1: 85th Percentile 24-hour Isopluvial Map

ATTACHMENT 2
BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES

This is the cover sheet for Attachment 2.

☐ Mark this box if this attachment is empty because the project is exempt from PDP hydromodification management requirements.

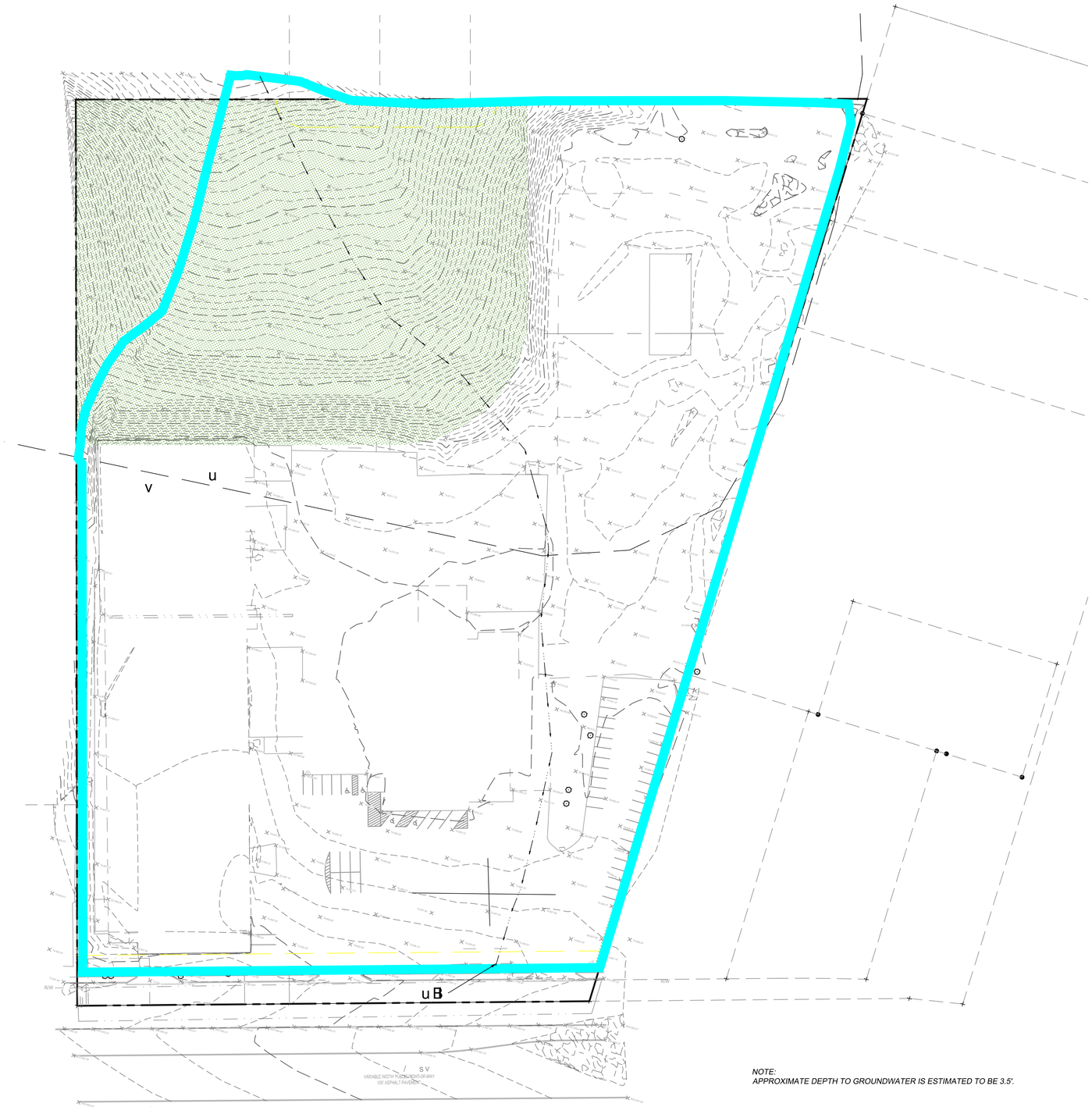
Indicate which Items are Included behind this cover sheet:

Attachment Sequence	**Contents**	**Checklist**
Attachment 2a	Hydromodification Management Exhibit (Required)	☒ Included See Hydromodification Management Exhibit Checklist on the back of this Attachment cover sheet.
Attachment 2b	Management of Critical Coarse Sediment Yield Areas (WMAA Exhibit is required, additional analyses are optional) See Section 6.2 of the BMP Design Manual.	☒ Exhibit showing project drainage boundaries marked on WMAA Critical Coarse Sediment Yield Area Map (Required) Optional analyses for Critical Coarse Sediment Yield Area Determination ☐ 6.2.1 Verification of Geomorphic Landscape Units Onsite ☐ 6.2.2 Downstream Systems Sensitivity to Coarse Sediment ☐ 6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite
Attachment 2c	Geomorphic Assessment of Receiving Channels (Optional) See Section 6.3.4 of the BMP Design Manual.	☒ Not performed ☐ Included ☐ Submitted as separate stand-alone document
Attachment 2d	Flow Control Facility Design, including Structural BMP Drawdown Calculations and Overflow Design Summary (Required) See Chapter 6 and Appendix G of the BMP Design Manual	☒ Included ☐ Submitted as separate stand-alone document
Attachment 2e	Vector Control Plan (Required when structural BMPs will not drain in 96 hours)	☐ Included ☒ Not required because BMPs will drain in less than 96 hours

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

The Hydromodification Management Exhibit must identify:

☒ Underlying hydrologic soil group
☒ Approximate depth to groundwater
☒ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
☒ Critical coarse sediment yield areas to be protected
☒ Existing topography
☒ Existing and proposed site drainage network and connections to drainage offsite
☒ Proposed grading
☒ Proposed impervious features
☒ Proposed design features and surface treatments used to minimize imperviousness
☒ Point(s) of Compliance (POC) for Hydromodification Management
☒ Existing and proposed drainage boundary and drainage area to each POC (when necessary, create separate exhibits for pre-development and post-project conditions)
☒ Structural BMPs for hydromodification management (identify location, type of BMP, and size/detail)



Legend

v sB

v sBM

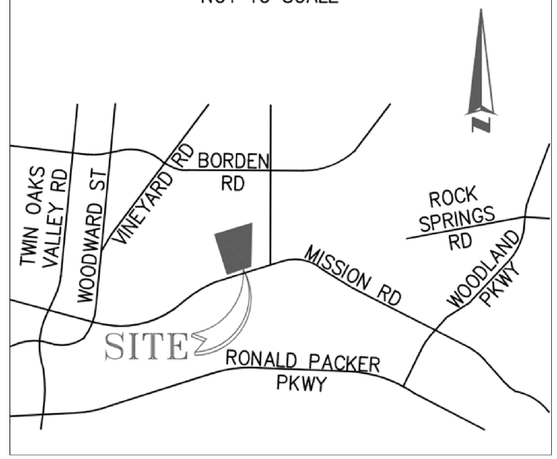
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VICINITY MAP

NOT TO SCALE



NOTE:
APPROXIMATE DEPTH TO GROUNDWATER IS ESTIMATED TO BE 3.5'.

50' 0' 25' 50'

SCALE: 1" = 50'

PREPARED BY:

DAVID EVANS AND ASSOCIATES INC.

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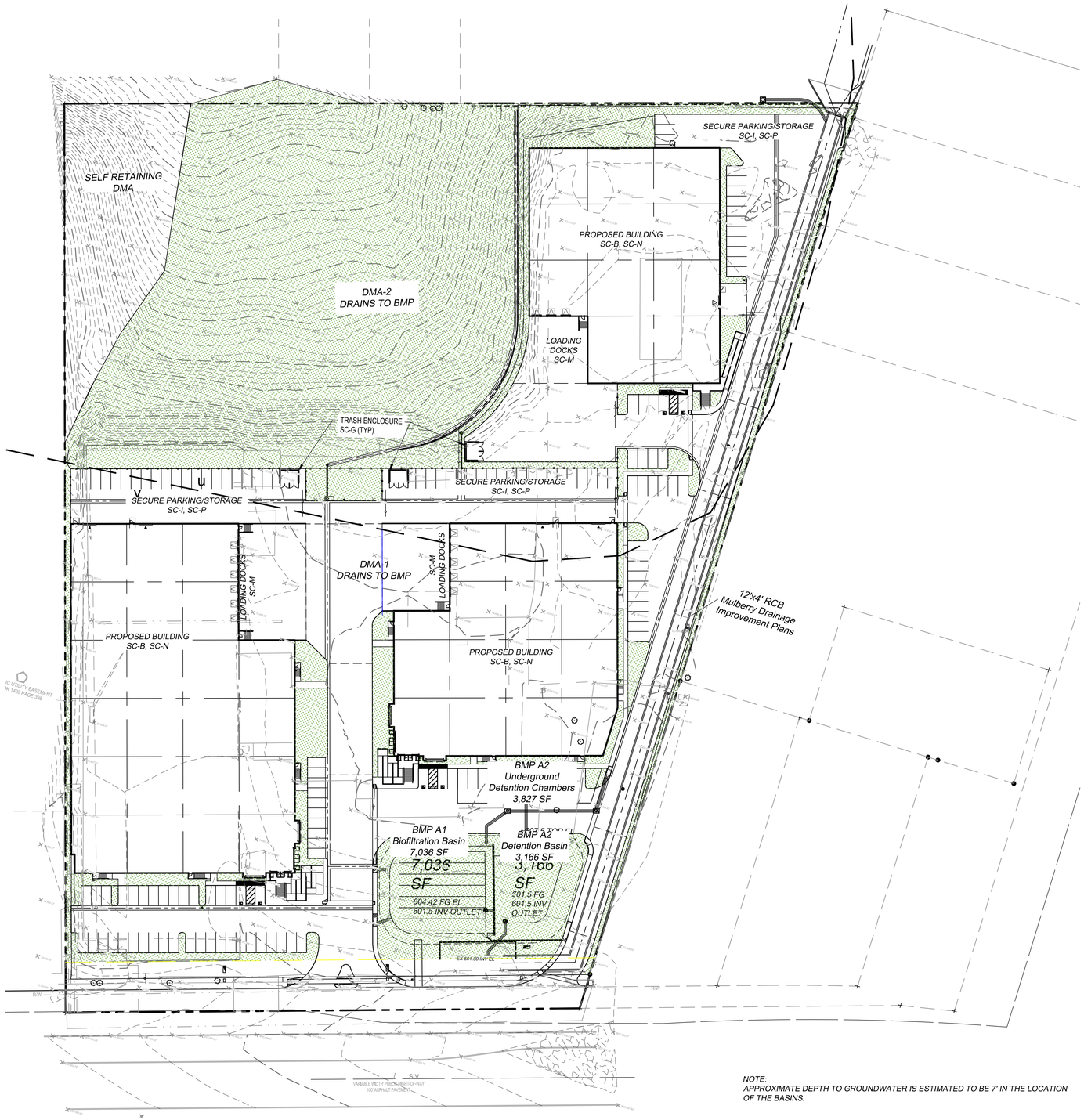
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EXISTING HYDROMODIFICATION EXHIBIT
SAN MARCOS, CA

PROJECT NO.
CPRKMARC-0001

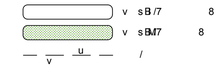
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4/19/2024

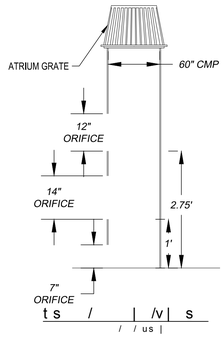
SHEET:
1 OF 1

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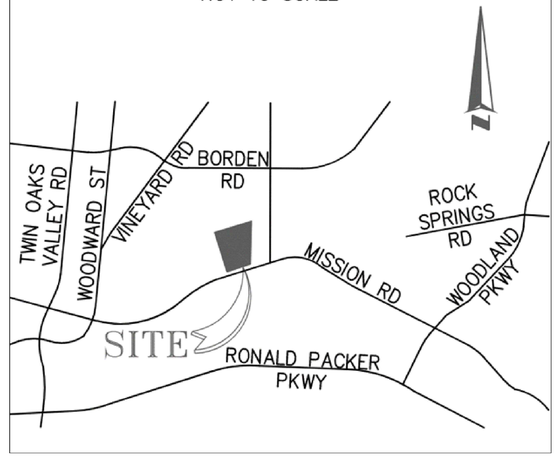
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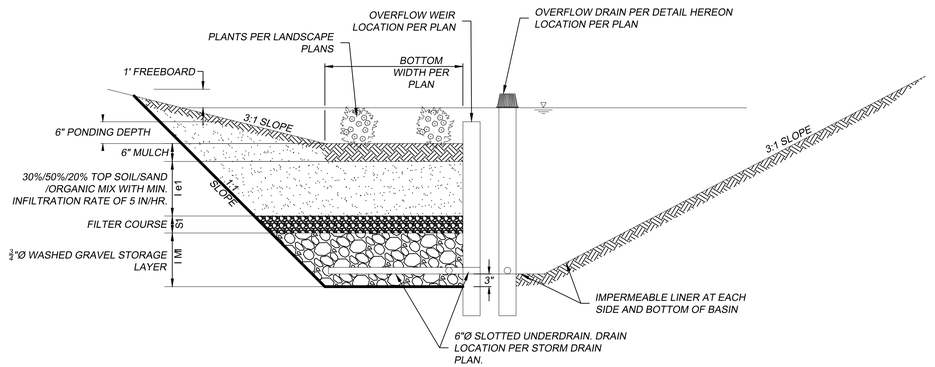
VICINITY MAP

NOT TO SCALE



DMA SUMMARY

DMA ID	AREA (SF)	TYPE
SELF RETAINING DMA	21,267	LANDSCAPE
DMA-1	279,640	ASPHALT/ROOF
DMA-1	79,320	LANDSCAPE
DMA-2	71,350	LANDSCAPE



NOTE:
APPROXIMATE DEPTH TO GROUNDWATER IS ESTIMATED TO BE 7' IN THE LOCATION OF THE BASINS.

50' 0' 25' 50'

SCALE: 1" = 50'

PREPARED BY:

DAVID EVANS AND ASSOCIATES INC.

MISSION SAN MARCOS INDUSTRIAL PARK
DMA EXHIBIT
SAN MARCOS, CA

PROJECT NO.
CPRKMARC-0001

DATE:
4/8/25

SHEET:
1 OF 1

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REACH ID	NAME
1	Santa Margarita River
2	San Luis Rey River
3	Buena Vista Creek
4	Agua Hedionda Creek
5	San Marcos Creek
6	Encinitas Creek
7	Cottonwood Creek (Carlsbad WMA)
8	Escondido Creek
9	San Dieguito Creek - Reach 1
10	San Dieguito Creek - Reach 2
11	Lusardi Creek
12	Los Penasquitos / Poway Creek
13	Rattlesnake Creek
14	Carroll Canyon Creek
15	Rose Creek
16	San Diego River
17	Sycamore Creek
18	Woodglen Vista Creek
19	San Vicente Creek
20	Forester Creek
21	Chollas Creek
22	Sweetwater River - Reach 1
23	Sweetwater River - Reach 2
24	Otay River
25	Jamul / Dulzura Creek
26	Tijuana River
27	Cottonwood Creek (Tijuana WMA)

PROJECT SITE

Legend

- Regional WMAA Streams
- Watershed Boundaries
- Municipal Boundaries
- Rivers & Streams
- Potential Critical Coarse Sediment Yield Areas

Aerial Imagery Source: DigitalGlobe, 06/2012

Miles 0 5 10 15

NORTH

Potential Critical Coarse Sediment Yield Areas

Regional San Diego County Watersheds

Exhibit Date: Sept. 8, 2014

Geosyntec consultants

RICK ENGINEERING COMPANY

SDHM 3.1

PROJECT REPORT

General Model Information

Project Name:	San Marcos Hydromod-Alt 2
Site Name:	
Site Address:	528 E Mission Rd
City:	San Marcos
Report Date:	4/19/2024
Gage:	ESCONDID
Data Start:	10/01/1964
Data End:	09/30/2004
Timestep:	Hourly
Precip Scale:	1.000
Version Date:	2021/06/28

POC Thresholds

Low Flow Threshold for POC1:	10 Percent of the 2 Year
High Flow Threshold for POC1:	10 Year

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Landuse Basin Data
Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C,NatVeg,Moderate	0.7
C,NatVeg,Steep	2.5
D,Urban,Flat	0.3
Pervious Total	3.5

Impervious Land Use	acre
IMPERVIOUS-FLAT	6.4
Impervious Total	6.4
Basin Total	9.9

Element Flows To:

Surface	Interflow	Groundwater

DRAFT

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
D,Urban,Flat	1.4
C,NatVeg,Steep	2.3
Pervious Total	3.7

Impervious Land Use	acre
IMPERVIOUS-FLAT	6.2
Impervious Total	6.2
Basin Total	9.9

Element Flows To:

Surface	Interflow	Groundwater
Surface iltration 1	Surface iltration 1	

DRAFT

Routing Elements
Predeveloped Routing

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Mitigated Routing

Biofiltration 1

Bottom Length:	90.00 ft.
Bottom Width:	78.00 ft.
Material thickness of first layer:	0.5
Material type for first layer:	Mulch
Material thickness of second layer:	1.83
Material type for second layer:	ESM
Material thickness of third layer:	1
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	0.05
Infiltration safety factor:	1
Total Volume Infiltrated (ac-ft.):	33.17
Total Volume Through Riser (ac-ft.):	115.4
Total Volume Through Facility (ac-ft.):	265.747
Percent Infiltrated:	12.48
Total Precip Applied to Facility:	8.314
Total Evap From Facility:	6.014
Underdrain used	
Underdrain Diameter (feet):	0.5
Orifice Diameter (in.):	2.25
Offset (in.):	3
Flow Through Underdrain (ac-ft.):	117.177
Total Outflow (ac-ft.):	265.747
Percent Through Underdrain:	44.09
Vertical orifice Outlet Structure	
Vertical orifice Diameter (in.):	0
Vertical orifice Elevation (in.):	6
Width of overroad flow (feet):	60
Element Flows To:	
Outlet 1	Outlet 2
Trapezoidal Pond 1	

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Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
601.25	0.1612	0.0000	0.0000	0.0000
601.33	0.1612	0.0037	0.0000	0.0000
601.40	0.1612	0.0073	0.0000	0.0000
601.48	0.1612	0.0110	0.0000	0.0000
601.55	0.1612	0.0147	0.0000	0.0000
601.63	0.1612	0.0184	0.0000	0.0000
601.71	0.1612	0.0220	0.0000	0.0080
601.78	0.1612	0.0257	0.0000	0.0081
601.86	0.1612	0.0294	0.0000	0.0081
601.93	0.1612	0.0330	0.0000	0.0081
602.01	0.1612	0.0367	0.0000	0.0081
602.09	0.1612	0.0404	0.0000	0.0081
602.16	0.1612	0.0441	0.0000	0.0081
602.24	0.1612	0.0477	0.0000	0.0081
602.31	0.1612	0.0514	0.0000	0.0081
602.39	0.1612	0.0551	0.0000	0.0081
602.46	0.1612	0.0587	0.0000	0.0081
602.54	0.1612	0.0624	0.0000	0.0081
602.62	0.1612	0.0661	0.0091	0.0081

602.69	0.1612	0.0698	0.0136	0.0081
602.77	0.1612	0.0734	0.0231	0.0081
602.84	0.1612	0.0771	0.0278	0.0081
602.92	0.1612	0.0808	0.0350	0.0081
603.00	0.1612	0.0844	0.0386	0.0081
603.07	0.1612	0.0881	0.0444	0.0081
603.15	0.1612	0.0918	0.0473	0.0081
603.22	0.1612	0.0955	0.0521	0.0081
603.30	0.1612	0.0991	0.0545	0.0081
603.38	0.1612	0.1028	0.0587	0.0081
603.45	0.1612	0.1065	0.0609	0.0081
603.53	0.1612	0.1101	0.0647	0.0081
603.60	0.1612	0.1152	0.0666	0.0081
603.68	0.1612	0.1203	0.0701	0.0081
603.76	0.1612	0.1254	0.0719	0.0081
603.83	0.1612	0.1304	0.0751	0.0081
603.91	0.1612	0.1355	0.0768	0.0081
603.98	0.1612	0.1406	0.0798	0.0081
604.06	0.1612	0.1457	0.0814	0.0081
604.14	0.1612	0.1508	0.0843	0.0081
604.21	0.1612	0.1558	0.0857	0.0081
604.29	0.1612	0.1609	0.0885	0.0081
604.36	0.1612	0.1660	0.0930	0.0081
604.44	0.1612	0.1711	0.0989	0.0081
604.52	0.1612	0.1762	0.1052	0.0081
604.58	0.1612	0.1805	0.2411	0.0081

Biofilter Hydraulic Table

DRAFT

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
3.3300	0.1612	0.1805	0.0000	0.2492	0.0000
3.4059	0.1624	0.1928	0.0000	0.2492	0.0000
3.4819	0.1637	0.2052	0.0000	0.2492	0.0000
3.5578	0.1650	0.2176	0.0000	0.2492	0.0000
3.6337	0.1663	0.2302	1.5337	0.2492	0.0000
3.7097	0.1676	0.2429	4.9044	0.2492	0.0000
3.7856	0.1690	0.2557	9.3640	0.2492	0.0000
3.8615	0.1703	0.2686	14.690	0.2492	0.0000
3.9375	0.1716	0.2815	20.756	0.2492	0.0000
4.0134	0.1729	0.2946	27.479	0.2492	0.0000
4.0893	0.1743	0.3078	34.797	0.2492	0.0000
4.1653	0.1756	0.3211	42.658	0.2492	0.0000
4.2412	0.1769	0.3345	51.022	0.2492	0.0000
4.3171	0.1783	0.3480	59.850	0.2492	0.0000
4.3931	0.1796	0.3616	69.111	0.2492	0.0000
4.4690	0.1810	0.3752	78.771	0.2492	0.0000
4.5449	0.1824	0.3890	88.802	0.2492	0.0000
4.6209	0.1837	0.4029	99.1745	0.2492	0.0000
4.6968	0.1851	0.4169	109.86	0.2492	0.0000
4.7727	0.1865	0.4310	120.83	0.2492	0.0000
4.8487	0.1878	0.4453	132.06	0.2492	0.0000
4.9246	0.1892	0.4596	143.52	0.2492	0.0000
5.0005	0.1906	0.4740	155.17	0.2492	0.0000
5.0765	0.1920	0.4885	167.00	0.2492	0.0000
5.1524	0.1934	0.5032	178.97	0.2492	0.0000
5.2284	0.1948	0.5179	191.05	0.2492	0.0000
5.3043	0.1962	0.5327	203.22	0.2492	0.0000
5.3802	0.1976	0.5477	215.44	0.2492	0.0000
5.4562	0.1990	0.5628	227.68	0.2492	0.0000

5.5321	0.2005	0.5779	239.92	0.2492	0.0000
5.6080	0.2019	0.5932	252.12	0.2492	0.0000
5.6840	0.2033	0.6086	264.26	0.2492	0.0000
5.7599	0.2048	0.6241	276.30	0.2492	0.0000
5.8358	0.2062	0.6397	288.21	0.2492	0.0000
5.9118	0.2077	0.6554	299.98	0.2492	0.0000
5.9877	0.2091	0.6712	311.56	0.2492	0.0000
6.0636	0.2106	0.6872	322.94	0.2492	0.0000
6.1396	0.2120	0.7032	334.08	0.2492	0.0000
6.2155	0.2135	0.7194	344.97	0.2492	0.0000
6.2914	0.2150	0.7356	355.58	0.2492	0.0000
6.3674	0.2164	0.7520	365.88	0.2492	0.0000
6.4433	0.2179	0.7685	375.86	0.2492	0.0000
6.5192	0.2194	0.7851	385.49	0.2492	0.0000
6.5952	0.2209	0.8018	394.77	0.2492	0.0000
6.6711	0.2224	0.8186	403.67	0.2492	0.0000
6.7470	0.2239	0.8356	412.20	0.2492	0.0000
6.8230	0.2254	0.8526	420.32	0.2492	0.0000
6.8989	0.2269	0.8698	428.05	0.2492	0.0000
6.9100	0.2271	0.8723	1.5337	0.2492	0.0000

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Surface iltration 1

Element Flows To:

Outlet 1	Outlet 2
Trapezoidal Pond 1	Biofiltration 1

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Trapezoidal Pond 1

Bottom Length:	59.00 ft.	
Bottom Width:	55.50 ft.	
Depth:	6 ft.	
Volume at riser head:	0.6915 acre-feet.	
Side slope 1:	0 To 1	
Side slope 2:	3 To 1	
Side slope 3:	3 To 1	
Side slope 4:	3 To 1	
Discharge Structure		
Riser Height:	6 ft.	
Riser Diameter:	78 in.	
Notch Type:	Rectangular	
Notch Width:	5.000 ft.	
Notch Height:	2.000 ft.	
Orifice 1 Diameter:	7 in.	Elevation:0 ft.
Orifice 2 Diameter:	14 in.	Elevation:1 ft.
Orifice 3 Diameter:	12 in.	Elevation:2.75 ft.
Element Flows To:		
Outlet 1	Outlet 2	

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Pond Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
601.50	0.075	0.000	0.000	0.000
601.57	0.076	0.005	0.343	0.000
601.63	0.076	0.010	0.485	0.000
601.70	0.077	0.015	0.594	0.000
601.77	0.078	0.020	0.686	0.000
601.83	0.079	0.025	0.767	0.000
601.90	0.079	0.031	0.841	0.000
601.97	0.080	0.036	0.908	0.000
602.03	0.081	0.041	0.971	0.000
602.10	0.082	0.047	1.030	0.000
602.17	0.083	0.052	1.085	0.000
602.23	0.084	0.058	1.138	0.000
602.30	0.084	0.064	1.189	0.000
602.37	0.085	0.069	1.237	0.000
602.43	0.086	0.075	1.284	0.000
602.50	0.087	0.081	1.329	0.000
602.57	0.088	0.087	2.746	0.000
602.63	0.089	0.092	3.357	0.000
602.70	0.089	0.098	3.835	0.000
602.77	0.090	0.104	4.243	0.000
602.83	0.091	0.111	4.606	0.000
602.90	0.092	0.117	4.937	0.000
602.97	0.093	0.123	5.243	0.000
603.03	0.094	0.129	5.530	0.000
603.10	0.095	0.135	5.801	0.000
603.17	0.095	0.142	6.059	0.000
603.23	0.096	0.148	6.305	0.000
603.30	0.097	0.155	6.541	0.000
603.37	0.098	0.161	6.768	0.000
603.43	0.099	0.168	6.987	0.000
603.50	0.100	0.174	7.199	0.000
603.57	0.101	0.181	7.404	0.000

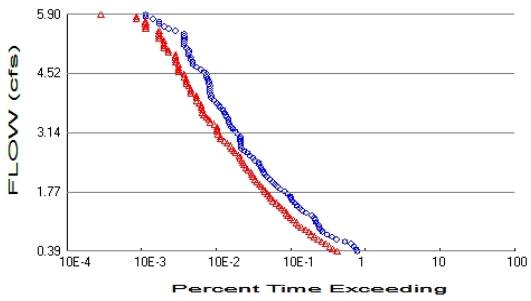
603.63	0.102	0.188	7.604	0.000
603.70	0.102	0.195	7.798	0.000
603.77	0.103	0.202	7.988	0.000
603.83	0.104	0.209	8.172	0.000
603.90	0.105	0.216	8.353	0.000
603.97	0.106	0.223	8.529	0.000
604.03	0.107	0.230	8.702	0.000
604.10	0.108	0.237	8.871	0.000
604.17	0.109	0.244	9.038	0.000
604.23	0.110	0.252	9.200	0.000
604.30	0.111	0.259	10.23	0.000
604.37	0.112	0.266	10.85	0.000
604.43	0.113	0.274	11.34	0.000
604.50	0.114	0.281	11.77	0.000
604.57	0.115	0.289	12.17	0.000
604.63	0.115	0.297	12.54	0.000
604.70	0.116	0.305	12.88	0.000
604.77	0.117	0.312	13.22	0.000
604.83	0.118	0.320	13.53	0.000
604.90	0.119	0.328	13.84	0.000
604.97	0.120	0.336	14.13	0.000
605.03	0.121	0.344	14.42	0.000
605.10	0.122	0.352	14.70	0.000
605.17	0.123	0.361	14.97	0.000
605.23	0.124	0.369	15.23	0.000
605.30	0.125	0.377	15.49	0.000
605.37	0.126	0.386	15.74	0.000
605.43	0.127	0.394	15.99	0.000
605.50	0.128	0.403	16.24	0.000
605.57	0.129	0.411	16.76	0.000
605.63	0.130	0.420	17.52	0.000
605.70	0.131	0.429	18.43	0.000
605.77	0.132	0.438	19.46	0.000
605.83	0.133	0.446	20.60	0.000
605.90	0.134	0.455	21.82	0.000
605.97	0.135	0.464	23.14	0.000
606.03	0.136	0.473	24.53	0.000
606.10	0.137	0.483	25.99	0.000
606.17	0.138	0.492	27.53	0.000
606.23	0.139	0.501	29.12	0.000
606.30	0.140	0.510	30.79	0.000
606.37	0.141	0.520	32.51	0.000
606.43	0.143	0.529	34.28	0.000
606.50	0.144	0.539	36.12	0.000
606.57	0.145	0.549	38.00	0.000
606.63	0.146	0.558	39.94	0.000
606.70	0.147	0.568	41.93	0.000
606.77	0.148	0.578	43.97	0.000
606.83	0.149	0.588	46.05	0.000
606.90	0.150	0.598	48.18	0.000
606.97	0.151	0.608	50.36	0.000
607.03	0.152	0.618	52.58	0.000
607.10	0.153	0.628	54.84	0.000
607.17	0.154	0.639	57.15	0.000
607.23	0.155	0.649	59.50	0.000
607.30	0.157	0.659	61.88	0.000
607.37	0.158	0.670	64.31	0.000
607.43	0.159	0.680	66.78	0.000

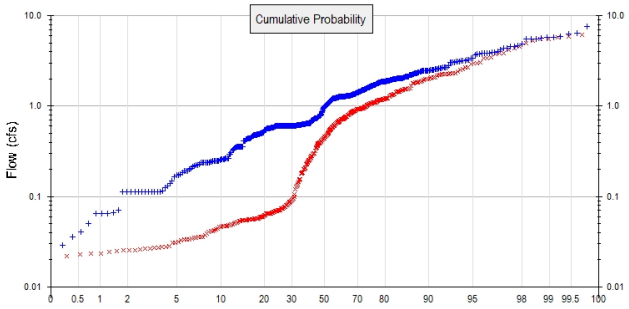
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607.50	0.160	0.691	69.28	0.000
607.57	0.161	0.702	70.64	0.000

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Analysis Results
POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 3.5
Total Impervious Area: 6.4

Mitigated Landuse Totals for POC #1
Total Pervious Area: 3.7
Total Impervious Area: 6.2

Flow Frequency Method: Cunnane

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	3.898798
5 year	5.511086
10 year	5.89664
25 year	6.673872

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	2.799966
5 year	4.523796
10 year	5.54424
25 year	5.960465

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Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.3899	2730	1459	53	Pass
0.4455	2624	1279	48	Pass
0.5011	2460	1159	47	Pass
0.5568	2255	1028	45	Pass
0.6124	1861	907	48	Pass
0.6680	1447	808	55	Pass
0.7236	1247	723	57	Pass
0.7792	1069	659	61	Pass
0.8349	936	610	65	Pass
0.8905	880	547	62	Pass
0.9461	843	482	57	Pass
1.0017	820	443	54	Pass
1.0574	775	421	54	Pass
1.1130	748	378	50	Pass
1.1686	721	345	47	Pass
1.2242	677	319	47	Pass
1.2799	564	304	53	Pass
1.3355	492	285	57	Pass
1.3911	455	264	58	Pass
1.4467	421	246	58	Pass
1.5024	398	224	56	Pass
1.5580	377	202	53	Pass
1.6136	356	190	53	Pass
1.6692	341	182	53	Pass
1.7249	321	171	53	Pass
1.7805	287	159	55	Pass
1.8361	257	152	59	Pass
1.8917	233	141	60	Pass
1.9473	215	134	62	Pass
2.0030	202	123	60	Pass
2.0586	183	116	63	Pass
2.1142	170	109	64	Pass
2.1698	158	105	66	Pass
2.2255	152	103	67	Pass
2.2811	146	93	63	Pass
2.3367	140	87	62	Pass
2.3923	133	83	62	Pass
2.4480	131	80	61	Pass
2.5036	116	77	66	Pass
2.5592	110	74	67	Pass
2.6148	99	71	71	Pass
2.6705	92	64	69	Pass
2.7261	83	60	72	Pass
2.7817	76	57	75	Pass
2.8373	75	55	73	Pass
2.8930	75	49	65	Pass
2.9486	74	45	60	Pass
3.0042	74	40	54	Pass
3.0598	73	40	54	Pass
3.1154	68	37	54	Pass
3.1711	63	36	57	Pass
3.2267	59	36	61	Pass
3.2823	56	36	64	Pass

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3.3379	53	33	62	Pass
3.3936	51	29	56	Pass
3.4492	51	28	54	Pass
3.5048	49	26	53	Pass
3.5604	47	24	51	Pass
3.6161	45	23	51	Pass
3.6717	43	23	53	Pass
3.7273	40	22	55	Pass
3.7829	38	22	57	Pass
3.8386	36	21	58	Pass
3.8942	33	19	57	Pass
3.9498	30	19	63	Pass
4.0054	30	19	63	Pass
4.0611	29	16	55	Pass
4.1167	29	16	55	Pass
4.1723	29	16	55	Pass
4.2279	29	15	51	Pass
4.2835	28	14	50	Pass
4.3392	28	14	50	Pass
4.3948	27	14	51	Pass
4.4504	26	13	50	Pass
4.5060	26	13	50	Pass
4.5617	24	11	45	Pass
4.6173	22	11	50	Pass
4.6729	19	11	57	Pass
4.7285	17	11	64	Pass
4.7842	17	10	58	Pass
4.8398	16	10	62	Pass
4.8954	16	10	62	Pass
4.9510	15	10	66	Pass
5.0067	15	8	53	Pass
5.0623	15	8	53	Pass
5.1179	14	7	50	Pass
5.1735	13	7	53	Pass
5.2292	13	7	53	Pass
5.2848	13	7	53	Pass
5.3404	13	6	46	Pass
5.3960	13	6	46	Pass
5.4516	13	6	46	Pass
5.5073	10	6	60	Pass
5.5629	8	4	50	Pass
5.6185	7	4	57	Pass
5.6741	6	4	66	Pass
5.7298	6	4	66	Pass
5.7854	5	3	60	Pass
5.8410	4	3	75	Pass
5.8966	4	1	25	Pass

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Water Quality

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Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

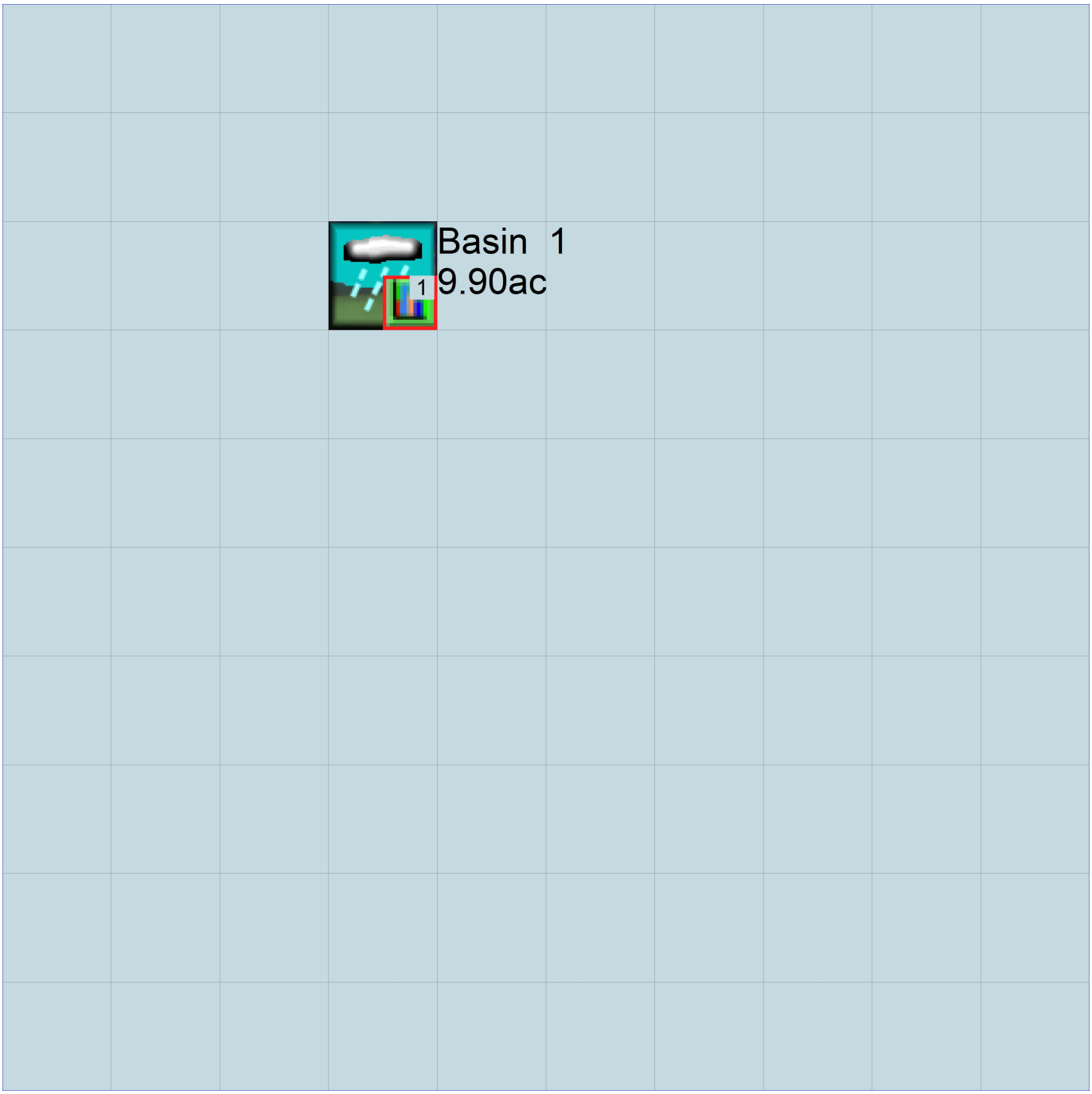
No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

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Appendix
Predeveloped Schematic



Mitigated Schematic



Predeveloped UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1964 10 01        END    2004 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   San Marcos Hydromod-Alt 2.wdm
MESSU       25   PreSan Marcos Hydromod-Alt 2.MES
            27   PreSan Marcos Hydromod-Alt 2.L61
            28   PreSan Marcos Hydromod-Alt 2.L62
            30   POCSan Marcos Hydromod-Alt 21.dat
END FILES

OPN SEQUENCE
    INGRP               INDELT 00:60
      PERLND      20
      PERLND      21
      PERLND      46
      IMPLND       1
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title---------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  1                   MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                          in  out            ***
   20      C,NatVeg,Moderate      1    1    1    1   27    0
   21      C,NatVeg,Steep         1    1    1    1   27    0
   46      D,Urban,Flat           1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   20         0    0    1    0    0    0    0    0    0    0    0    0
   21         0    0    1    0    0    0    0    0    0    0    0    0
   46         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY
```

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```
  PRINT-INFO
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   20         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   21         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   46         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   20         0    1    1    1    0    0    0    0    1    1    0
   21         0    1    1    1    0    0    0    0    1    1    0
   46         0    1    1    1    0    0    0    0    1    1    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2          ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   20              0       3.5     0.033        80       0.1       2.5     0.915
   21              0       3.2      0.03        75      0.15       2.5     0.915
   46              0       3.8      0.03        50      0.05       2.5     0.915
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3          ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   20              0         0         2         2         0      0.05      0.05
   21              0         0         2         2         0      0.05      0.05
   46              0         0         2         2         0      0.05      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   20             0       0.6      0.04         1       0.3         0
   21             0       0.6      0.04         1       0.3         0
   46             0       0.6      0.03         1       0.3         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3          ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   20       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
   21       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
   46       0.6  0.6  0.6  0.6  0.7  0.7  0.7  0.7  0.7  0.6  0.6  0.6
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3          ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   20       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1  0.1
   21       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1  0.1
   46       0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1
  END MON-INTERCEP

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   20             0         0      0.01         0       0.4      0.01         0
   21             0         0      0.01         0       0.4      0.01         0
   46             0         0      0.15         0         1      0.05         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
```

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```
    1      IMPERVIOUS-FLAT        1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    1
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1           100      0.05     0.011       0.1
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                 <--Area-->     <-Target->   MBLK    ***
<Name>   #                 <-factor->     <Name>   #   Tbl#    ***
Basin  1***
PERLND  20                       0.7     COPY   501     12
PERLND  20                       0.7     COPY   501     13
PERLND  21                       2.5     COPY   501     12
PERLND  21                       2.5     COPY   501     13
PERLND  46                       0.3     COPY   501     12
PERLND  46                       0.3     COPY   501     13
IMPLND   1                       6.4     COPY   501     15

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   12.1        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
```

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```
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG           ***
                                       in  out                              ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                  ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                     ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    1              PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    1              IMPLND   1 999 EXTNL  PETINP
WDM     22 IRRG     ENGL    0.7       SAME PERLND  46     EXTNL  SURLI

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1     12.1      WDM    501 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13

  MASS-LINK       15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
```

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```
  END MASS-LINK   15

END MASS-LINK

END RUN
```

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Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1964 10 01        END    2004 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   San Marcos Hydromod-Alt 2.wdm
MESSU       25   MitSan Marcos Hydromod-Alt 2.MES
            27   MitSan Marcos Hydromod-Alt 2.L61
            28   MitSan Marcos Hydromod-Alt 2.L62
            30   POCSan Marcos Hydromod-Alt 21.dat
END FILES

OPN SEQUENCE
    INGRP               INDELT 00:60
      PERLND      46
      PERLND      21
      IMPLND       1
      RCHRES       1
      RCHRES       2
      RCHRES       3
      COPY         1
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title---------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Trapezoidal Pond  1         MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                          in  out             ***
   46      D,Urban,Flat           1    1    1    1   27    0
   21      C,NatVeg,Steep         1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   46         0    0    1    0    0    0    0    0    0    0    0    0
   21         0    0    1    0    0    0    0    0    0    0    0    0
```

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```
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -   # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   46         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   21         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -   # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   46         0    1    1    1    0    0    0    0    1    1    0
   21         0    1    1    1    0    0    0    0    1    1    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2          ***
    # -   # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   46              0       3.8      0.03        50      0.05       2.5     0.915
   21              0       3.2      0.03        75      0.15       2.5     0.915
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3          ***
    # -   # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   46              0         0         2         2         0      0.05      0.05
   21              0         0         2         2         0      0.05      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -   #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   46              0       0.6      0.03         1       0.3         0
   21              0       0.6      0.04         1       0.3         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3          ***
    # -   #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   46       0.6  0.6  0.6  0.6  0.7  0.7  0.7  0.7  0.7  0.6  0.6  0.6
   21       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3          ***
    # -   #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   46       0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1
   21       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1  0.1
  END MON-INTERCEP

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -   # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   46              0         0      0.15         0         1      0.05         0
   21              0         0      0.01         0       0.4      0.01         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -   #                     User  t-series Engl Metr ***
                                      in  out             ***
    1      IMPERVIOUS-FLAT        1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -   # ATMP SNOW IWAT  SLD  IWG IQAL   ***
```

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```
    1         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    1
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1            100      0.05     0.011       0.1
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->           <--Area-->     <-Target->   MBLK   ***
<Name>   #           <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  46                  1.4     RCHRES   1      2
PERLND  46                  1.4     RCHRES   1      3
PERLND  21                  2.3     RCHRES   1      2
PERLND  21                  2.3     RCHRES   1      3
IMPLND   1                  6.2     RCHRES   1      5

******Routing******
RCHRES   2                    1     RCHRES   3      7
RCHRES   2                          COPY     1     17
RCHRES   1                    1     RCHRES   3      7
RCHRES   1                          COPY     1     17
RCHRES   1                    1     RCHRES   2      8
RCHRES   3                    1     COPY   501     16
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   12.1        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<----------------><---> User T-series  Engl Metr LKFG             ***
                                      in  out                               ***
```

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```
    1     Surface iltratio-004    2    1    1    1   28    0    1
    2     Biofiltration  1-003    2    1    1    1   28    0    1
    3     Trapezoidal Pond-005    1    1    1    1   28    0    1
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
    1         1    0    0    0    0    0    0    0    0    0
    2         1    0    0    0    0    0    0    0    0    0
    3         1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
    1         4    0    0    0    0    0    0    0    0    0    1    9
    2         4    0    0    0    0    0    0    0    0    0    1    9
    3         4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                  ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
          FG FG FG FG  possible  exit *** possible  exit      possible  exit
           *  *  *  *    *  *  *  *  *      *  *  *  *  *        ***
    1      0  1  0  0    4  5  0  0  0      0  0  0  0  0        2  2  2  2  2
    2      0  1  0  0    4  5  0  0  0      0  0  0  0  0        2  2  2  2  2
    3      0  1  0  0    4  0  0  0  0      0  0  0  0  0        2  2  2  2  2
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN      DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><--------><--------> ***
    1             1      0.01        0.0    601.25       0.0       0.0
    2             2      0.02        0.0    601.25       0.0       0.0
    3             3      0.01        0.0     601.5       0.5       0.0
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                     ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
         *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
    1            0        4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    2            0        4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    3            0        4.0  0.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
  FTABLE      2
   45    5
     Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.222157  0.000000  0.000000  0.000000
  0.075934  0.220881  0.001843  0.000000  0.000000
  0.151868  0.219392  0.003701  0.000000  0.000000
  0.227802  0.217908  0.005573  0.000000  0.000000
  0.303736  0.216429  0.007460  0.000000  0.000000
  0.379670  0.214954  0.009362  0.000000  0.000000
  0.455604  0.213484  0.011279  0.000000  0.008037
  0.531538  0.212019  0.013211  0.000000  0.008125
  0.607473  0.210558  0.015158  0.000000  0.008125
  0.683407  0.209103  0.017120  0.000000  0.008125
  0.759341  0.207652  0.021075  0.000000  0.008125
  0.835275  0.206206  0.025060  0.000000  0.008125
  0.911209  0.204764  0.029075  0.000000  0.008125
```

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```
0.987143  0.203328  0.033121  0.000000  0.008125
1.063077  0.201896  0.037198  0.000000  0.008125
1.139011  0.200469  0.041306  0.000000  0.008125
1.214945  0.199047  0.045444  0.000000  0.008125
1.290879  0.197629  0.049614  0.000000  0.008125
1.366813  0.196216  0.053814  0.009067  0.008125
1.442747  0.194808  0.058046  0.013601  0.008125
1.518681  0.193405  0.062310  0.023063  0.008125
1.594615  0.192007  0.066604  0.027793  0.008125
1.670549  0.190613  0.070931  0.035027  0.008125
1.746484  0.189224  0.075289  0.038643  0.008125
1.822418  0.187840  0.079679  0.044388  0.008125
1.898352  0.186460  0.084101  0.047261  0.008125
1.974286  0.185086  0.088554  0.052092  0.008125
2.050220  0.183716  0.093040  0.054508  0.008125
2.126154  0.182351  0.097558  0.058745  0.008125
2.202088  0.180990  0.102109  0.060864  0.008125
2.278022  0.179635  0.106692  0.064686  0.008125
2.353956  0.178284  0.113077  0.066596  0.008125
2.429890  0.176938  0.119507  0.070107  0.008125
2.505824  0.175597  0.125982  0.071862  0.008125
2.581758  0.174260  0.132503  0.075129  0.008125
2.657692  0.172928  0.139070  0.076762  0.008125
2.733626  0.171601  0.145682  0.079831  0.008125
2.809560  0.170279  0.152340  0.081365  0.008125
2.885495  0.168962  0.159045  0.084269  0.008125
2.961429  0.167649  0.165795  0.085721  0.008125
3.037363  0.166341  0.172592  0.088485  0.008125
3.113297  0.165038  0.179436  0.093012  0.008125
3.189231  0.163740  0.186326  0.098888  0.008125
3.265165  0.162446  0.193263  0.105238  0.008125
3.330000  0.161157  0.219821  0.241101  0.008125
END FTABLE  2
FTABLE      1
 49    5
   Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
    (ft)   (acres) (acre-ft)   (cfs)      (cfs)   (ft/sec)    (Minutes)***
0.000000  0.161157  0.000000  0.000000  0.000000
0.075934  0.223654  0.016926  0.000000  0.249226
0.151868  0.225157  0.033966  0.000000  0.249226
0.227802  0.226664  0.051120  0.000000  0.249226
0.303736  0.228177  0.068389  0.000000  0.249226
0.379670  0.229693  0.085773  1.533669  0.249226
0.455604  0.231215  0.103273  4.904411  0.249226
0.531538  0.232742  0.120888  9.364036  0.249226
0.607473  0.234273  0.138619  14.68965  0.249226
0.683407  0.235809  0.156467  20.75617  0.249226
0.759341  0.237349  0.174431  27.47945  0.249226
0.835275  0.238895  0.192513  34.79683  0.249226
0.911209  0.240445  0.210712  42.65831  0.249226
0.987143  0.242000  0.229029  51.02180  0.249226
1.063077  0.243560  0.247464  59.85037  0.249226
1.139011  0.245125  0.266018  69.11053  0.249226
1.214945  0.246694  0.284691  78.77100  0.249226
1.290879  0.248268  0.303483  88.80198  0.249226
1.366813  0.249847  0.322395  99.17458  0.249226
1.442747  0.251430  0.341427  109.8604  0.249226
1.518681  0.253019  0.360579  120.8312  0.249226
1.594615  0.254612  0.379853  132.0588  0.249226
1.670549  0.256210  0.399247  143.5150  0.249226
1.746484  0.257813  0.418763  155.1712  0.249226
1.822418  0.259420  0.438401  166.9987  0.249226
1.898352  0.261032  0.458161  178.9685  0.249226
1.974286  0.262649  0.478043  191.0511  0.249226
2.050220  0.264271  0.498049  203.2172  0.249226
2.126154  0.265897  0.518178  215.4369  0.249226
2.202088  0.267529  0.538431  227.6804  0.249226
2.278022  0.269165  0.558807  239.9179  0.249226
2.353956  0.270806  0.579308  252.1194  0.249226
2.429890  0.272451  0.599934  264.2554  0.249226
```

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2.505824  0.274102  0.620685  276.2965  0.249226
2.581758  0.275757  0.641562  288.2136  0.249226
2.657692  0.277416  0.662564  299.9783  0.249226
2.733626  0.279081  0.683692  311.5628  0.249226
2.809560  0.280750  0.704948  322.9402  0.249226
2.885495  0.282425  0.726330  334.0846  0.249226
2.961429  0.284104  0.747839  344.9710  0.249226
3.037363  0.285787  0.769476  355.5761  0.249226
3.113297  0.287476  0.791241  365.8778  0.249226
3.189231  0.289169  0.813135  375.8558  0.249226
3.265165  0.290867  0.835157  385.4918  0.249226
3.341099  0.292570  0.857308  394.7693  0.249226
3.417033  0.294277  0.879589  403.6743  0.249226
3.492967  0.295989  0.902000  412.1952  0.249226
3.568901  0.297707  0.924541  420.3230  0.249226
3.580000  0.297958  0.927846  428.0518  0.249226
END FTABLE  1
FTABLE      3
 91    4
   Depth      Area    Volume  Outflow1 Velocity  Travel Time***
    (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
0.000000  0.075172  0.000000  0.000000
0.066667  0.075955  0.005038  0.343328
0.133333  0.076741  0.010127  0.485539
0.200000  0.077530  0.015270  0.594661
0.266667  0.078324  0.020465  0.686656
0.333333  0.079121  0.025713  0.767705
0.400000  0.079921  0.031014  0.840978
0.466667  0.080726  0.036369  0.908360
0.533333  0.081534  0.041778  0.971078
0.600000  0.082346  0.047241  1.029984
0.666667  0.083161  0.052758  1.085698
0.733333  0.083980  0.058329  1.138690
0.800000  0.084803  0.063955  1.189323
0.866667  0.085629  0.069636  1.237887
0.933333  0.086460  0.075372  1.284616
1.000000  0.087293  0.081164  1.329703
1.066667  0.088131  0.087012  2.746624
1.133333  0.088972  0.092915  3.357734
1.200000  0.089817  0.098875  3.835263
1.266667  0.090665  0.104891  4.243156
1.333333  0.091517  0.110964  4.606228
1.400000  0.092373  0.117093  4.937240
1.466667  0.093233  0.123280  5.243792
1.533333  0.094096  0.129524  5.530856
1.600000  0.094963  0.135826  5.801892
1.666667  0.095833  0.142186  6.059433
1.733333  0.096708  0.148604  6.305396
1.800000  0.097585  0.155081  6.541276
1.866667  0.098467  0.161616  6.768267
1.933333  0.099352  0.168210  6.987340
2.000000  0.100241  0.174863  7.199299
2.066667  0.101134  0.181575  7.404817
2.133333  0.102030  0.188347  7.604466
2.200000  0.102930  0.195179  7.798738
2.266667  0.103833  0.202072  7.988056
2.333333  0.104741  0.209024  8.172793
2.400000  0.105652  0.216037  8.353273
2.466667  0.106566  0.223111  8.529786
2.533333  0.107484  0.230246  8.702588
2.600000  0.108406  0.237442  8.871909
2.666667  0.109332  0.244700  9.037956
2.733333  0.110261  0.252020  9.200915
2.800000  0.111194  0.259402  10.23475
2.866667  0.112131  0.266846  10.85297
2.933333  0.113071  0.274353  11.34607
3.000000  0.114015  0.281922  11.77890
3.066667  0.114963  0.289555  12.17383
3.133333  0.115914  0.297251  12.54177
3.200000  0.116869  0.305010  12.88909
```

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```
  3.266667  0.117828  0.312834  13.21985
  3.333333  0.118790  0.320721  13.53687
  3.400000  0.119756  0.328672  13.84221
  3.466667  0.120726  0.336688  14.13741
  3.533333  0.121699  0.344769  14.42368
  3.600000  0.122676  0.352915  14.70199
  3.666667  0.123657  0.361126  14.97311
  3.733333  0.124641  0.369403  15.23772
  3.800000  0.125629  0.377745  15.49635
  3.866667  0.126621  0.386154  15.74948
  3.933333  0.127617  0.394628  15.99751
  4.000000  0.128616  0.403169  16.24080
  4.066667  0.129618  0.411777  16.76627
  4.133333  0.130625  0.420452  17.52500
  4.200000  0.131635  0.429194  18.43438
  4.266667  0.132649  0.438003  19.46506
  4.333333  0.133666  0.446880  20.60015
  4.400000  0.134687  0.455826  21.82830
  4.466667  0.135712  0.464839  23.14121
  4.533333  0.136741  0.473921  24.53245
  4.600000  0.137773  0.483071  25.99690
  4.666667  0.138809  0.492290  27.53032
  4.733333  0.139848  0.501579  29.12912
  4.800000  0.140891  0.510937  30.79026
  4.866667  0.141938  0.520365  32.51105
  4.933333  0.142989  0.529862  34.28915
  5.000000  0.144043  0.539430  36.12249
  5.066667  0.145101  0.549068  38.00918
  5.133333  0.146162  0.558777  39.94753
  5.200000  0.147227  0.568556  41.93603
  5.266667  0.148296  0.578407  43.97325
  5.333333  0.149369  0.588329  46.05791
  5.400000  0.150445  0.598323  48.18883
  5.466667  0.151525  0.608389  50.36489
  5.533333  0.152608  0.618527  52.58508
  5.600000  0.153696  0.628737  54.84843
  5.666667  0.154787  0.639019  57.15404
  5.733333  0.155881  0.649375  59.50109
  5.800000  0.156979  0.659804  61.88877
  5.866667  0.158081  0.670306  64.31633
  5.933333  0.159187  0.680881  66.78308
  6.000000  0.160296  0.691531  69.28834
  END FTABLE  3
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    1              PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    1              IMPLND   1 999 EXTNL  PETINP
WDM     22 IRRG     ENGL    0.7       SAME PERLND  46     EXTNL  SURLI
WDM      2 PREC     ENGL    1              RCHRES   1     EXTNL  PREC
WDM      2 PREC     ENGL    1              RCHRES   3     EXTNL  PREC
WDM      1 EVAP     ENGL    0.5            RCHRES   1     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.7            RCHRES   2     EXTNL  POTEV
WDM      1 EVAP     ENGL    1              RCHRES   3     EXTNL  POTEV

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
RCHRES   3 HYDR   RO     1 1        1      WDM   1000 FLOW     ENGL      REPL
RCHRES   3 HYDR   STAGE  1 1        1      WDM   1001 STAG     ENGL      REPL
COPY     1 OUTPUT MEAN   1 1     12.1      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN   1 1     12.1      WDM    801 FLOW     ENGL      REPL
END EXT TARGETS
```

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```
MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>             <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK         2
PERLND     PWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK     2

  MASS-LINK         3
PERLND     PWATER IFWO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK     3

  MASS-LINK         5
IMPLND     IWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK     5

  MASS-LINK         7
RCHRES     OFLOW  OVOL   1                 RCHRES         INFLOW IVOL
  END MASS-LINK     7

  MASS-LINK         8
RCHRES     OFLOW  OVOL   2                 RCHRES         INFLOW IVOL
  END MASS-LINK     8

  MASS-LINK        16
RCHRES     ROFLOW                         COPY           INPUT  MEAN
  END MASS-LINK    16

  MASS-LINK        17
RCHRES     OFLOW  OVOL   1                 COPY           INPUT  MEAN
  END MASS-LINK    17


END MASS-LINK

END RUN
```

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Predeveloped HSPF Message File

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ATTACHMENT 3
Structural BMP Maintenance Information

This is the cover sheet for Attachment 3.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	**Contents**	**Checklist**
Attachment 3a	Structural BMP Maintenance Thresholds and Actions (Required)	☒ Included See Structural BMP Maintenance Information Checklist on the back of this Attachment cover sheet.
Attachment 3b	Draft Maintenance Agreement (when applicable)	☐ Included ☒ Not Applicable

Use this checklist to ensure the required information has been included in the Structural BMP Maintenance Information Attachment:

☒ **Preliminary Design / Planning / CEQA level submittal:**

Attachment 3a must identify:

☒ Typical maintenance indicators and actions for proposed structural BMP(s) based on Section 7.7 of the BMP Design Manual

Attachment 3b is not required for preliminary design / planning / CEQA level submittal.

☐ **Final Design level submittal:**

Attachment 3a must identify:

☐ Specific maintenance indicators and actions for proposed structural BMP(s). This shall be based on Section 7.7 of the BMP Design Manual and enhanced to reflect actual proposed components of the structural BMP(s)
☐ How to access the structural BMP(s) to inspect and perform maintenance
☐ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
☐ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
☐ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
☐ Recommended equipment to perform maintenance
☐ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management

Attachment 3b: For private entity operation and maintenance, Attachment 3b shall include a draft maintenance agreement in the local jurisdiction's standard format (PDP applicant to contact the [City Engineer] to obtain the current maintenance agreement forms).

E.18 BF-1 BIOFILTRATION



Location: 43rd Street and Logan Avenue, San Diego, California

MS4 Permit Category
Biofiltration

Manual Category
Biofiltration

Applicable Performance Standard
Pollutant Control
Flow Control

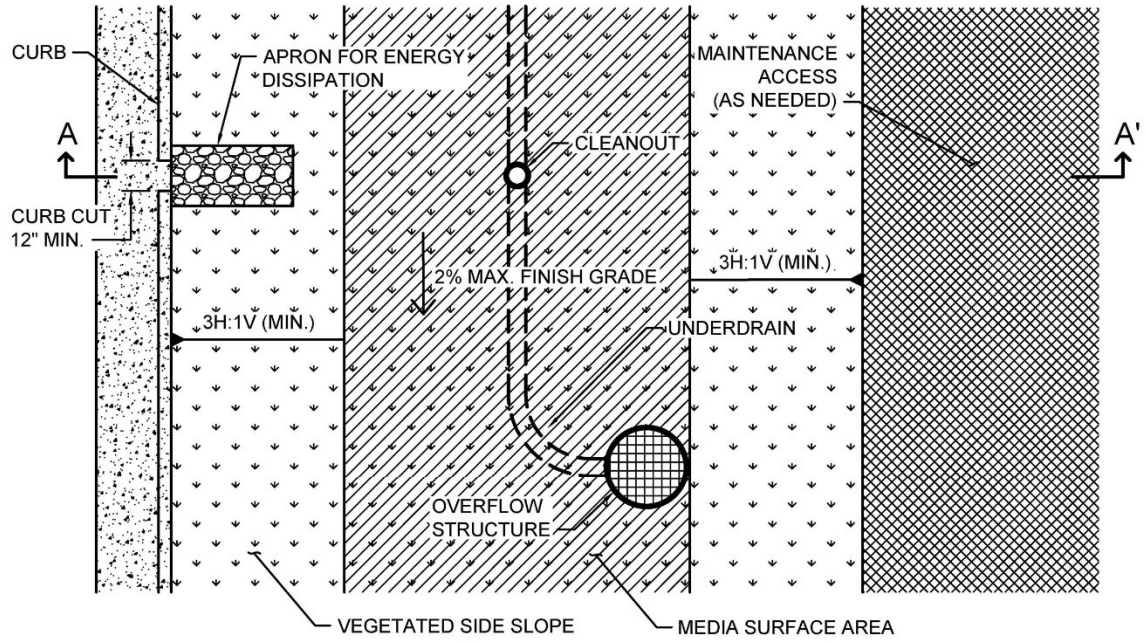
Primary Benefits
Treatment
Volume Reduction (Incidental)
Peak Flow Attenuation (Optional)

Description

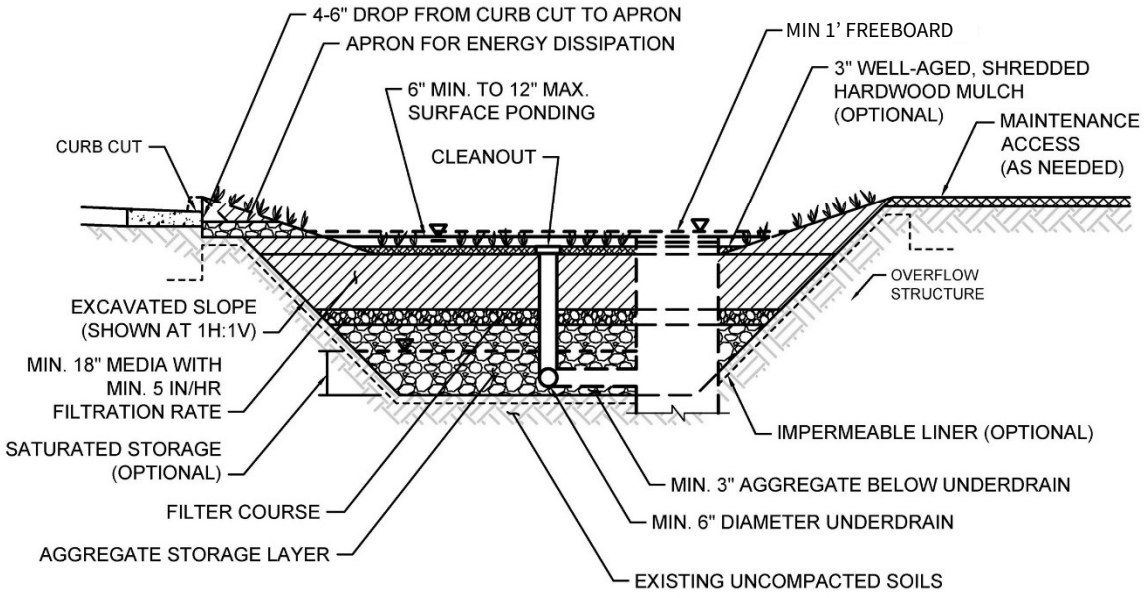
Biofiltration (Bioretention with underdrain) facilities are vegetated surface water systems that filter water through vegetation, and soil or engineered media prior to discharge via underdrain or overflow to the downstream conveyance system. Bioretention with underdrain facilities are commonly incorporated into the site within parking lot landscaping, along roadsides, and in open spaces. Because these types of 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. Treatment is achieved through filtration, sedimentation, sorption, biochemical processes and plant uptake.

Typical bioretention with underdrain 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 expected climate and ponding depth
- Non-floating mulch layer (Optional)
- 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



PLAN
NOT TO SCALE



SECTION A-A'
NOT TO SCALE

Typical plan and Section view of a Biofiltration BMP

Design Adaptations for Project Goals

Biofiltration Treatment BMP for storm water pollutant control. The system is lined or un-lined to provide incidental infiltration, and an underdrain is provided at the bottom to carry away filtered runoff. This configuration is considered to provide biofiltration treatment via flow through the media layer. Storage provided above the underdrain within surface ponding, media, and aggregate storage is considered included in the biofiltration treatment volume. Saturated storage within the aggregate storage layer can be added to this design by raising the underdrain above the bottom of the aggregate storage layer or via an internal weir structure designed to maintain a specific water level elevation.

Integrated storm water flow control and pollutant control configuration. The system can be designed to provide flow rate and duration control by primarily providing increased surface ponding and/or having a deeper aggregate storage layer above the underdrain. This will allow for significant detention storage, which can be controlled via inclusion of an outlet structure at the downstream end of the underdrain.

Recommended Siting Criteria

	Siting Criteria	***Intent/Rationale***
☐	Placement observes geotechnical recommendations regarding potential hazards (e.g., slope stability, landslides, liquefaction zones) and setbacks (e.g., slopes, foundations, utilities).	Must not negatively impact existing site geotechnical concerns.
☐	An impermeable liner or other hydraulic restriction layer is included if site constraints indicate that infiltration or lateral flows should not be allowed.	Lining prevents storm water from impacting groundwater and/or sensitive environmental or geotechnical features. Incidental infiltration, when allowable, can aid in pollutant removal and groundwater recharge.
☐	Contributing tributary area shall be ≤ 5 acres (≤ 1 acre preferred).	Bigger BMPs require additional design features for proper performance. Contributing tributary area greater than 5 acres may be allowed at the discretion of the City Engineer if the following conditions are met: 1) incorporate design features (e.g. flow spreaders) to minimizing short circuiting of flows in the BMP and 2) incorporate additional design features requested by the City Engineer for proper performance of the regional BMP.
☐	Finish grade of the facility is ≤ 2%.	Flatter surfaces reduce erosion and channelization within the facility.

Recommended BMP Component Dimensions

BMP Component	***Dimension***	***Intent/Rationale***
Freeboard	≥ 12 inches	Freeboard provides room for head over overflow structures and minimizes risk of uncontrolled surface discharge.
Surface Ponding	≥ 6 and ≤ 12 inches	Surface ponding capacity lowers subsurface storage requirements. Deep surface ponding raises safety concerns.

		Surface ponding depth greater than 12 inches (for additional pollutant control or surface outlet structures or flow-control orifices) may be allowed at the discretion of the City Engineer if the following conditions are met: 1) surface ponding depth drawdown time is less than 24 hours; and 2) safety issues and fencing requirements are considered (typically ponding greater than 18" will require a fence and/or flatter side slopes) and 3) potential for elevated clogging risk is considered.
Ponding Area Side Slopes	3H:1V or shallower	Gentler side slopes are safer, less prone to erosion, able to establish vegetation more quickly and easier to maintain.
Mulch	≥ 3 inches	Mulch will suppress weeds and maintain moisture for plant growth. Aging mulch kills pathogens and weed seeds and allows the beneficial microbes to multiply.
Excavated Slopes	1H:1V or shallower	A minimum of 1:1 horizontal to vertical, or shallower, excavated side slope shall be provided as an edge condition for structural stability of the basin. Alternatively, a deepened footing or curb can be provided if steeper than 1:1 horizontal to vertical.
Media Layer	≥ 18 inches	A deep media layer provides additional filtration and supports plants with deeper roots. Standard specifications shall be followed. For non-standard or proprietary designs, compliance with F.1 ensures that adequate treatment performance will be provided.
Underdrain Diameter	≥ 6 inches	Smaller diameter underdrains are prone to clogging.
Cleanout Diameter	≥ 6 inches	Properly spaced cleanouts will facilitate underdrain maintenance.

Design Criteria and Considerations

Bioretention with underdrain must meet the following design criteria. Deviations from the below criteria may be approved at the discretion of the City Engineer if it is determined to be appropriate:

	Design Criteria	***Intent/Rationale***
Surface Ponding		
☐	Surface ponding is limited to a 24-hour drawdown time.	Surface ponding limited to 24 hours for plant health. Surface ponding drawdown time greater than 24-hours but less than 96 hours may be allowed at the discretion of the City Engineer if certified by a landscape architect or agronomist.
Vegetation		
☐	Plantings are suitable for the climate and expected ponding depth. A plant list to aid in selection can be found in Appendix E.26.	Plants suited to the climate and ponding depth are more likely to survive.
☐	An irrigation system with a connection to water supply should be provided as needed.	Seasonal irrigation might be needed to keep plants healthy.
Mulch (Optional)		
☐	A minimum of 3 inches of well-aged, shredded hardwood mulch that has been stockpiled or stored for at least 12 months is provided.	Mulch will suppress weeds and maintain moisture for plant growth. Aging mulch kills pathogens and weed seeds and allows the beneficial microbes to multiply.
Media Layer		
☐	Media maintains a minimum filtration rate of 5 in/hr over lifetime of facility. An initial filtration rate of 8 to 12 in/hr is recommended to allow for clogging over time; the initial filtration rate should not exceed 12 inches per hour.	A filtration rate of at least 5 inches per hour allows soil to drain between events. The initial rate should be higher than long term target rate to account for clogging over time. However an excessively high initial rate can have a negative impact on treatment performance, therefore an upper limit is needed.

Design Criteria		*Intent/Rationale*
☐	Media is a minimum 18 inches deep, meeting either of these two media specifications: Section F.3 Bioretention Soil Media (BSM). Alternatively, for proprietary designs and custom media mixes not meeting the media specifications, the media meets the pollutant treatment performance criteria in Section F.1.	A deep media layer provides additional filtration and supports plants with deeper roots. Standard specifications shall be followed. For non-standard or proprietary designs, compliance with F.1 ensures that adequate treatment performance will be provided.
☐	Media surface area is 3% of contributing area times adjusted runoff factor or greater. Unless demonstrated that the BMP surface area can be smaller than 3%.	Greater surface area to tributary area ratios: a) maximizes volume retention as required by the MS4 Permit and b) decrease loading rates per square foot and therefore increase longevity. Adjusted runoff factor is to account for site design BMPs implemented upstream of the BMP (such as rain barrels, impervious area dispersion, etc.). Refer to Appendix B.2 guidance.
☐	Where receiving waters are impaired or have a TMDL for nutrients, the system is designed with nutrient sensitive media design (see fact sheet BF-2).	Potential for pollutant export is partly a function of media composition; media design must minimize potential for export of nutrients, particularly where receiving waters are impaired for nutrients.
Filter Course Layer		
☐	A filter course is used to prevent migration of fines through layers of the facility. Filter fabric is not used.	Migration of media can cause clogging of the aggregate storage layer void spaces or subgrade. Filter fabric is more likely to clog.
☐	Filter course is washed and free of fines.	Washing aggregate will help eliminate fines that could clog the facility and impede infiltration.
☐	Filter course calculations assessing suitability for particle migration prevention have been completed.	Gradation relationship between layers can evaluate factors (e.g., bridging, permeability, and uniformity) to

Design Criteria		*Intent/Rationale*
		determine if particle sizing is appropriate or if an intermediate layer is needed.
Aggregate Storage Layer		
☐	Class 2 Permeable per Caltrans specification 68-1.025 is recommended for the storage layer. Washed, open-graded crushed rock may be used, however a 4-6 inch washed pea gravel filter course layer at the top of the crushed rock is required.	Washing aggregate will help eliminate fines that could clog the aggregate storage layer void spaces or subgrade.
☐	The depth of aggregate provided (12-inch typical) and storage layer configuration is adequate for providing conveyance for underdrain flows to the outlet structure.	Proper storage layer configuration and underdrain placement will minimize facility drawdown time.
Inflow, Underdrain, and Outflow Structures		
☐	Inflow, underdrains and outflow structures are accessible for inspection and maintenance.	Maintenance will prevent clogging and ensure proper operation of the flow control structures.
☐	Inflow velocities are limited to 3 ft/s or less or use energy dissipation methods. (e.g., riprap, level spreader) for concentrated inflows.	High inflow velocities can cause erosion, scour and/or channeling.
☐	Curb cut inlets are at least 12 inches wide, have a 4-6 inch reveal (drop) and an apron and energy dissipation as needed.	Inlets must not restrict flow and apron prevents blockage from vegetation as it grows in. Energy dissipation prevents erosion.
☐	Underdrain outlet elevation should be a minimum of 3 inches above the bottom elevation of the aggregate storage layer.	A minimal separation from subgrade or the liner lessens the risk of fines entering the underdrain and can improve hydraulic performance by allowing perforations to remain unblocked.
☐	Minimum underdrain diameter is 6 inches.	Smaller diameter underdrains are prone to clogging.
☐	Underdrains are made of slotted, PVC pipe conforming to ASTM D 3034 or equivalent or corrugated, HDPE pipe conforming to AASHTO 252M or equivalent.	Slotted underdrains provide greater intake capacity, clog resistant drainage, and reduced entrance velocity into the pipe, thereby reducing the chances of solids migration.

Design Criteria		*Intent/Rationale*
☐	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.	Properly spaced cleanouts will facilitate underdrain maintenance.
☐	Overflow is safely conveyed to a downstream storm drain system or discharge point Size overflow structure to pass 100-year peak flow for on-line infiltration basins and water quality peak flow for off-line basins.	Planning for overflow lessens the risk of property damage due to flooding.

Conceptual Design and Sizing Approach for Storm Water Pollutant Control Only

To design bioretention with underdrain for storm water pollutant control only (no flow control required), the following steps should be taken:

1. Verify that siting and design criteria have been met, including placement requirements, contributing tributary area, maximum side and finish grade slopes, and the recommended media surface area tributary ratio.
2. Calculate the DCV per Appendix B based on expected site design runoff for tributary areas.
3. Use the sizing worksheet presented in Appendix B.5 to size biofiltration BMPs.

Conceptual Design and Sizing Approach when Storm Water Flow Control is Applicable

Control of flow rates and/or durations will typically require significant surface ponding and/or aggregate storage volumes, and therefore the following steps should be taken prior to determination of storm water pollutant control design. Pre-development and allowable post-project flow rates and durations should be determined as discussed in Chapter 6 of the manual.

1. Verify that siting and design criteria have been met, including placement requirements, contributing tributary area, maximum side and finish grade slopes, and the recommended media surface area tributary ratio.
2. Iteratively determine the facility footprint area, surface ponding and/or aggregate storage layer depth required to provide detention storage to reduce flow rates and durations to allowable limits. Flow rates and durations can be controlled from detention storage by altering outlet structure orifice size(s) and/or water control levels. Multi-level orifices can be used within an outlet structure to control the full range of flows.
3. If bioretention with underdrain cannot fully provide the flow rate and duration control required by this manual, an upstream or downstream structure with significant storage volume such as

an underground vault can be used to provide remaining controls.

4. After bioretention with underdrain has been designed to meet flow control requirements, calculations must be completed to verify if storm water pollutant control requirements to treat the DCV have been met.

Maintenance Overview

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.

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.

Summary of Standard Inspection and Maintenance

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. • Maintain when needed.

Threshold/Indicator	Maintenance Action	Typical Maintenance Frequency
Poor vegetation establishment	Re-seed, re-plant, or re-establish vegetation per original plans.	• Inspect monthly. • Maintain when needed.
Dead or diseased vegetation	Remove dead or diseased vegetation, re-seed, re-plant, or re-establish vegetation per original plans.	• Inspect monthly. • Maintain when needed.
Overgrown vegetation	Mow or trim as appropriate.	• Inspect monthly. • Maintain 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.
Erosion due to concentrated irrigation flow	Repair/re-seed/re-plant eroded areas and adjust the irrigation system.	• Inspect monthly. • Maintain when needed.

Threshold/Indicator	Maintenance Action	Typical Maintenance Frequency
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. • Maintain 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. • Maintain when needed.

Threshold/Indicator	Maintenance Action	Typical Maintenance Frequency
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. • Maintain when needed.
Underdrain clogged	Clear blockage.	Inspect if standing water is observed for longer than 24-96 hours following a storm event. Maintain when needed.

"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).

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.

PARCEL MAP NO. _____

SHEET 1 OF 9 SHEETS

CITY OF SAN MARCOS PARCEL MAP TPM NO. _____

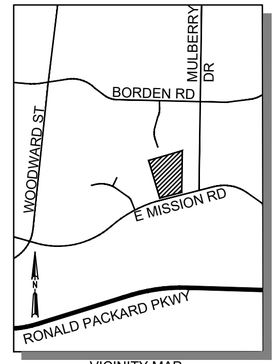
IN THE CITY OF SAN MARCOS, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA.

THAT PORTION OF LOT 1, BLOCK 52 AND THOSE PORTIONS OF LOTS 1, 2 AND 9, BLOCK 53, AND PORTION OF AN UNNAMED STREET LYING BETWEEN BLOCKS 52 AND 53, IN THE RANCHO LOS VALLECITOS DE SAN MARCOS, IN THE CITY OF SAN MARCOS, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 806, FILED IN THE OFFICE OF THE COUNTY

RECORDER OF SAN DIEGO COUNTY, DESCRIBED AS FOLLOWS:
BEGINNING AT THE MOST SOUTHERLY CORNER OF SAID LOT 1, BLOCK 52; THENCE NORTH 16° 20' 50" WEST ON THE SOUTHWESTERLY LINE OF LOT 1, A DISTANCE OF 811.32 FEET TO THE MOST WESTERLY CORNER OF LOT 1; THENCE NORTH 73° 41' 15" EAST ON THE NORTHWESTERLY LINE OF LOT 1 AND THE NORTHEASTERLY PROLONGATION THEREOF, A DISTANCE OF 708.14 FEET; THENCE SOUTH 0° 50' 00" WEST, 845.25 FEET TO A POINT IN THE SOUTHEASTERLY LINE OF SAID LOT 1, BLOCK 52, DISTANT NORTH 73° 14' 00" EAST THEREON 458.47 FEET FROM TO THE POINT OF BEGINNING, THENCE SOUTH 73° 14' 00" WEST ON THE SOUTHEASTERLY LINE OF SAID LOT 1, 458.47 FEET TO THE POINT OF BEGINNING.

CONDOMINIUM NOTE: THIS TENTATIVE MAP IS A CONDOMINIUM PROJECT AS DEFINED IN SECTION 4125 OF THE CIVIL CODE OF THE STATE OF CALIFORNIA AND IS FILED PURSUANT TO THE SUBDIVISION MAP ACT WHICH PROPOSES 1 LOT WITH 3 AIR SPACE INDUSTRIAL CONDOMINIUMS.

TOTAL GROSS AREA = 10.83 ACRES TOTAL NUMBER OF PARCELS = 1 EXISTING PARCELS = 1
TOTAL NET AREA = 10.52 ACRES APN: 220-210-26-00



VICINITY MAP
SCALE: 1" = 2000'

ABBREVIATIONS	
AC	ACRES
BLDG	BUILDING
CONC	CONCRETE
E	EAST
IE	INVERT ELEVATION
N	NORTH
NO	NUMBER
OP	OVERHEAD POWER
RCP	REINFORCED CONCRETE PIPE
S	SOUTH
SDG&E	SAN DIEGO GAS AND ELECTRIC
W	WEST

AGENCIES TO SERVE SITE		
WATER & SEWER	VALLECITOS WATER DISTRICT - DIVISION 1	201 VALLECITOS DE ORO, SAN MARCOS, CA 92069
FIRE	SAN MARCOS FIRE	1 CIVIC CENTER DR #100, SAN MARCOS, CA 92069
ELECTRIC	SAN DIEGO GAS & ELECTRIC	571 ENTERPRISE ST, ESCONDIDO, CA 92029
CABLE	TIME WARNER SPECTRUM	113 S LAS POSAS RD, SUITE 110, SAN MARCOS, CA 92078
SCHOOL DISTRICT	SAN MARCOS UNIFIED SCHOOL DISTRICT	255 PICO AVENUE, SUITE 250, SAN MARCOS, CA 92069

LEGEND

PROPOSED FEATURES

- BOUNDARY
- RIGHT-OF-WAY
- LOT LINE
- GUTTER, FLOW, & CURB LINE
- CENTER LINE
- EXISTING EASEMENT
- PROPOSED EASEMENT
- BUILDING SETBACK LINE (BSBL)
- PROPOSED FENCE
- EXISTING PROPERTY LINE
- PROPOSED BUILDING
- PROPOSED LANDSCAPE AREA
- PROPOSED CONCRETE

SHEET INDEX	
NUMBER	TITLE
1	COVER
2	TENTATIVE PARCEL MAP
3	EXISTING CONDITIONS
4	ROUGH GRADING PLAN
5	ROUGH GRADING PLAN
6	DETAIL SHEET
7	EROSION CONTROL PLAN
8	UTILITY PLAN
9	UTILITY PLAN

DAVID EVANS AND ASSOCIATES INC.
4141 E INLAND EMPIRE BLVD STE 250
ONTARIO CA 91764
Phone: (909) 481-5750

DATE: 3/9/2026

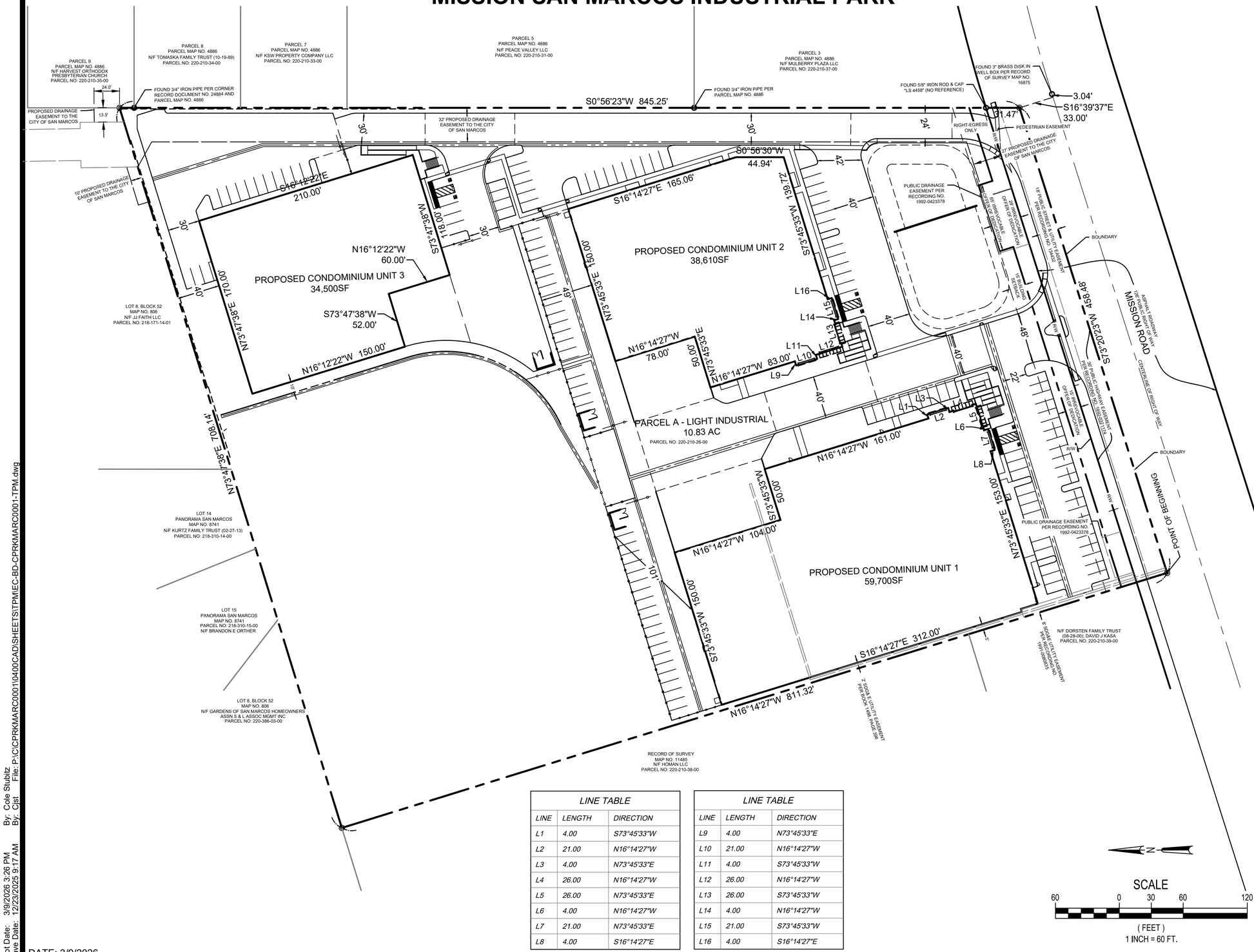
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By: Cole Stubitz
By: Cjst
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PARCEL MAP NO. _____

SHEET 2 OF 9 SHEETS

CITY OF SAN MARCOS PARCEL MAP TPM NO. _____

MISSION SAN MARCOS INDUSTRIAL PARK



SITE INFORMATION	
ASSESSOR'S PARCEL NUMBER	220-210-26-00
EXISTING LAND USE	LI - LIGHT INDUSTRIAL
PROPOSED LAND USE	LI -LIGHT INDUSTRIAL
PROJECT AREA	10.83 AC (GROSS & NET)
TOTAL LOTS	1
BUILDABLE LOTS	1
CONDOMINIUM UNITS	3
FLOOR AREA RATIO	0.28
BUILDING SETBACKS FROM PL	EXTERIOR: 15' RESIDENTIAL: 25' INTERIOR: 0'
NET LANDSCAPE AREA	35%

PROPERTY OWNER
CRP III MISSION, LLC
1300 DOVE ST, SUITE 200, NEWPORT BEACH, CA 92660

DEVELOPER
CRP III MISSION, LLC
1300 DOVE ST, SUITE 200, NEWPORT BEACH, CA 92660

ENGINEER (PREPARER)
DAVID EVANS & ASSOCIATES
4141 E INLAND EMPIRE BLVD, SUITE 250, ONTARIO, CA 91764
(909) 481-5750

GENERAL NOTES

1. WATER TO BE SUPPLIED TO SITE VIA A VALLECITOS WATER DISTRICT WATER MAIN IN MISSION ROAD. SEE PROPOSED UTILITY PLAN FOR MORE INFORMATION.
2. WASTEWATER TO BE DIRECTED TO A VALLECITOS WATER DISTRICT SEWER MAIN IN MISSION ROAD. SEE PROPOSED UTILITY PLAN FOR MORE INFORMATION.
3. NO PUBLIC STREETS ARE PROPOSED AS A PART OF THIS DEVELOPMENT.
4. SEE EXISTING CONDITIONS PLAN FOR EXISTING SITE FEATURES AND TOPOGRAPHY.
5. SEE SHEET 5 FOR MISSION ROAD CROSS SECTION

UNPLOTTABLE EASEMENTS
A 1985 EASEMENT IN FAVOR OF COX COMMUNICATIONS PER RECORDING NUMBER 1998-0591964 IS UNPLOTTABLE. THE EXACT LOCATION AND EXTENT OF SAID EASEMENT IS NOT DISCLOSED OF RECORD.

LINE TABLE		
LINE	LENGTH	DIRECTION
L1	4.00	S73°45'33"W
L2	21.00	N16°14'27"W
L3	4.00	N73°45'33"E
L4	26.00	N16°14'27"W
L5	26.00	N73°45'33"E
L6	4.00	N16°14'27"W
L7	21.00	N73°45'33"E
L8	4.00	S16°14'27"E

LINE TABLE		
LINE	LENGTH	DIRECTION
L9	4.00	N73°45'33"E
L10	21.00	N16°14'27"W
L11	4.00	S73°45'33"W
L12	26.00	N16°14'27"W
L13	26.00	S73°45'33"W
L14	4.00	N16°14'27"W
L15	21.00	S73°45'33"W
L16	4.00	S16°14'27"E

N

SCALE
60 0 30 60 120
(FEET)
1 INCH = 60 FT.

DAVID EVANS AND ASSOCIATES INC.
4141 E INLAND EMPIRE BLVD STE 250
ONTARIO CA 91764
Phone: (909) 481-5750

Plot Date: 3/9/2026 3:26 PM
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By: Cjst
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DATE: 3/9/2026

PARCEL MAP NO. _____

SHEET 3 OF 9 SHEETS

CITY OF SAN MARCOS PARCEL MAP TPM NO. _____

EXISTING CONDITIONS & TOPOGRAPHY

N

SCALE
50 0 25 50 100
(FEET)
1 INCH = 50 FT.

ARBORIST NOTE

THE TREES ON THIS SITE CONSIST OF PERUVIAN PEPPER AND EUCALYPTUS. THERE ARE APPROXIMATELY 5 TREES ON THE SITE WITH A DIAMETER OF 10" OR GREATER AT A HEIGHT OF 4'.

ALL TREES WITHIN THE PROJECT PROPERTY WILL BE REMOVED UNLESS OTHERWISE NOTED

EXISTING BUILDING FF:(620.0)
PROPERTY BOUNDARY
EXISTING POLE TO BE REMOVED
2' UTILITY EASEMENT PER BOOK 1498, PAGE 398
8' UTILITY EASEMENT PER RECORDING NO. 1991-0080635
EXISTING BUILDING FF:(604.0)
EXISTING POWER POLE TO BE RELOCATED
EXISTING TREE TO REMAIN
EXISTING POLE TO BE REMOVED
EXISTING BUILDING TO BE DEMOLISHED
EXISTING STORM DRAIN EASEMENT
EXISTING TREE TO REMAIN
EXISTING TREE TO REMAIN
ONSITE OP TO BE REMOVED (TYP)
EXISTING POLE TO BE REMOVED
EXISTING POLE TO BE REMOVED
EXISTING TREES TO REMAIN
FF:(656.0)
EXISTING BUILDINGS
FF:(654.0)
PROPERTY BOUNDARY
FF:(627.6)
EXISTING BUILDINGS
FF:(626.1)
FF:(625.0)
FF:(624.5)
FF:(624.5)
E MISSION ROAD - PUBLIC
PROPERTY BOUNDARY
EXISTING TREE TO REMAIN
EXISTING HYDRANT TO BE RELOCATED
EXISTING TREE TO REMAIN
EXISTING STORM DRAIN STRUCTURE PROTECT IN PLACE
EXISTING STORM DRAIN EASEMENT
EXISTING TREE TO REMAIN
EXISTING BUILDING TO BE DEMOLISHED
EXISTING TREE TO REMAIN
EXISTING STORM PIPE TO BE REPLACED
EXISTING STORM PIPE TO BE REPLACED
EXISTING TREE TO REMAIN
EXISTING BUILDING FF:(611.0)
PROPERTY BOUNDARY
EXISTING TREE (TYP)
EXISTING STORM DRAIN EASEMENT

DAVID EVANS AND ASSOCIATES INC.
4141 E INLAND EMPIRE BLVD STE 250
ONTARIO CA 91764
Phone: (909) 481-5750

DATE: 3/9/2026

Plot Date: 3/9/2026 3:29 PM
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By: Jit
File: P:\CIC\PRK\MARC00010\400\CAD\SHEET\TPM\EC-EC-CPRK\MARC00010-TPM.dwg

PARCEL MAP NO. _____

SHEET 4 OF 9 SHEETS

CITY OF SAN MARCOS PARCEL MAP TPM NO. _____

PRELIMINARY ROUGH GRADING PLAN

N

SCALE
50 0 25 50 100
(FEET)
1 INCH = 50 FT.

EXISTING BUILDING
PROPERTY BOUNDARY
N16°14'27"W 811.32'
(±614.9EG)
612.57FS
(±611.7EG)
611.94FS
(±610.9EG)
(±610.0EG)
N16°14'27"W 781.32'
612.00FF
612.00FS
EXISTING BUILDING
DAYLIGHT/LIMITS OF GRADING (TYP)
PROPERTY BOUNDARY
8' UTILITY EASEMENT
(±603.6EG)
(±603.0EG)
(±603.0EG)
608.47TC
607.97FS
612.00FF
608.87TC
608.37FS
"SECURE PARKING" AREA
612.00FF
608.00FS
BUILDING 1
612.00 FF
611.33 PE
612.00FF
608.00FS
608.17TC
607.67FS
RELOCATED BUS STOP AND SHELTER TO BE INSTALLED PER NCTD REQUIREMENTS
EXISTING DRIVEWAY TO BE REMOVED
EXISTING ROW
FUTURE ROW
608.00FL
EXISTING BUILDING (TYP)
612.00FF
PARCEL A - LIGHT INDUSTRIAL
10.83 AC
608.47FS
604.65IE
608.01TC
607.51FS
603.73IE
608.77TC
608.27FS
612.00FF
607.94FS
608.58TC
608.08FS
15' IRREVOCABLE OFFER OF DEDICATION
607.76TC
607.26FS
612.00FF
607.76TC
607.26FS
612.00FS
PROPOSED 3' CONCRETE V-DITCH
PROPOSED CMU RETAINING WALL MAX HEIGHT=3'
PROPOSED CMU RETAINING WALL MAX HEIGHT=13'
607.58TC
607.08FS
612.94FL
609.70IE
617.00FL
624.92FL
626.08TC
625.88FS
EXISTING BUILDING
IRREVOCABLE OFFER OF DEDICATION AREA TO BE GRADED AT 2%
609.02FF
612.77FF
608.77FS
608.86FS
614.40FL
618.50FF
618.50FS
(±619.7EG)
621.97TC
SEE ENLARGED DRIVEWAY DETAIL ON SHEET 5
ADA RAMP
606.68FS
613.96TC
613.46FS
614.37TC
613.87FS
614.70TC
614.20FS
618.50FF
614.50FS
606.53TC
606.03FS
607.04TC
606.54FS
612.76FS
607.90TC
607.40FS
612.78FF
608.78FS
BUILDING 2
612.78 FF
612.11 PE
BUILDING 3
618.50 FF
617.83 PE
618.80TC
618.30FS
(±614.9EG)
PROPERTY BOUNDARY
5' PEDESTRIAN CUT-THROUGH
605.31IE
604.42IE
606.91FS
601.90IE
604.42FS
6985 SF
608.51FS
612.78FF
612.76FF
612.76FS
619.00TC
618.50FS
PROPOSED CMU RETAINING WALL
ADA RAMP
BIOFILTRATION BASIN BMP: BF-1 SEE DETAIL SHEET 5
CONTROLLED RELEASE DEVICE IE: 604.58
608.83TC
608.33FS
EXISTING BUILDING (TYP)
UNDERGROUND STORAGE CHAMBERS (SEE DETAIL ON SHEET 6)
612.78FF
612.84FS
613.87TC
613.37FS
613.28TC
612.78FS
613.54TC
613.04FS
614.46TC
613.96FS
614.05TC
613.55FS
618.15TC
617.65FS
617.78TC
617.28FS
IE 601.30, VERIFY IE IN FIELD SEE BASIN DETAIL ON SHEET 5
601.50FS
3150 SF
612.97TC
612.47FS
612.39FS
610.02FS
610.27FF
611.24FS
609.97TC
609.47FS
611.47TC
610.97FS
611.77TC
611.27FS
606.26IE
613.50TC
613.00FS
612.90TC
612.40FS
612.69TC
612.19FS
613.73TC
613.23FS
616.94TC
616.44FS
618.50FF
618.50FS
617.28TC
616.78FS
617.71TC
617.21FS
(±614.6EG)
126' EX ROW
ADA RAMP
609.24TC
608.74FS
609.07TC
608.57FS
PEDESTRIAN EASEMENT
RIGHT-EGRESS ONLY DRIVEWAY
609.77TC
609.27FS
610.50TC
610.00FS
612.53TC
612.03FS
614.01TC
613.51FS
616.93TC
616.43FS
615.84FL
"SECURE PARKING" AREA
616.30TC
615.80FS
618.04TC
617.54FS
609.74TC
609.24FS
(±608.2EG)
ADA RAMP
PROPERTY BOUNDARY
(±609.4EG)
610.42TC
609.92FS
EXISTING STORM DRAIN TO BE REMOVED (TYP)
EXISTING BUILDING
12'x4' CONC. BOX STORM DRAIN
S0°56'23"W 845.25'
PROPOSED PUBLIC DRAINAGE EASEMENT TO THE CITY OF SAN MARCOS
(±611.7EG)
S0°56'23"W 813.78'
PROPERTY BOUNDARY
EXISTING BUILDING
617.24TC
616.74FS
(±613.4EG)
PROPOSED CMU RETAINING WALL
DAYLIGHT/LIMITS OF GRADING (TYP)
(±614.1EG)
(±614.9EG)
618.27TC
617.77FS
E MISSION ROAD
S73°20'23"W 484.48'
N73°47'38"E 708.14'

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ONTARIO CA 91764
Phone: (909) 481-5750

By: Cole Stubitz
By: Cjst
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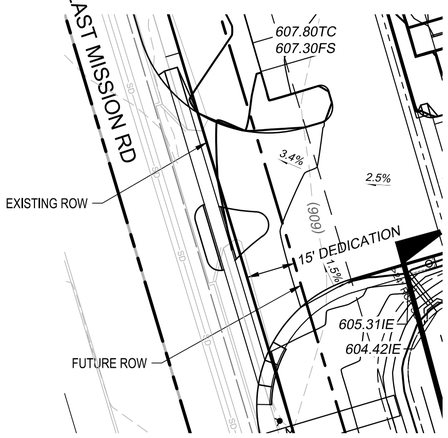
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PARCEL MAP NO. _____

SHEET 5 OF 9 SHEETS

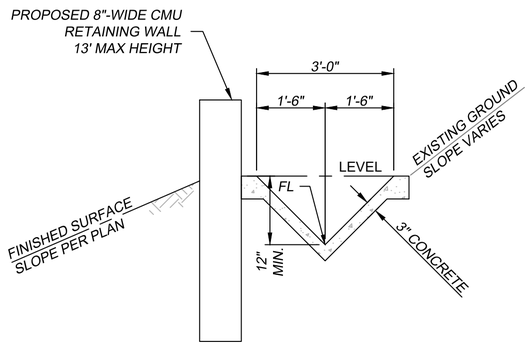
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PRELIMINARY ROUGH GRADING PLAN



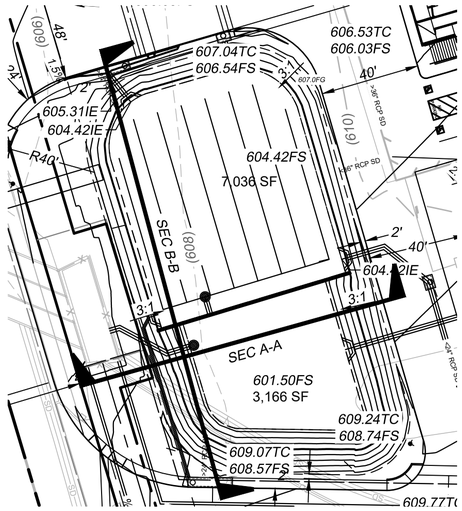
DRIVEWAY ENTRANCE DETAIL

SCALE: 1" = 20'



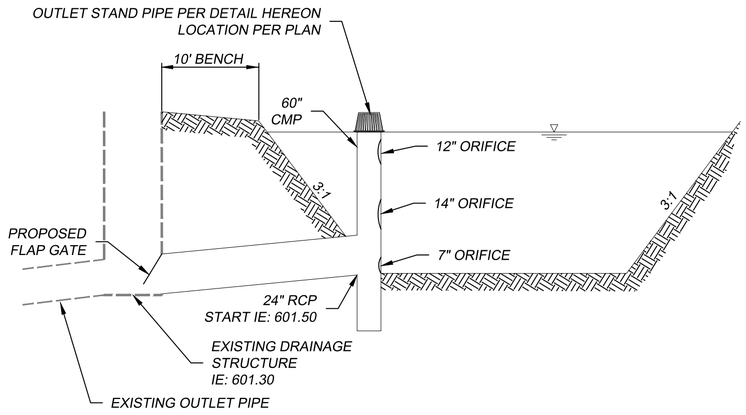
TYPICAL 3' CONCRETE V-DITCH

NOT TO SCALE



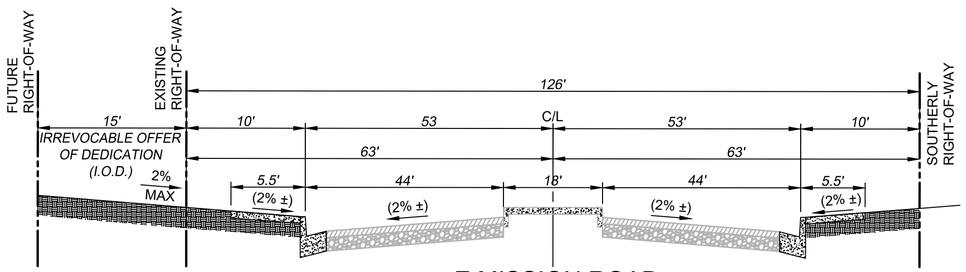
BASIN SECTIONS

SCALE: 1" = 40'



SEC A-A BIO-FILTRATION BASIN TO EXISTING DRAINAGE STRUCTURE

NOT TO SCALE



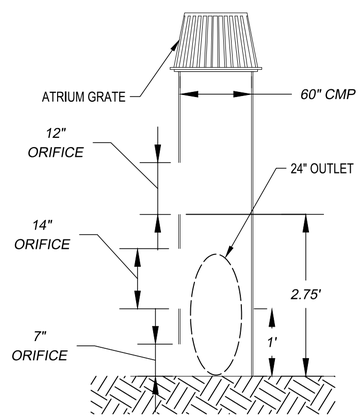
E MISSION ROAD

EXISTING TYPICAL CROSS SECTION

N.T.S.

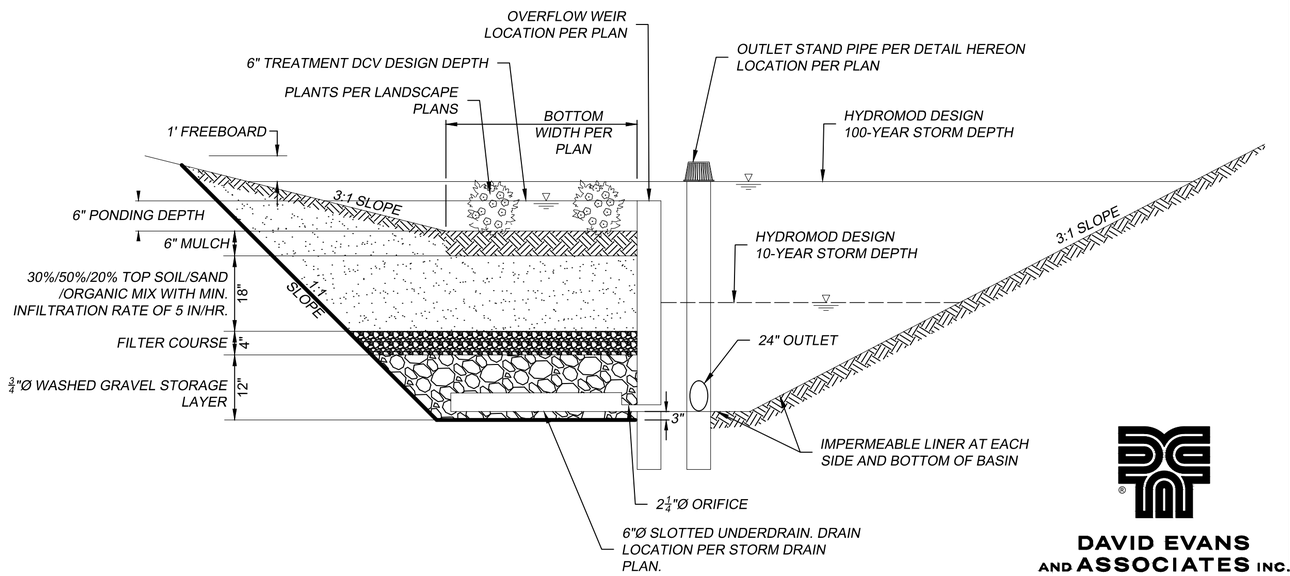
EARTHWORK QUANTITIES		
CATEGORY	CUT (CY)	FILL (CY)
GENERAL SITE (RAW)	8,730	23,080
PAVEMENT SECTION SPOILS	7,500	
BUILDING PAD SPOILS	2,540	
BASIN OVER-EX	1,000	
TOTAL	19,770	23,080
NET EXPORT		3,310

NOTE:
EARTHWORK QUANTITIES ARE PRELIMINARY AND BASED FROM RAW DATA ASSUMING A 5" BUILDING PAD AND AN 8" PAVEMENT SECTION



BASIN OUTLET DETAIL

NOT TO SCALE



SEC B-B BIO-FILTRATION BASIN WITH SLOTTED UNDERDRAIN PIPE

NOT TO SCALE

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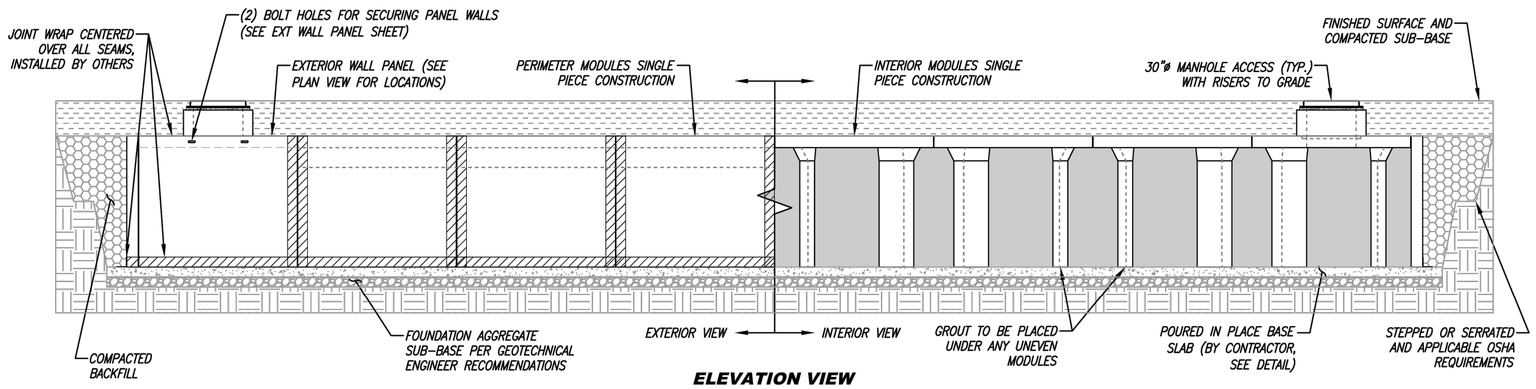
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PARCEL MAP NO. _____

SHEET 6 OF 9 SHEETS

CITY OF SAN MARCOS PARCEL MAP TPM NO._____

DETAIL SHEET



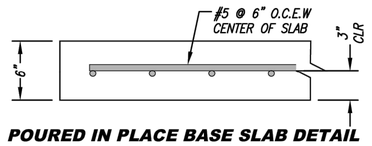
ELEVATION VIEW

INSTALLATION NOTES

1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURER'S SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURER'S CONTRACT.
2. UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER REQUIRES A POURED IN PLACE CONCRETE BASE SLAB. SOIL COMPACTION REQUIREMENTS PER GEOTECHNICAL ENGINEER. CONTRACTOR IS RESPONSIBLE FOR VERIFYING RECOMMENDED COMPACTION AND BASE SPECIFICATIONS. A GRAVEL OR AGGREGATE LAYER OF SUB-BASE IS RECOMMENDED BELOW THE POURED IN PLACE BASE SLAB.
3. CONTRACTOR TO PLACE GROUT BELOW ANY URBANPOND MODULE LEGS/WALLS THAT HAVE GAPS BETWEEN THE BASE SLAB TO PREVENT SPALLING.
4. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. PIPES CANNOT INTRUDE BEYOND FLUSH. INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR UNLESS OTHERWISE NOTED. ALL GAPS AROUND PIPES SHALL BE SEALED WATERTIGHT WITH A NON-SHRINK GROUT PER MANUFACTURER'S STANDARD CONNECTION DETAIL AND SHALL MEET OR EXCEED REGIONAL PIPE CONNECTION STANDARDS.
5. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLE FRAMES AND COVERS. CONTRACTOR TO USE GROUT AND/OR BRICKS TO MATCH COVERS WITH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
6. THE URBANPOND MODULE SYSTEM IS TO BE INSTALLED IN ACCORDANCE WITH ASTM C891-90, INSTALLATION OF UNDERGROUND PRECAST UTILITY STRUCTURES. PROJECT PLAN AND SPECIFICATIONS MUST BE FOLLOWED ALONG WITH ANY APPLICABLE REGULATIONS.
7. DESIGNATED EMBEDDED LIFTERS MUST BE USED. USE PROPER RIGGING TO ENSURE ALL LIFTERS ARE EQUALLY ENGAGED WITH A MINIMUM 60 DEGREE ANGLE ON SLINGS AS NOTED AND IN ACCORDANCE WITH MANUFACTURER'S LIFTING PROCEDURES. USE RIGGING THAT EQUALIZES THE LOAD BETWEEN ALL LIFTERS.
8. CONTECH RECOMMENDS BEGINNING INSTALLATION WITH THE OUTLET MODULE.
9. MODULES MUST BE PLACED AS CLOSE TOGETHER AS POSSIBLE, AND GAPS SHALL NOT BE GREATER THAN 3/4".
10. ALL EXTERIOR SYSTEM JOINTS (SIDES AND TOP, AS WELL AS JOINT BETWEEN MODULE AND POURED IN PLACE SLAB) SHALL BE COVERED WITH 12" WIDE JOINT WRAP CENTERED ON THE JOINT.
11. INSTALL PANEL WALLS AT DESIGNATED LOCATIONS ON THE PLAN VIEW DRAWING. SECURE PANEL WALLS WITH 2 BOLTS ON TOP.
12. THE FILL PLACED AROUND THE URBANPOND MODULES MUST BE DEPOSITED EVENLY, AT APPROXIMATELY THE SAME ELEVATION, AROUND ALL SIDES. AT NO TIME SHALL THE FILL BEHIND ONE SIDE BE MORE THAN 1'-0" HIGHER THAN THE FILL ON THE OPPOSITE SIDE. BACKFILL SHALL BE COMPACTED AND/OR VIBRATED TO ENSURE THAT BACKFILL MATERIAL IS WELL SEATED AND PROPERLY INTERLOCKED. CARE SHALL BE TAKEN TO PREVENT ANY WEDGING ACTION AGAINST THE STRUCTURE, AND ALL SLOPES WITHIN THE AREA TO BE BACKFILLED MUST BE STEPPED OR SERRATED TO PREVENT WEDGING ACTION. CARE SHALL ALSO BE TAKEN SO AS NOT TO DISRUPT THE JOINT WRAP FROM THE JOINT DURING THE BACKFILL PROCESS. BACKFILL MATERIAL CAN BE NATIVE MATERIAL UNLESS OTHERWISE SPECIFIED IN GEOTECHNICAL REPORT. IF NATIVE MATERIAL IS SUSCEPTIBLE TO MIGRATION, CONFIRM WITH GEOTECHNICAL ENGINEER AND PROVIDE PROTECTION AS REQUIRED.
13. AT NO TIME SHALL MACHINERY OR VEHICLES GREATER THAN THE DESIGN HS-20 LOADING CRITERIA TRAVEL ON TOP OF THE SYSTEM WITHOUT THE MINIMUM DESIGN COVERAGE. IF TRAVEL IS NECESSARY OVER THE SYSTEM PRIOR TO ACHIEVING THE MINIMUM DESIGN COVER, IT MAY BE NECESSARY TO REDUCE THE ULTIMATE LOAD/BURDEN OF THE OPERATING MACHINERY SO AS NOT TO EXCEED THE CAPACITY OF THE SYSTEM. IN SOME CASES HAND OPERATED COMPACTION EQUIPMENT MAY BE NECESSARY IN ORDER TO NOT EXCEED THE ALLOTTED DESIGN LOADING.
14. A PRE-CONSTRUCTION MEETING IS REQUIRED PRIOR TO PLACEMENT OF URBANPOND.

GENERAL NOTES

1. MANUFACTURER TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS AND ACCESSORIES PLEASE CONTACT MANUFACTURER.
3. ANY VARIATION FOUND DURING CONSTRUCTION FROM THE SITE AND SYSTEM ANALYSIS MUST BE REPORTED TO THE PROJECT DESIGN ENGINEER.
6. FOR USE ONLY IN SEISMIC DESIGN CATEGORY A AND B.
7. ALLOWABLE LOAD HS20 DIRECT TRAFFIC.
8. CONCRETE BASE SLAB F'C = 4,000 PSI AT 28 DAYS
   FY = 60,000 PSI
   GROUT (NON-SHRINK) FM = 6,500 PSI



POURED IN PLACE BASE SLAB DETAIL

12/11/23 SCOTT SEITSCH

1:60 SCALE | REVISION A – FIRST RELEASE

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING US PATENTS: D795,385; D828,902; D828,903; 10,151,083; 10,151,096. RELATED FOREIGN PATENTS OR OTHER PATENTS PENDING.

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www.ContechES.com

URBANPOND
PRECAST CONCRETE STORMWATER DETENTION
GENERAL ELEVATION DETAILS

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By: Cjst
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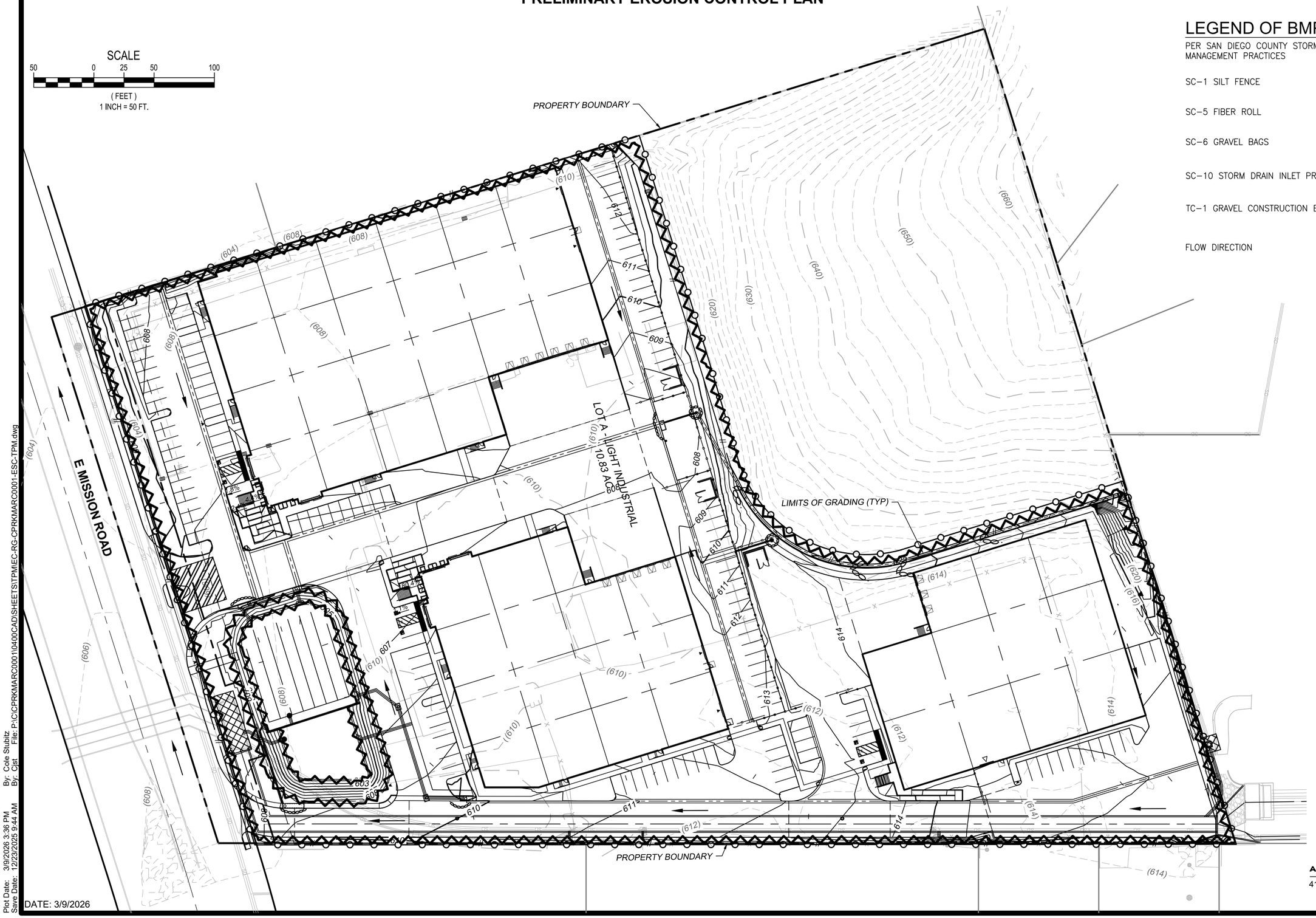
SHEET 7 OF 9 SHEETS

CITY OF SAN MARCOS PARCEL MAP TPM NO. _____

PRELIMINARY EROSION CONTROL PLAN

N

SCALE
50 0 25 50 100
(FEET)
1 INCH = 50 FT.



LEGEND OF BMP'S:

PER SAN DIEGO COUNTY STORMWATER BEST MANAGEMENT PRACTICES

- SC-1 SILT FENCE
- SC-5 FIBER ROLL
- SC-6 GRAVEL BAGS
- SC-10 STORM DRAIN INLET PROTECTION
- TC-1 GRAVEL CONSTRUCTION ENTRANCE
- FLOW DIRECTION

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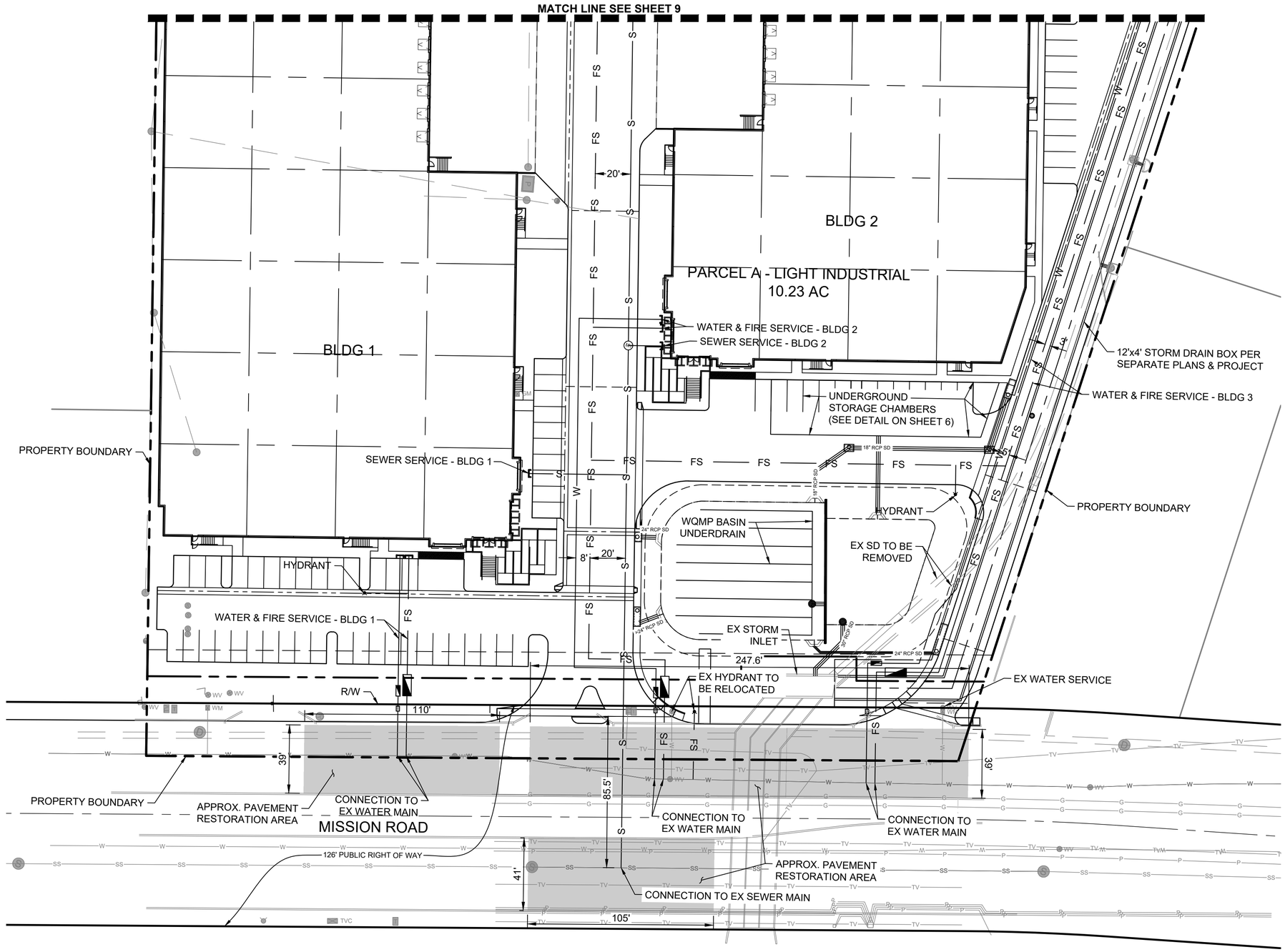
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PARCEL MAP NO. _____

SHEET 8 OF 9 SHEETS

CITY OF SAN MARCOS PARCEL MAP TPM NO. _____

PRELIMINARY UTILITY PLAN



SCALE

40 0 20 40 80

(FEET)
1 INCH = 40 FT.

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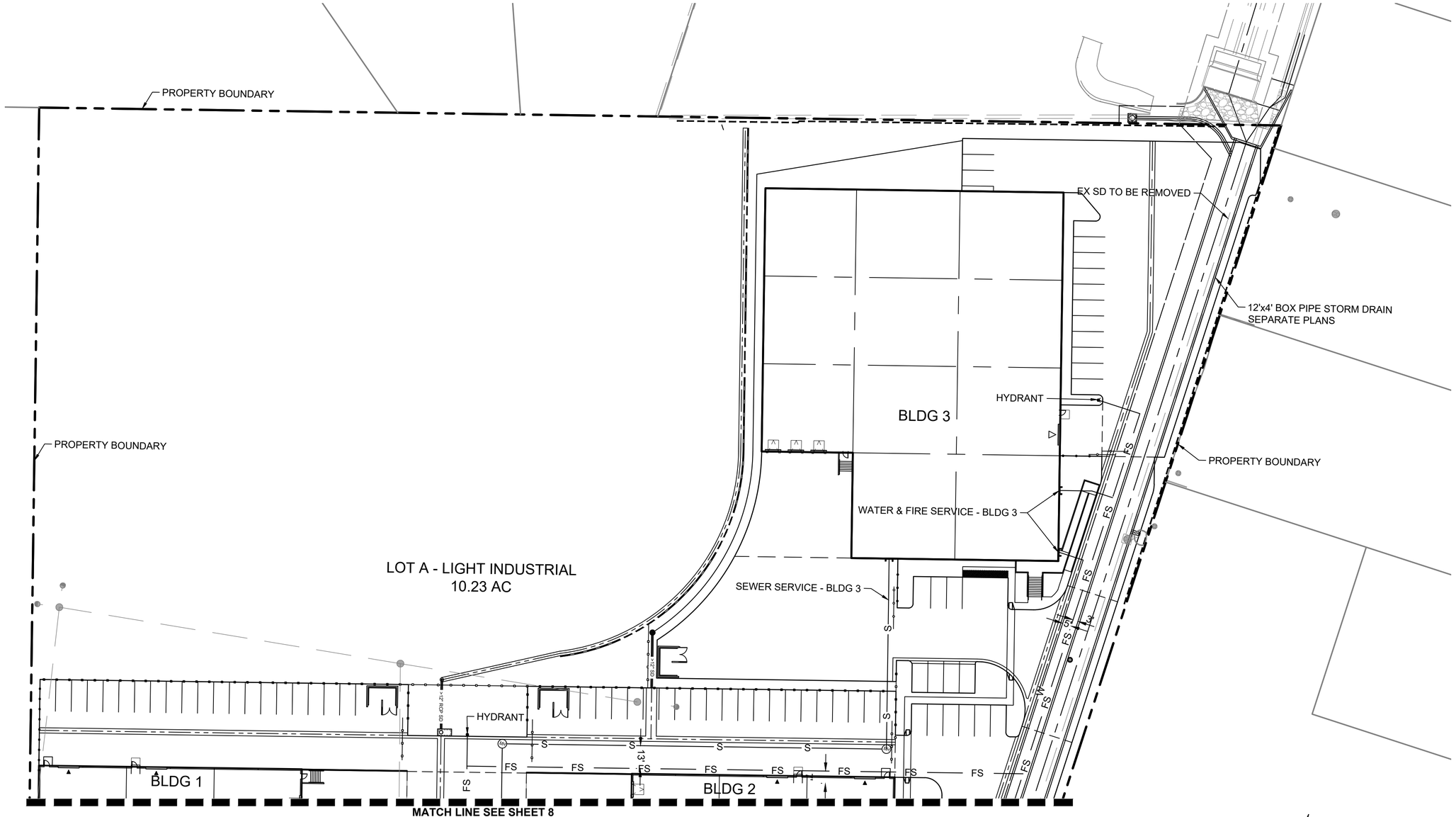
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PARCEL MAP NO. _____

SHEET 9 OF 9 SHEETS

CITY OF SAN MARCOS PARCEL MAP TPM NO._____

PRELIMINARY UTILITY PLAN





SCALE

40 0 20 40 80

(FEET)
1 INCH = 40 FT.

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