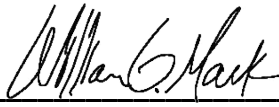
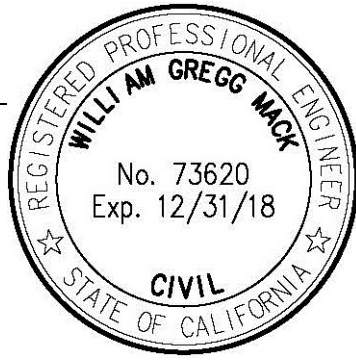


## A.1 PDP WQTR

<b>CITY OF SOLANA BEACH</b>		
<b>PRIORITY DEVELOPMENT PROJECT (PDP)</b>		
<b>WATER QUALITY TECHNICAL REPORT (WQTR)</b>		
<b>FOR</b>		
<b>RESIDENTIAL CARE FACILITY</b>		
<b>[INSERT PERMIT APPLICATION NUMBERS]</b>		
<b>959 GENEVIEVE STREET</b>		
<b>SOLANA BEACH, CA 92075</b>		
<b>ASSESSOR'S PARCEL NUMBER(S):</b>		
<b>298-390-51</b>		
<b>ENGINEER OF WORK:</b>		
	<b>10/3/17</b>	
<b>WILLIAM G. MACK,</b>	<b>PE #73620</b>	<b>EXP. 12/31/18</b>

PREPARED FOR:  
PACIFIC SOUND INVESTORS, LLC  
1855 FREDA LANE  
CARDIFF, CA 92007

PDP WQTR PREPARED BY:  
PASCO LARET SUITER & ASSOCIATES  
535 N. HIGHWAY 101, SUITE A  
SOLANA BEACH, CA 92075  
858.259.8212

DATE OF WQTR:  
September 25, 2017

PLANS PREPARED BY:  
PASCO LARET SUITER & ASSOCIATES  
535 N. HIGHWAY 101, SUITE A  
SOLANA BEACH, CA 92075  
858.259.8212

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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
WQTR	Water Quality Technical Report

## PDP WQTR PREPARER'S CERTIFICATION PAGE

**Project Name:** [Insert Project Name]

**Permit Application Number:** [Insert Permit Application Number]

### PREPARER'S CERTIFICATION

I hereby declare that I am the Engineer in Responsible Charge of design of storm water best management practices (BMPs) for this project, and that I have exercised responsible charge over the design of the BMPs as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the PDP requirements of the City of Solana Beach BMP Design Manual, which is a design manual for compliance with the City of Solana Beach and the 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 WQTR 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 WQTR 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.



10/3/17

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

WILLIAM G. MACK

Print Name

PASCO LARET SUITER & ASSOCIATES

Company

09/25/17

Date



Engineer's Seal:



## PDP WQTR PROJECT OWNER'S CERTIFICATION PAGE

**Project Name: RESIDENTIAL CARE FACILITY**

**Permit Application Number: [Insert Permit Application Number]**

### PROJECT OWNER'S CERTIFICATION

This PDP WQTR has been prepared for Pacific Sound Investments, LLC by Pasco Laret Suiter & Associates. The PDP WQTR is intended to comply with the PDP requirements of the City of Solana Beach BMP Design Manual, which is a design manual for compliance with the City of Solana Beach and the MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2015-0100) requirements for storm water management.

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

---

Project Owner's Signature

---

Print Name

---

PACIFIC SOUND INVESTMENTS, LLC  
Company

---

Date

## SUBMITTAL RECORD

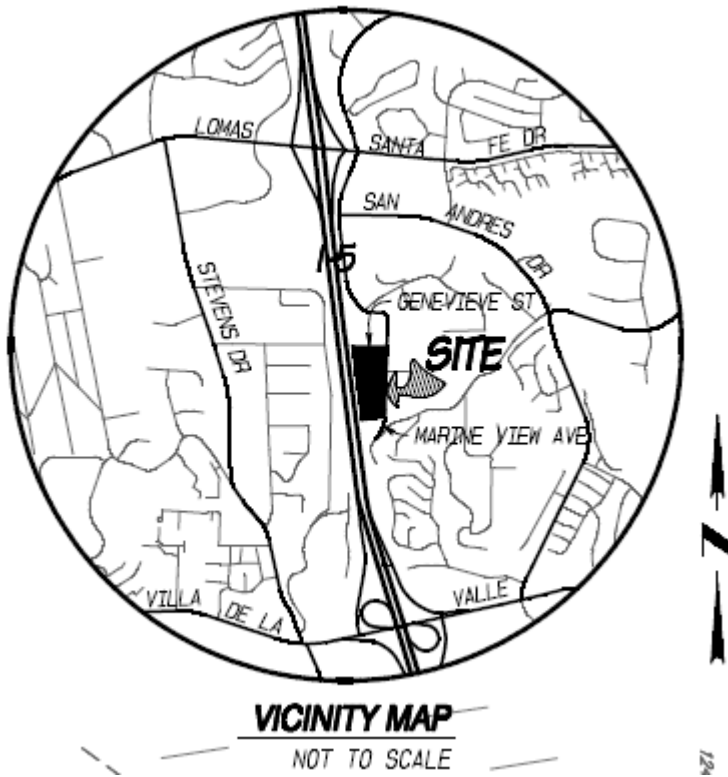
Use this Table to keep a record of submittals of this PDP WQTR. Each time the PDP WQTR is re-submitted, provide the date and status of the project. In column 4 summarize the changes that have been made or indicate if response to plancheck comments is included. When applicable, insert response to plancheck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

Submittal Number	Date	Project Status	Summary of Changes
1	09/25/2017	<input checked="" type="checkbox"/> Preliminary Design / Planning/ CEQA <input type="checkbox"/> Final Design	Initial Submittal
2		<input type="checkbox"/> Preliminary Design / Planning/ CEQA <input type="checkbox"/> Final Design	
3		<input type="checkbox"/> Preliminary Design / Planning/ CEQA <input type="checkbox"/> Final Design	
4		<input type="checkbox"/> Preliminary Design / Planning/ CEQA <input type="checkbox"/> Final Design	

## PROJECT VICINITY MAP

Project Name: RESIDENTIAL CARE FACILITY

Permit Application Number: [Insert Permit Application Number]



Site Information Checklist For PDPs		Form 1 (PDPs) City of Solana Beach BMP Design Manual
<b>Project Summary Information:</b>		
Project Name:	RESIDENTIAL CARE FACILITY	
Project Address:	959 Genevieve Street Solana Beach, CA 92075	
Assessor's Parcel Number(s) (APN(s))	298-390-51	
Permit Application Number		
Project Hydrologic Unit	Select One: <input checked="" type="checkbox"/> San Dieguito (HA Solana Beach, HSA Rancho Santa Fe) 905.11 <input type="checkbox"/> Los Peñasquitos (HA Escondido Creek, HAS San Elijo) 904.61	
Project Watershed (Complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	San Dieguito River, Solana Beach, Rancho Santa Fe, 905.11	
Parcel Area (total area of Assessor's Parcel(s) associated with the project)	<u>2.91</u> Acres ( <u>126,881</u> Square Feet)	
Area to be Disturbed by the Project (Project Area)	<u>2.57</u> Acres ( <u>111949.2</u> Square Feet)	
Project Proposed Impervious Area (subset of Project Area)	<u>1.51</u> Acres ( <u>66,206</u> Square Feet)	
Project Proposed Pervious Area (subset of Project Area)	<u>1.05</u> Acres ( <u>45,743</u> Square Feet)	
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project.  This may be less than the Parcel Area.		

Form 1
<p align="center"><b>Description of Existing Site Condition</b></p>
<p>Current Status of the Site (select all that apply):</p> <p><input checked="" type="checkbox"/> Existing development</p> <p><input type="checkbox"/> Previously graded but not built out</p> <p><input type="checkbox"/> Demolition completed without new construction</p> <p><input type="checkbox"/> Agricultural or other non-impervious use</p> <p><input checked="" type="checkbox"/> Vacant, undeveloped/natural</p> <p>Description / Additional Information:</p> <p>The site exists as primarily undisturbed natural ground with an existing residential dwelling.</p>
<p>Existing Land Cover Includes (select all that apply):</p> <p><input checked="" type="checkbox"/> Vegetative Cover</p> <p><input type="checkbox"/> Non-Vegetated Pervious Areas</p> <p><input checked="" type="checkbox"/> Impervious Areas</p> <p>Description / Additional Information:</p> <p>The site is covered with native light vegetation similar to pasture land. The existing impervious area includes the roof area of the existing dwelling.</p>
<p>Underlying Soil belongs to Hydrologic Soil Group (select all that apply):</p> <p><input type="checkbox"/> NRCS Type A</p> <p><input checked="" type="checkbox"/> NRCS Type B</p> <p><input type="checkbox"/> NRCS Type C</p> <p><input type="checkbox"/> NRCS Type D</p>
<p>Approximate Depth to Groundwater (GW):</p> <p><input type="checkbox"/> GW Depth &lt; 5 feet</p> <p><input type="checkbox"/> 5 feet &lt; GW Depth &lt; 10 feet</p> <p><input type="checkbox"/> 10 feet &lt; GW Depth &lt; 20 feet</p> <p><input checked="" type="checkbox"/> GW Depth &gt; 20 feet</p>
Form 1

Existing Natural Hydrologic Features (select all that apply):

☐ Watercourses

☐ Seeps

☐ Springs

☐ Wetlands

☒ None

Description / Additional Information:

The site conveys offsite run-on through the project area

**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 drainage is natural. The site is moderately sloped and sheet flows storm water in a north westerly direction across the site toward the Interstate 5 Right of Way where it is collected and conveyed in a drainage channel along the Interstate 5 freeway south until it reaches the San Dieguito River. The site is primarily un-developed with one existing residential building which makes up the total impervious area. The peak storm water runoff  $Q$  for a 100 year event is calculated using rational method ( $Q=CiA$ ) which resulted a 5.8 CFS peak discharge.

<b>Form 1</b>
<b>Description of Proposed Site Development</b>
<p>Project Description / Proposed Land Use and/or Activities:</p> <p>The project proposes a residential care facility.</p>
<p>List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):</p> <p>The proposed impervious areas include buildings, parking lot areas and typical improvements associated with the development of a Residential Care Facility.</p>
<p>List/describe proposed pervious features of the project (e.g., landscape areas):</p> <p>The proposed pervious areas include undisturbed slope areas, proposed landscape areas, pervious pavement and biofiltration basins for storm water treatment.</p>
<b>Form 1</b>



Does the project include grading and changes to site topography?

☒ Yes

☐ No

Description / Additional Information:

The project proposes grading the site to accommodate the site plan for the residential care facility. The drainage characteristics of the existing condition will be maintained.

Form 1
Description of Proposed Site Drainage Patterns
<p>Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p>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.</p> <p>Describe proposed site drainage patterns::</p> <p>The site has been designed to convey on-site storm water to biofiltration basins via a private storm drain network. The design incorporates LID features that allow runoff to be directed towards pervious areas before it is collected and conveyed to the biofiltration basins. The biofiltration basins will treat for water quality and detain post development flows to mitigate for hydromodification management criteria. The biofiltration basins will then discharge to the Cal Trans Right-of-Way in the same manner as the existing condition. The offsite run on will be conveyed through the site via a separate storm drain network that will bypass the proposed improvements while allowing the water to continue downstream in the same manner as the existing condition. The peak post-project runoff flow was calculated to be 5.75 cfs using AES rational method software which included the detention provided by the biofiltration basins. See the drainage study for the Residential Care Facility for a more detailed analysis of the peak runoff values.</p>
Form 1

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

- ☒ On-site storm drain inlets
- ☐ Interior floor drains and elevator shaft sump pumps
- ☐ Interior parking garages
- ☐ Need for future indoor & structural pest control
- ☒ Landscape/Outdoor Pesticide Use
- ☐ Pools, spas, ponds, decorative fountains, and other water features
- ☐ Food service
- ☐ Refuse areas
- ☐ Industrial processes
- ☐ Outdoor storage of equipment or materials
- ☐ Vehicle and Equipment Cleaning
- ☐ Vehicle/Equipment Repair and Maintenance
- ☐ Fuel Dispensing Areas
- ☐ Loading Docks
- ☒ Fire Sprinkler Test Water
- ☐ Miscellaneous Drain or Wash Water
- ☒ Plazas, sidewalks, and parking lots

Description / Additional Information:

**Form 1**

**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 sheet flows drainage in a north westerly direction towards the Cal Trans Right of Way of Interstate 5. It is then conveyed south via a public storm drain system where it discharges to the San Dieguito Lagoon before ultimately discharging 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:

<b>303(d) Impaired Water Body</b>	<b>Pollutant(s)/Stressor(s)</b>	<b>TMDLs / WQIP Highest Priority Pollutant</b>
San Dieguito River		Total Coliform, Enterococcus, Fecal Coliform, Nitrogen, Phosphorus, Total Dissolved Solids & Toxicity

**Identification of Project Site Pollutants\***

**\*Identification of project site pollutants is only required if flow-through 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):

Form 1			
Pollutant	Not Applicable to the Project Site	Expected from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment			N/A
Nutrients			N/A
Heavy Metals			N/A
Organic Compounds			N/A
Trash & Debris			N/A
Oxygen Demanding Substances			N/A
Oil & Grease			N/A
Bacteria & Viruses			N/A
Pesticides			N/A

**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 an exempt receiving water such as the Pacific Ocean, and exempt river reach, or a tidally-influenced area.

☐ 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 the Pacific Ocean, a tidally-influenced area, or an exempt river reach.

☐ 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):

Form 1

**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 WQTR.

☐ 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 WQTR Exhibit.

Discussion / Additional Information:

Form 1

**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.

The project has one point of compliance (POC-1) which is located at the most north westerly edge of the project site where the storm water runoff enters the Cal Trans Right-of-Way.

Has a geomorphic assessment been performed for the receiving channel(s)?

☒ No, the low flow threshold is 0.1Q2 (default low flow threshold)

☐ Yes, the result is the low flow threshold is 0.1Q2

☐ Yes, the result is the low flow threshold is 0.3Q2

☐ Yes, the result is the low flow threshold is 0.5Q2

If a geomorphic assessment has been performed, provide title, date, and preparer:

Discussion / Additional Information: (optional)



Form 1

**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.

**Form 1**

**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		Form 2 (PDPs) City of Solana Beach BMP Design Manual	
<b>Project Identification</b>			
Project Name: Residential Care Facility			
Permit Application Number:			
<b>Source Control BMPs</b>			
<p>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 BMP Design Manual for information to implement source control BMPs shown in this checklist.</p> <p>Answer each category below pursuant to the following.</p> <ul style="list-style-type: none"> <li>• "Yes" means the project will implement the source control BMP as described in Chapter 4 and/or Appendix E of the City of Solana Beach BMP Design Manual. Discussion / justification is not required.</li> <li>• "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.</li> <li>• "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.</li> </ul>			
<b>Source Control Requirement</b>		<b>Applied?</b>	
<b>SC-1</b> Prevention of Illicit Discharges into the MS4		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> N/A
Discussion / justification if SC-1 not implemented:			
<b>SC-2</b> Storm Drain Stenciling or Signage		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> N/A
Discussion / justification if SC-2 not implemented:			

Form 2			
Source Control Requirement	Applied?		
<b>SC-3</b> Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if SC-3 not implemented:			
<b>SC-4</b> Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if SC-4 not implemented:			
<b>SC-5</b> Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if SC-5 not implemented:			

Form 2			
Source Control Requirement	Applied?		
<b>SC-6</b> Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below)			
<input type="checkbox"/> On-site storm drain inlets	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Interior floor drains and elevator shaft sump pumps	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Interior parking garages	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Need for future indoor & structural pest control	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Landscape/Outdoor Pesticide Use	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Pools, spas, ponds, decorative fountains, and other water features	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Food service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Refuse areas	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Industrial processes	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Outdoor storage of equipment or materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Vehicle and Equipment Cleaning	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Vehicle/Equipment Repair and Maintenance	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Fuel Dispensing Areas	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Loading Docks	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Fire Sprinkler Test Water	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Miscellaneous Drain or Wash Water	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Plazas, sidewalks, and parking lots	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> 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/LID BMP Checklist for All Development Projects		Form 3 (PDPs) City of Solana Beach BMP Design Manual	
<b>Project Identification</b>			
Project Name: Residential Care Facility			
Permit Application Number:			
<b>Site Design/LID BMPs</b>			
<p>All development projects must implement site design/LID BMPs SD-1 through SD-8 where applicable and feasible. See Chapter 4 and Appendix E of the BMP Design Manual for information to implement site design BMPs shown in this checklist.</p> <p>Answer each category below pursuant to the following.</p> <ul style="list-style-type: none"> <li>• "Yes" means the project will implement the site design/LID BMP as described in Chapter 4 and/or Appendix E of the City of Solana Beach BMP Design Manual. Discussion / justification is not required.</li> <li>• "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.</li> <li>• "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.</li> </ul>			
<b>Site Design Requirement</b>		<b>Applied?</b>	
<b>SD-1</b> Maintain Natural Drainage Pathways and Hydrologic Features		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> N/A
Discussion / justification if SD-1 not implemented:			
<b>SD-2</b> Conserve Natural Areas, Soils, and Vegetation		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> N/A
Discussion / justification if SD-2 not implemented:			

Form 3			
Source Control Requirement	Applied?		
<b>SD-3</b> Minimize Impervious Area	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if SD-3 not implemented:			
<b>SD-4</b> Minimize Soil Compaction	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if SD-4 not implemented:			
<b>SD-5</b> Impervious Area Dispersion	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if SD-5 not implemented:			
<b>SD-6</b> Runoff Collection	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if SD-6 not implemented:			
<b>SD-7</b> Landscaping with Native or Drought Tolerant Species	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if SD-7 not implemented:			
<b>SD-8</b> Harvesting and Using Precipitation	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if SD-8 not implemented: Harvest & Use is not feasible			

<p align="center"><b>Summary of PDP Structural BMPs</b></p>	<p align="center"><b>Form 4 (PDPs)</b> City of Solana Beach BMP Design Manual</p>
<p align="center"><b>Project Identification</b></p>	
<p>Project Name: Residential Care Facility</p>	
<p>Permit Application Number:</p>	
<p align="center"><b>PDP Structural BMPs</b></p>	



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).

Form 4

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 overall strategy was to minimize impervious area where feasible and direct all storm water runoff to biofiltration planter areas. Per Form 5 the water use produced by the site is less the 0.25 DCV, therefore harvest and use is considered to be infeasible. The existing soil will partially infiltrate and therefore the next highest priority treatment facility is biofiltration which has been selected to treat the required design capture volume (DCV). The project is broken up into 8 drainage management areas that are tributary to 8 partial retention biofiltration planter areas. The planter areas have been sized to treat the tributary DCV and provide flow control to meet hydromodification management criteria. The combined treatment and flow control planters meet the BMP Design Manual requirements by providing above the minimum footprint requirements for treatment and each planter bmp is flow control using an orifice plate within the outlet structures to reduce the peak discharge rates. EPA SWMM continuous simulation was used to determine the required orifice diameter. Each individual DMA tributary to their respective BMP was modeled in parallel to the POC. The model results shows that BMP's 1, 2, & 5 require a 0.33" orifice, BMP 3 requires a 0.40" orifice, BMP 4 requires a 0.55" orifice and BMPs 6 through 8 requires a 0.30" orifice that will achieve the required post-project flow durations, therefore each basin will include an orifice plate with the specified orifice diameter for flow control of the smaller events. The large events will overtop the on-site storm drain inlets and continue to drain off the site in the same manner as the existing condition without an increase of peak discharge because the overall impervious area is decreasing and the biofiltration planters provide additional detention.

(Continue on next page as necessary.)

**Form 4**

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

Continued from page 1)

<b>Form 4 (Copy as many as needed)</b>
<b>Structural BMP Summary Information</b> <b>(Copy this page as needed to provide information for each individual proposed structural BMP)</b>
Structural BMP ID No. BMP # 1 through 8
Construction Plan Sheet No. Sheet 1
<p>Type of structural BMP:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Retention by harvest and use (HU-1)</li> <li><input type="checkbox"/> Retention by infiltration basin (INF-1)</li> <li><input type="checkbox"/> Retention by bioretention (INF-2)</li> <li><input type="checkbox"/> Retention by permeable pavement (INF-3)</li> <li><input checked="" type="checkbox"/> Partial retention by biofiltration with partial retention (PR-1)</li> <li><input type="checkbox"/> Biofiltration (BF-1)</li> <li><input type="checkbox"/> Biofiltration with Nutrient Sensitive Media Design (BF-2)</li> <li><input type="checkbox"/> Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F</li> <li><input type="checkbox"/> Flow-through treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)</li> <li><input type="checkbox"/> Flow-through 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)</li> <li><input type="checkbox"/> Detention pond or vault for hydromodification management</li> <li><input type="checkbox"/> Other (describe in discussion section below)</li> </ul>
<p>Purpose:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Pollutant control only</li> <li><input type="checkbox"/> Hydromodification control only</li> <li><input checked="" type="checkbox"/> Combined pollutant control and hydromodification control</li> <li><input type="checkbox"/> Pre-treatment/forebay for another structural BMP</li> <li><input type="checkbox"/> Other (describe in discussion section below)</li> </ul>
<b>Form 4 (Copy as many as needed)</b>

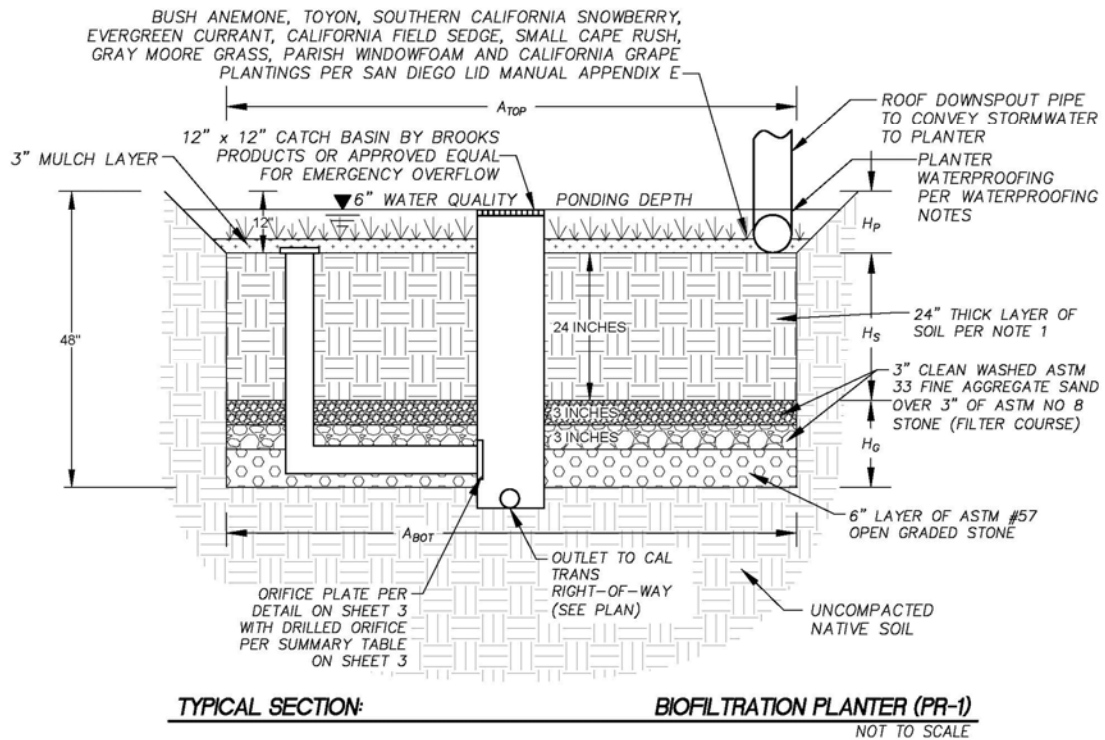
<p>Who will certify construction of this BMP?</p> <p>Provide name and contact information for the party responsible to sign BMP verification forms if required by the City Engineer (See Section 1.12 of the BMP Design Manual).</p>	<p>Will G. Mack, PE</p> <p>Pasco Laret Suite &amp; Associates</p> <p>535 N. Highway 101, Suite A</p> <p>Solana Beach, CA 92075</p>
<p>Who will be the final owner of this BMP?</p>	<p>Pacific Sound Investors, LLC</p> <p>1855 Freda Lane</p> <p>Cardiff, CA 92007</p>
<p>Who will maintain this BMP into perpetuity?</p>	<p>Pacific Sound Investors, LLC</p> <p>1855 Freda Lane</p> <p>Cardiff, CA 92007</p>
<p>What is the funding mechanism for maintenance?</p>	<p>Pacific Sound Investors, LLC</p> <p>1855 Freda Lane</p> <p>Cardiff, CA 92007</p>

Form 4 (Copy as many as needed)

Structural BMP ID No. BMP #1 to #8

Construction Plan Sheet No. Sheet 1

Discussion (as needed):



Harvest and Use Feasibility Checklist		Form 5 (PDPs) City of Solana Beach BMP Design Manual
<p>1. Is there a demand for harvested water (check all that apply) at the project site that is reliably present during the wet season?</p> <p><input checked="" type="checkbox"/> Toilet and urinal flushing</p> <p><input checked="" type="checkbox"/> Landscape irrigation</p> <p><input type="checkbox"/> Other: _____</p>		
<p>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.</p> <p><math>(9.3\text{gal/person}\cdot\text{day}) \cdot (0.13368\text{ft}^3/\text{gal}) = (1.24\text{ft}^3/\text{person}\cdot\text{day}) \cdot (1.5\text{ days}) = 1.86\text{ft}^3/36\text{hr}</math></p> <p>100 Beds * 1.86ft<sup>3</sup>/36 hour = <b>186 ft<sup>3</sup>/36 hr</b></p>		
<p>3. Calculate the DCV using worksheet B-2.1.</p> <p>DCV = <u>3099</u> (cubic feet)</p>		
<p>3a. Is the 36 hour demand greater than or equal to the DCV?</p> <p><input type="checkbox"/> Yes / <input checked="" type="checkbox"/> No <math>\Rightarrow</math></p> <p><math>\Downarrow</math></p>	<p>3b. Is the 36 hour demand greater than 0.25DCV but less than the full DCV?</p> <p><input type="checkbox"/> Yes / <input checked="" type="checkbox"/> No <math>\Rightarrow</math></p> <p><math>\Downarrow</math></p>	<p>3c. Is the 36 hour demand less than 0.25DCV?</p> <p><input checked="" type="checkbox"/> Yes <math>\Downarrow</math></p>
<p>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.</p>	<p>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.</p>	<p>Harvest and use is considered to be infeasible.</p>
<p>Is harvest and use feasible based on further evaluation?</p> <p><input type="checkbox"/> Yes, refer to Appendix E to select and size harvest and use BMPs.</p> <p><input type="checkbox"/> No, select alternate BMPs.</p>		

Categorization of Infiltration Feasibility Condition		Form 6 (PDPs) City of Solana Beach BMP Design Manual	
<b>Part 1 - Full Infiltration Feasibility Screening Criteria</b> <b>Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?</b>			
Criteria	Screening Question	Yes	No
1	<b>Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?</b> The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	X	
<p>Provide basis:</p> <p>Based on the web soil survey and NRCS soil map of the site, the underlying soil type is "B". Soil type B will generally have infiltration rates greater than 0.5 inches per hour. For planning purposes during the discretionary process, an infiltration rate greater than 0.5 inches per hour is assumed and a site specific investigation will be performed during final engineering.</p> <p>Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</p>			
2	<b>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?</b> The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.		X
<p>Provide basis:</p> <p>The proposed basins are adjacent to proposed structures and existing slopes therefore partial lining is proposed to limit lateral migration that could negatively impact geotechnical hazards.</p> <p>Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</p>			



Form 6			
Criteria	Screening Question	Yes	No
3	<b>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?</b> The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
<p>Provide basis:</p> <p>Record information of the groundwater in the area is greater than 20 feet, therefore no risk to groundwater.</p> <p>Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</p>			
4	<b>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?</b> The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
<p>Provide basis:</p> <p>The discharge of storm water will not impact down stream waterbodies.</p> <p>Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</p>			
<b>Part 1 Result *</b>	<p>If all answers to rows 1 - 4 are “<b>Yes</b>” a full infiltration design is potentially feasible. The feasibility screening category is <b>Full Infiltration</b></p> <p>If any answer from row 1-4 is “<b>No</b>”, 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</p>		<b>PARTIAL INFILTRATION</b>

\*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 6

### **Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria**

**Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?**

Criteria	Screening Question	Yes	No
5	<b>Do soil and geologic conditions allow for infiltration in any appreciable rate or volume?</b> The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	X	
<p>Provide basis:</p> <p>Based on the web soil survey and NRCS soil map of the site, the underlying soil type is “B”. Soil type B will generally have infiltration rates greater than 0.5 inches per hour. For planning purposes during the discretionary process, an infiltration rate greater than 0.5 inches per hour is assumed and a site specific investigation will be performed during final engineering.</p> <p>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.</p>			
6	<b>Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?</b> The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.		X
<p>Provide basis:</p> <p>The proposed basins are adjacent to proposed structures and existing slopes therefore partial lining is proposed to limit lateral migration that could negatively impact geotechnical hazards.</p> <p>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.</p>			

Form 6			
Criteria	Screening Question	Yes	No
7	<b>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)?</b> The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
Provide basis:  Record information of the groundwater in the area is greater than 20 feet, therefore no risk to groundwater.  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	<b>Can infiltration be allowed without violating downstream water rights?</b> The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
Provide basis:  The discharge of storm water will not impact down stream waterbodies.  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.			
<b>Part 2 Result*</b>	If all answers from row 1-4 are yes then partial infiltration design is potentially feasible. The feasibility screening category is <b>Partial Infiltration</b> .  If any answer from row 5-8 is no, then infiltration of any volume is considered to be <b>infeasible</b> within the drainage area. The feasibility screening category is <b>No Infiltration</b> .		PARTIAL 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 Agency/Jurisdictions to substantiate findings

Factor of Safety and Design Infiltration Rate Worksheet				Form 7 (PDPs) City of Solana Beach BMP Design Manual	
Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) $p = w \times v$
A	Suitability Assessment	Soil assessment methods	0.25	3	0.75
		Predominant soil texture	0.25	1	0.25
		Site soil variability	0.25	1	0.25
		Depth to groundwater / impervious layer	0.25	1	0.25
		Suitability Assessment Safety Factor, $S_A = \sum p$			
B	Design	Level of pretreatment/ expected sediment loads	0.5	1	0.5
		Redundancy/resiliency	0.25	1	0.25
		Compaction during construction	0.25	1	0.25
		Design Safety Factor, $S_B = \sum p$			
Combined Safety Factor, $S_{total} = S_A \times S_B$				2.5	
Observed Infiltration Rate, inch/hr, $K_{observed}$ (corrected for test-specific bias)				0.25	
Design Infiltration Rate, in/hr, $K_{design} = K_{observed} / S_{total}$				0.1	
<b>Supporting Data</b>					
<p>Briefly describe infiltration test and provide reference to test forms:</p> <p>0.25 in/hr infiltration rate is used for the observed because 0.25 is a conservative value for a reliable infiltration rate of type B soils.</p>					

Downstream Systems Requirements for Preservation of Coarse Sediment Supply		Form 8 (PDPs) City of Solana Beach BMP Design Manual	
When it has been determined that potential critical coarse sediment yield areas exist within the project site, the next step is to determine whether downstream systems would be sensitive to reduction of coarse sediment yield from the project site. Use this form to document the evaluation of downstream systems requirements for preservation of coarse sediment supply.			
Project Name: Residential Care Facility			
Project Tracking Number / Permit Application Number:			
1	Will the project discharge runoff to a hardened MS4 system (pipe or lined channel) or an un-lined channel?	<input type="checkbox"/> Hardened MS4 system	Go to 2
		<input checked="" type="checkbox"/> Un-lined channel	Go to 4
2	Will the hardened MS4 system convey sediment (e.g., a concrete-lined channel with steep slope and cleansing velocity) or sink sediment (e.g., flat slopes, constrictions, treatment BMPs, or ponds with restricted outlets within the system will trap sediment and not allow conveyance of coarse sediment from the project site to an un-lined system).	<input type="checkbox"/> Convey	Go to 3
		<input type="checkbox"/> Sink	Go to 7
3	What kind of receiving water will the hardened MS4 system convey the sediment to?	<input type="checkbox"/> Un-lined channel	Go to 4
		<input type="checkbox"/> Lake	Go to 7
		<input type="checkbox"/> Reservoir <input type="checkbox"/> Bay	
		<input type="checkbox"/> Lagoon <input type="checkbox"/> Ocean	Go to 6
4	Is the un-lined channel impacted by deposition of sediment? This condition must be documented by the local agency.	<input type="checkbox"/> Yes	Go to 7
		<input checked="" type="checkbox"/> No	Go to 5

Form 8	
5	End – Preserve coarse sediment supply to protect un-lined channels from accelerated erosion due to reduction of coarse sediment yield from the project site unless further investigation determines the sediment is not critical to the receiving stream. Sediment that is critical to receiving streams is the sediment that is a significant source of bed material to the receiving stream (bed sediment supply) (see Section 6.2.3 and Appendix H.2 of the manual).
6	End – Provide management measures for preservation of coarse sediment supply (protect beach sand supply).
7	End – Downstream system does not warrant preservation of coarse sediment supply, no measures for protection of critical coarse sediment yield areas onsite are necessary. Use the space below to describe the basis for this finding for the project.

**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:**

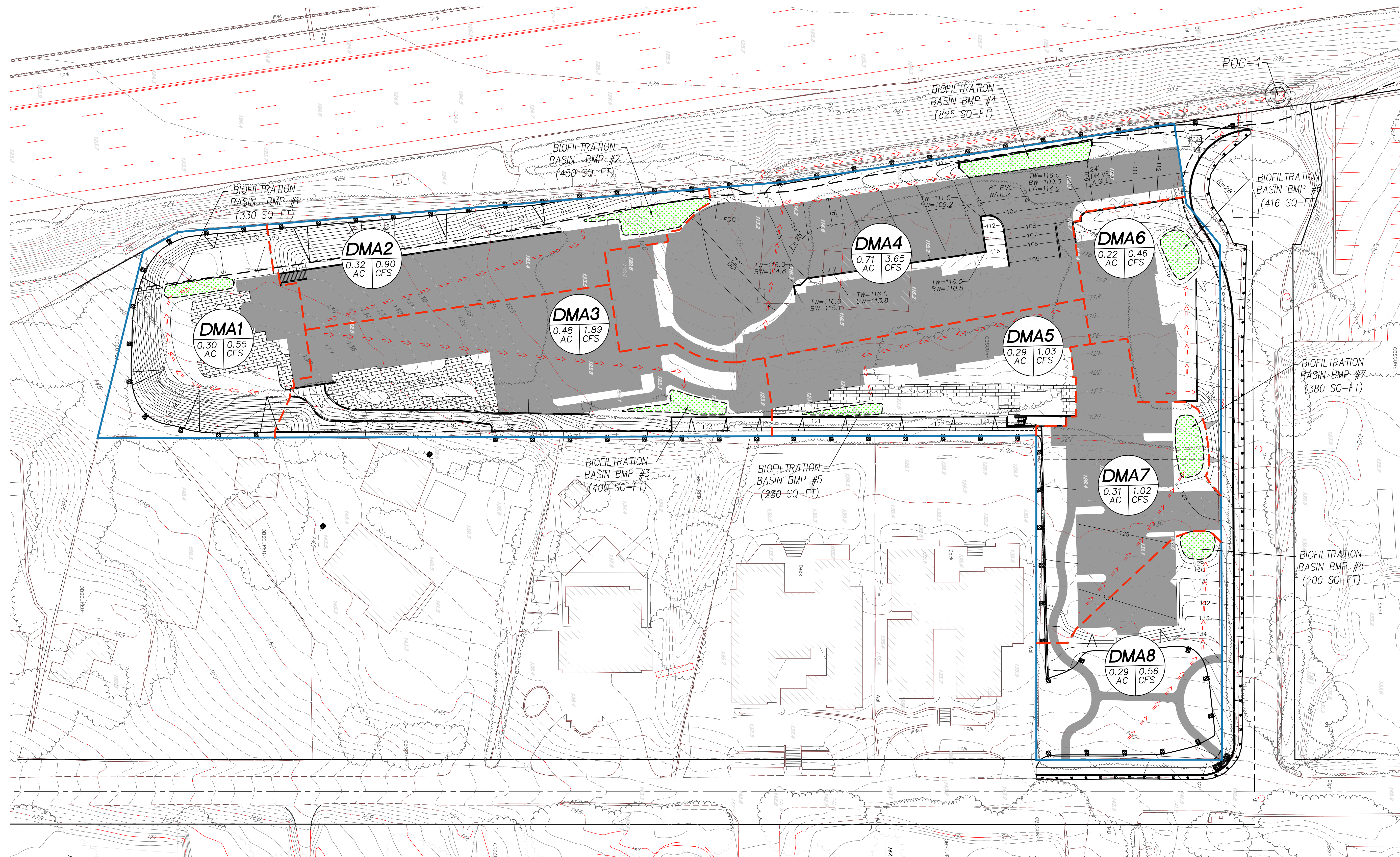
<b>Attachment Sequence</b>	<b>Contents</b>	<b>Checklist</b>
Attachment 1a	DMA Exhibit (Required)  See DMA Exhibit Checklist on the back of this Attachment cover sheet.	<input checked="" type="checkbox"/> Included
Attachment 1b	Tabular Summary of DMAs Showing DMA ID matching DMA Exhibit, DMA Area, and DMA Type (Required)*  *Provide table in this Attachment OR on DMA Exhibit in Attachment 1.a	<input type="checkbox"/> Included on DMA Exhibit in Attachment 1.a <input checked="" type="checkbox"/> Included as Attachment 1.b, separate from DMA Exhibit
Attachment 1c	Form 5, 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 5.	<input checked="" type="checkbox"/> Included <input type="checkbox"/> Not included because the entire project will use infiltration BMPs
Attachment 1d	Form 6, 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 6.	<input checked="" type="checkbox"/> Included <input type="checkbox"/> 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	<input checked="" type="checkbox"/> Included

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

The DMA Exhibit must identify:

- ☒ Underlying hydrologic soil group
- ☒ Approximate depth to groundwater
- ☒ Existing natural hydrologic features ( watercourses, seeps, springs, wetlands)
- ☒ Critical coarse sediment yield areas to be protected
- ☒ Existing topography and impervious areas
- ☒ Existing and proposed site drainage network and connections to drainage offsite
- ☒ Proposed demolition
- ☒ Proposed grading
- ☒ Proposed impervious features
- ☒ Proposed design features and surface treatments used to minimize imperviousness
- ☒ Drainage management area (DMA) boundaries, DMA ID numbers, and DMA areas (square footage or acreage), and DMA type (i.e., drains to BMP, self-retaining, or self-mitigating)
- ☒ Potential pollutant source areas and corresponding required source controls (see Chapter 4, Appendix E.1, and Form 1)
- ☒ Structural BMPs (identify location, type of BMP, and size/detail)





# LEGEND

DESCRIPTION	SYMBOL
LOT LINE	---
EXIST. CONTOUR	--- 300 ---
PROP. CONTOUR	--- 280 ---
BASIN BOUNDARY	---
DMA BOUNDARY	---
FLOWLINE	==> ==> ==>
FLOW DIRECTION	---
BASIN SUMMARY Q	100 EX 1 X.X AC X.X CFS
IMPERVIOUS AREA	---
PERVIOUS PAVERS	---
BIOFILTRATION BASIN AREA	---
CRITICAL COURSE SEDIMENT YIELD AREAS	---

## DMA EXHIBIT

RESIDENTIAL CARE FACILITY

959 GENEVIEVE ST., SOLANA BEACH, CA 92075

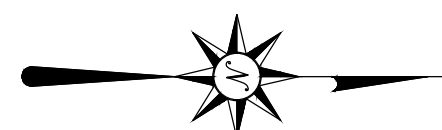
PROJECT NUMBER: J-1890

SCALE: 1" = 20'

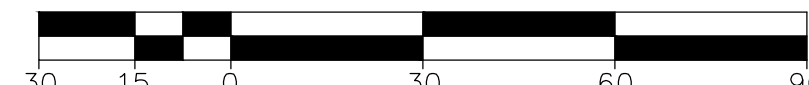
DATE: SEPTEMBER 26, 2017

SHEET 1 OF 1

**PASCO LARET SUITER**  
& ASSOCIATES  
CIVIL ENGINEERING + LAND PLANNING + LAND SURVEYING  
535 North Highway 101, Ste A, Solana Beach, CA 92075  
ph 858.259.8212 | fx 858.259.4812 | plsengineering.com



GRAPHIC SCALE: 1" = 30'





**BMP Sizing and DCV Summary Table**

BMP Location	BMP Description	Total Area (sq-ft)	% Impervious	% Pervious	% Pavers	Weighted Runoff Factor	DCV (Cu-ft)	Minimum 3% Treatment Area (sq-ft)	Treatment Area Provided (sq-ft)	DCV Provided (Cu-Ft)
DMA-1	BIORETENTION	13277	12%	88%	0%	0.23	123	92	330.0	495
DMA-2	BIORETENTION	13897	54%	46%	0%	0.55	304	228	450.0	675
DMA-3	BIORETENTION	20716	54%	46%	0%	0.55	454	340	400.0	600
DMA-4	BIORETENTION	31026	79%	21%	0%	0.74	919	689	825.0	1237.5
DMA-5	BIORETENTION	12528	43%	45%	13%	0.46	230	172	230.0	345
DMA-6	BIORETENTION	9598	43%	57%	0%	0.46	178	134	416.0	624
DMA-7	BIORETENTION	13295	70%	30%	0%	0.67	356	267	380.0	570
DMA-8	BIORETENTION	12544	23%	77%	0%	0.31	158	118	200.0	300
<b>TOTAL</b>		<b>126881</b>					<b>2721</b>	<b>2041</b>	<b>3231</b>	<b>4847</b>

Runoff Factor

Impervious	0.9	
Landscape	0.14	*Class "B" Soils
Permeable Pavers	0.10	

SUSMP Parameters

Intensity:	0.20	in/hr
Precip:	0.48	in

Automated Worksheet B.1-1: Calculation of Design Capture Volume (V1.3)

Category	#	Description	<i>i</i>	<i>ii</i>	<i>iii</i>	<i>iv</i>	<i>v</i>	<i>vi</i>	<i>vii</i>	<i>viii</i>	<i>ix</i>	<i>x</i>	Units
Standard Drainage Basin Inputs	0	Drainage Basin ID or Name	1	2	3	4	5	6	7	8			unitless
	1	Basin Drains to the Following BMP Type	Biofiltration	Biofiltration	Biofiltration	Biofiltration	Biofiltration	Biofiltration	Biofiltration	Biofiltration			unitless
	2	85th Percentile 24-hr Storm Depth	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48			inches
	3	Design Infiltration Rate Recommended by Geotechnical Engineer	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250			in/hr
	4	Impervious Surfaces <u>Not Directed to Dispersion Area</u> (C=0.90)	1,584	7,439	11,112	24,515	4,636	4,099	9,252	2,877			sq-ft
	5	Semi-Pervious Surfaces <u>Not Serving as Dispersion Area</u> (C=0.30)											sq-ft
	6	Engineered Pervious Surfaces <u>Not Serving as Dispersion Area</u> (C=0.10)					692						sq-ft
	7	Natural Type A Soil <u>Not Serving as Dispersion Area</u> (C=0.10)											sq-ft
	8	Natural Type B Soil <u>Not Serving as Dispersion Area</u> (C=0.14)	11,693	6,458	9,604	6,511	7,200	5,499	4,043	9,667			sq-ft
	9	Natural Type C Soil <u>Not Serving as Dispersion Area</u> (C=0.23)											sq-ft
	10	Natural Type D Soil <u>Not Serving as Dispersion Area</u> (C=0.30)											sq-ft
Dispersion Area, Tree Well & Rain Barrel Inputs (Optional)	11	Does Tributary Incorporate Dispersion, Tree Wells, and/or Rain Barrels?	No	No	No	No	No	No	No	No	No	No	yes/no
	12	Impervious Surfaces <b>Directed to Dispersion Area</b> per SD-B (Ci=0.90)											sq-ft
	13	Semi-Pervious Surfaces <b>Serving as Dispersion Area</b> per SD-B (Ci=0.30)											sq-ft
	14	Engineered Pervious Surfaces <b>Serving as Dispersion Area</b> per SD-B (Ci=0.10)											sq-ft
	15	Natural Type A Soil <b>Serving as Dispersion Area</b> per SD-B (Ci=0.10)											sq-ft
	16	Natural Type B Soil <b>Serving as Dispersion Area</b> per SD-B (Ci=0.14)											sq-ft
	17	Natural Type C Soil <b>Serving as Dispersion Area</b> per SD-B (Ci=0.23)											sq-ft
	18	Natural Type D Soil <b>Serving as Dispersion Area</b> per SD-B (Ci=0.30)											sq-ft
	19	Number of Tree Wells Proposed per SD-A											#
	20	Average Mature Tree Canopy Diameter											ft
	21	Number of Rain Barrels Proposed per SD-E											#
	22	Average Rain Barrel Size											gal
Treatment Train Inputs & Calculations	23	Does BMP Overflow to Stormwater Features in <u>Downstream</u> Drainage?	No	No	No	No	No	No	No	No	No	No	unitless
	24	Identify Downstream Drainage Basin Providing Treatment in Series											unitless
	25	Percent of Upstream Flows Directed to Downstream Dispersion Areas											percent
	26	Upstream Impervious Surfaces Directed to Dispersion Area (Ci=0.90)	0	0	0	0	0	0	0	0	0	0	cubic-feet
	27	Upstream Impervious Surfaces Not Directed to Dispersion Area (C=0.90)	0	0	0	0	0	0	0	0	0	0	cubic-feet
Initial Runoff Factor Calculation	28	Total Tributary Area	13,277	13,897	20,716	31,026	12,528	9,598	13,295	12,544	0	0	sq-ft
	29	Initial Runoff Factor for Standard Drainage Areas	0.23	0.55	0.55	0.74	0.42	0.46	0.67	0.31	0.00	0.00	unitless
	30	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
	31	Initial Weighted Runoff Factor	0.23	0.55	0.55	0.74	0.42	0.46	0.67	0.31	0.00	0.00	unitless
	32	Initial Design Capture Volume	122	306	456	918	210	177	356	156	0	0	cubic-feet
Dispersion Area Adjustments	33	Total Impervious Area Dispersed to Pervious Surface	0	0	0	0	0	0	0	0	0	0	sq-ft
	34	Total Pervious Dispersion Area	0	0	0	0	0	0	0	0	0	0	sq-ft
	35	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
	36	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
	37	Runoff Factor After Dispersion Techniques	0.23	0.55	0.55	0.74	0.42	0.46	0.67	0.31	n/a	n/a	unitless
	38	Design Capture Volume After Dispersion Techniques	122	306	456	918	210	177	356	156	0	0	cubic-feet
Tree & Barrel Adjustments	39	Total Tree Well Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
	40	Total Rain Barrel Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
Results	41	Final Adjusted Runoff Factor	0.23	0.55	0.55	0.74	0.42	0.46	0.67	0.31	0.00	0.00	unitless
	42	Final Effective Tributary Area	3,054	7,643	11,394	22,959	5,262	4,415	8,908	3,889	0	0	sq-ft
	43	Initial Design Capture Volume Retained by Site Design Elements	0	0	0	0	0	0	0	0	0	0	cubic-feet
	44	Final Design Capture Volume Tributary to BMP	122	306	456	918	210	177	356	156	0	0	cubic-feet

Worksheet B.1-1 General Notes:

A. Applicants may use this worksheet to calculate design capture volumes for up to 10 drainage areas User input must be provided for yellow shaded cells, values for all other cells will be automatically generated, errors/notifications will be highlighted in red and summarized below. Upon completion of this worksheet, proceed to the appropriate BMP Sizing worksheet(s).

### Automated Worksheet B.3-1: Project-Scale BMP Feasibility Analysis (V1.3)

Category	#	Description	Value	Units
Capture & Use Inputs	0	Design Capture Volume for Entire Project Site	3,099	cubic-feet
	1	Proposed Development Type	Residential	unitless
	2	Number of Residents or Employees at Proposed Development	100	#
	3	Total Planted Area within Development	3,257	sq-ft
	4	Water Use Category for Proposed Planted Areas	Low	unitless
Infiltration Inputs	5	Is Average Site Design Infiltration Rate $\leq 0.500$ Inches per Hour?	Yes	yes/no
	6	Is Average Site Design Infiltration Rate $\leq 0.010$ Inches per Hour?	No	yes/no
	7	Is Infiltration of the Full DCV Anticipated to Produce Negative Impacts?	Yes	yes/no
	8	Is Infiltration of Any Volume Anticipated to Produce Negative Impacts?	No	yes/no
Calculations	9	36-Hour Toilet Use Per Resident or Employee	1.86	cubic-feet
	10	Subtotal: Anticipated 36 Hour Toilet Use	186	cubic-feet
	11	Anticipated 1 Acre Landscape Use Over 36 Hours	52.14	cubic-feet
	12	Subtotal: Anticipated Landscape Use Over 36 Hours	4	cubic-feet
	13	Total Anticipated Use Over 36 Hours	190	cubic-feet
	14	Total Anticipated Use / Design Capture Volume	0.06	cubic-feet
	15	Are Full Capture and Use Techniques Feasible for this Project?	No	unitless
	16	Is Full Retention Feasible for this Project?	No	yes/no
	17	Is Partial Retention Feasible for this Project?	Yes	yes/no
Result	18	Feasibility Category	4	1, 2, 3, 4, 5

#### Worksheet B.3-1 General Notes:

A. Applicants may use this worksheet to determine the types of structural BMPs that are acceptable for implementation at their project site (as required in Section 5 of the BMPDM). User input should be provided for yellow shaded cells, values for all other cells will be automatically generated. Projects demonstrating feasibility or potential feasibility via this worksheet are encouraged to incorporate capture and use features in their project.

B. Negative impacts associated with retention may include geotechnical, groundwater, water balance, or other issues identified by a geotechnical engineer and substantiated through completion of Form I-8.

C. Feasibility Category 1: Applicant must implement capture & use, retention, and/or infiltration elements for the entire DCV.

D. Feasibility Category 2: Applicant must implement capture & use elements for the entire DCV.

E. Feasibility Category 3: Applicant must implement retention and/or infiltration elements for all DMAs with Design Infiltration Rates greater than 0.50 in/hr.

F. Feasibility Category 4: Applicant must implement standard unlined biofiltration BMPs sized at  $\geq 3\%$  of the effective impervious tributary area for all DMAs with Design Infiltration Rates of 0.011 to 0.50 in/hr. Applicants may be permitted to implement lined BMPs, reduced size BMPs, and/or specialized biofiltration BMPs provided additional criteria identified in "Supplemental Retention Criteria for Non-Standard Biofiltration BMPs" are satisfied.

G. Feasibility Category 5: Applicant must implement standard lined biofiltration BMPs sized at  $\geq 3\%$  of the effective impervious tributary area for all DMAs with Design Infiltration Rates of 0.010 in/hr or less. Applicants may also be permitted to implement reduced size and/or specialized biofiltration BMPs provided additional criteria identified in "Supplemental Retention Criteria for Non-Standard Biofiltration BMPs" are satisfied.

H. PDPs participating in an offsite alternative compliance program are not held to the feasibility categories presented herein.

Automated Worksheet B.5-1: Sizing Lined or Unlined Biofiltration BMPs (V1.3)

Category	#	Description	<i>i</i>	<i>ii</i>	<i>iii</i>	<i>iv</i>	<i>v</i>	<i>vi</i>	<i>vii</i>	<i>viii</i>	<i>ix</i>	<i>x</i>	Units
BMP Inputs	0	Drainage Basin ID or Name	1	2	3	4	5	6	7	8	-	-	sq-ft
	1	Design Infiltration Rate Recommended by Geotechnical Engineer	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	-	-	in/hr
	2	Effective Tributary Area	3,054	7,643	11,394	22,959	5,262	4,415	8,908	3,889	-	-	sq-ft
	3	Minimum Biofiltration Footprint Sizing Factor	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	-	-	ratio
	4	Design Capture Volume Tributary to BMP	122	306	456	918	210	177	356	156	-	-	cubic-feet
	5	Is Biofiltration Basin Impermeably Lined or Unlined?	Unlined	Unlined	Unlined	Unlined	Unlined	Unlined	Unlined	Unlined			unitless
	6	Provided Biofiltration BMP Surface Area	330	450	400	825	230	416	380	200			sq-ft
	7	Provided Surface Ponding Depth	6	6	6	6	6	18	18	18			inches
	8	Provided Soil Media Thickness	24	24	24	24	24	24	24	24			inches
	9	Provided Depth of Gravel Above Underdrain Invert	12	12	12	12	12	12	12	12			inches
	10	Diameter of Underdrain or Hydromod Orifice (Select Smallest)	0.33	0.33	0.40	0.55	0.33	0.30	0.30	0.30			inches
	11	Provided Depth of Gravel Below the Underdrain	3	3	3	3	3	3	3	3			inches
Retention Calculations	12	Volume Infiltrated Over 6 Hour Storm	41	56	50	103	29	52	48	25	0	0	cubic-feet
	13	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
	14	Gravel Pore Space Available for Retention	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.00	0.00	unitless
	15	Effective Retention Depth	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	0.00	0.00	inches
	16	Calculated Retention Storage Drawdown (Including 6 Hr Storm)	11	11	11	11	11	11	11	11	0	0	hours
	17	Volume Retained by BMP	107	146	130	268	75	135	124	65	0	0	cubic-feet
	18	Fraction of DCV Retained	0.88	0.48	0.29	0.29	0.36	0.76	0.35	0.42	0.00	0.00	ratio
	19	Portion of Retention Performance Standard Satisfied	1.00	0.96	0.72	0.72	0.83	1.00	0.81	0.91	0.00	0.00	ratio
	20	Fraction of DCV Retained (normalized to 36-hr drawdown)	1.00	0.90	0.54	0.54	0.68	1.00	0.66	0.79	0.00	0.00	ratio
	21	Design Capture Volume Remaining for Biofiltration	0	31	210	422	67	0	121	33	0	0	cubic-feet
Biofiltration Calculations	22	Max Hydromod Flow Rate through Underdrain	0.0053	0.0053	0.0078	0.0148	0.0053	0.0050	0.0050	0.0050	n/a	n/a	CFS
	23	Max Soil Filtration Rate Allowed by Underdrain Orifice	0.70	0.51	0.85	0.78	1.00	0.52	0.57	1.08	n/a	n/a	in/hr
	24	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
	25	Soil Media Filtration Rate to be used for Sizing	0.70	0.51	0.85	0.78	1.00	0.52	0.57	1.08	5.00	5.00	in/hr
	26	Depth Biofiltered Over 6 Hour Storm	4.19	3.08	5.08	4.65	6.02	3.12	3.42	6.49	30.00	30.00	inches
	27	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
	28	Effective Depth of Biofiltration Storage	15.60	15.60	15.60	15.60	15.60	27.60	27.60	27.60	0.00	0.00	inches
	29	Drawdown Time for Surface Ponding	6	8	5	6	5	23	22	14	0	0	hours
	30	Drawdown Time for Effective Biofiltration Depth	16	20	14	15	12	36	34	21	0	0	hours
	31	Total Depth Biofiltered	19.79	18.68	20.68	20.25	21.62	30.72	31.02	34.09	30.00	30.00	inches
	32	Option 1 - Biofilter 1.50 DCV: Target Volume	0	47	315	633	101	0	182	50	0	0	cubic-feet
	33	Option 1 - Provided Biofiltration Volume	0	47	315	633	101	0	182	50	0	0	cubic-feet
	34	Option 2 - Store 0.75 DCV: Target Volume	0	23	158	317	50	0	91	25	0	0	cubic-feet
	35	Option 2 - Provided Storage Volume	0	23	158	317	50	0	91	25	0	0	cubic-feet
	36	Portion of Biofiltration Performance Standard Satisfied	#DIV/0!	1.00	1.00	1.00	1.00	#DIV/0!	1.00	1.00	0.00	0.00	ratio
Result	37	Do Site Design Elements and BMPs Satisfy Annual Retention Requirements?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-	yes/no
	38	Overall Portion of Performance Standard Satisfied	#DIV/0!	1.00	1.00	1.00	1.00	#DIV/0!	1.00	1.00	0.00	0.00	ratio
	39	This BMP Overflows to the Following Drainage Basin	-	-	-	-	-	-	-	-	-	-	unitless
	40	Deficit of Effectively Treated Stormwater	#DIV/0!	0	0	0	0	#DIV/0!	0	0	n/a	n/a	cubic-feet

Worksheet B.5-1 General Notes:

A. Applicants may use this worksheet to size Lined or Unlined Biofiltration BMPs (BF-1, PR-1) for up to 10 basins. User input must be provided for yellow shaded cells, values for blue cells are automatically populated based on user inputs from previous worksheets, values for all other cells will be automatically generated, errors/notifications will be highlighted in red/orange and summarized below. BMPs fully satisfying the pollutant control performance standards will have a deficit treated volume of zero and be highlighted in green.

Summary of Stormwater Pollutant Control Calculations (V1.3)													
Category	#	Description	<i>i</i>	<i>ii</i>	<i>iii</i>	<i>iv</i>	<i>v</i>	<i>vi</i>	<i>vii</i>	<i>viii</i>	<i>ix</i>	<i>x</i>	Units
General Info	0	Drainage Basin ID or Name	1	2	3	4	5	6	7	8	-	-	unitless
	1	85th Percentile Storm Depth	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	-	-	inches
	2	Design Infiltration Rate Recommended by Geotechnical Engineer	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	-	-	in/hr
	3	Total Tributary Area	13,277	13,897	20,716	31,026	12,528	9,598	13,295	12,544	-	-	sq-ft
	4	85th Percentile Storm Volume (Rainfall Volume)	531	556	829	1,241	501	384	532	502	-	-	cubic-feet
Initial DCV	5	Initial Weighted Runoff Factor	0.23	0.55	0.55	0.74	0.42	0.46	0.67	0.31	-	-	unitless
	6	Initial Design Capture Volume	122	306	456	918	210	177	356	156	-	-	cubic-feet
Site Design Volume Reductions	7	Dispersion Area Reductions	0	0	0	0	0	0	0	0	-	-	cubic-feet
	8	Tree Well and Rain Barrel Reductions	0	0	0	0	0	0	0	0	-	-	cubic-feet
BMP Volume Reductions	9	Effective Area Tributary to BMP	3,054	7,643	11,394	22,959	5,262	4,415	8,908	3,889	-	-	square feet
	10	Final Design Capture Volume Tributary to BMP	122	306	456	918	210	177	356	156	-	-	cubic-feet
	11	Basin Drains to the Following BMP Type	Biofiltration	Biofiltration	Biofiltration	Biofiltration	Biofiltration	Biofiltration	Biofiltration	Biofiltration	-	-	unitless
	12	Volume Retained by BMP (normalized to 36 hour drawdown)	122	275	246	496	143	177	235	123	-	-	cubic-feet
Total Volume Reductions	13	Total Fraction of Initial DCV Retained within DMA	1.00	0.90	0.54	0.54	0.68	1.00	0.66	0.79	-	-	fraction
	14	Percent of Average Annual Runoff Retention Provided	80.4%	76.5%	57.3%	57.3%	66.1%	80.4%	65.0%	72.1%	-	-	%
	15	Percent of Average Annual Runoff Retention Required	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	-	-	%
Performance Standard	16	Percent of Pollution Control Standard Satisfied	#DIV/0!	100.0%	100.0%	100.0%	100.0%	#DIV/0!	100.0%	100.0%	-	-	%
Treatment Train	17	Discharges to Secondary Treatment in Drainage Basin	-	-	-	-	-	-	-	-	-	-	unitless
	18	Impervious Surface Area Still Requiring Treatment	#DIV/0!	0	0	0	0	#DIV/0!	0	0	-	-	square feet
	19	Impervious Surfaces Directed to Downstream Dispersion Area	-	-	-	-	-	-	-	-	-	-	square feet
	20	Impervious Surfaces Not Directed to Downstream Dispersion Area	-	-	-	-	-	-	-	-	-	-	square feet
Result	21	Deficit of Effectively Treated Stormwater	#DIV/0!	0	0	0	0	#DIV/0!	0	0	-	-	cubic-feet

Summary Notes:

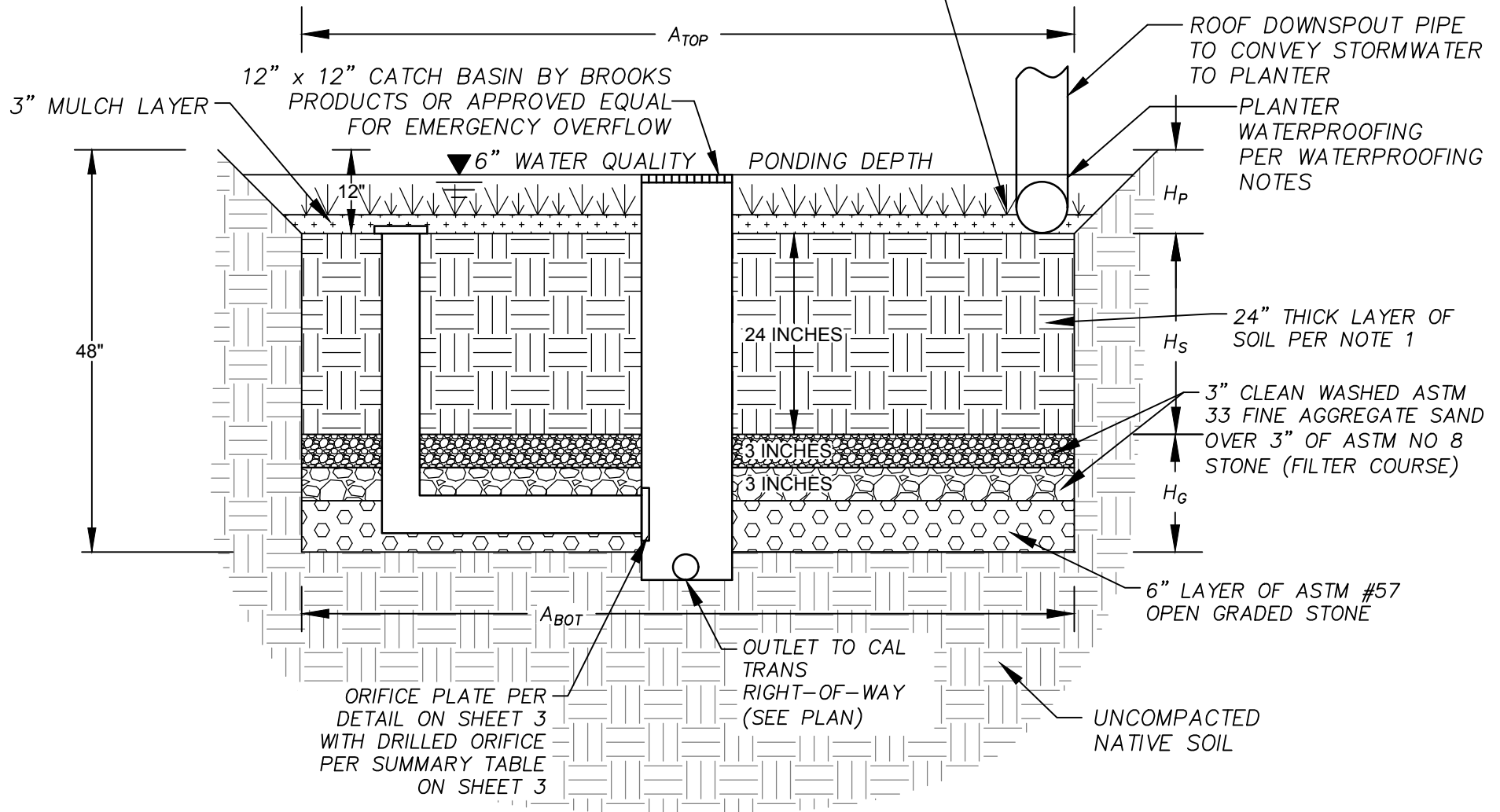
All fields in this summary worksheet are populated based on previous user inputs. If applicable, drainage basin elements that require revisions and/or supplemental information outside the scope of these worksheets are highlighted in orange and summairzed in the red text below. If all drainage basins achieve full compliance without a need for supplemental information, a green message will appear below.

-Congratulations, all specified drainage basins and BMPs are in compliance with stormwater pollutant control requirements. Include 11x17 color prints of this summary sheet and supporting worksheet calculations as part of the SWQMP submittal package.

False

#DIV/0!

BUSH ANEMONE, TOYON, SOUTHERN CALIFORNIA SNOWBERRY,  
EVERGREEN CURRANT, CALIFORNIA FIELD SEDGE, SMALL CAPE RUSH,  
GRAY MOORE GRASS, PARISH WINDOWFOAM AND CALIFORNIA GRAPE  
PLANTINGS PER SAN DIEGO LID MANUAL APPENDIX E



**TYPICAL SECTION:**

**BIOFILTRATION PLANTER (PR-1)**

NOT TO SCALE

**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:**

<b>Attachment Sequence</b>	<b>Contents</b>	<b>Checklist</b>
Attachment 2a	Hydromodification Management Exhibit (Required)	<input checked="" type="checkbox"/> 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.	<input checked="" type="checkbox"/> Exhibit showing project drainage boundaries marked on WMAA Critical Coarse Sediment Yield Area Map (Required)  Optional analyses for Critical Coarse Sediment Yield Area Determination <input type="checkbox"/> 6.2.1 Verification of Geomorphic Landscape Units Onsite <input type="checkbox"/> 6.2.2 Downstream Systems Sensitivity to Coarse Sediment <input type="checkbox"/> 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.	<input checked="" type="checkbox"/> Not performed <input type="checkbox"/> Included <input type="checkbox"/> 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	<input checked="" type="checkbox"/> Included <input type="checkbox"/> Submitted as separate stand-alone document
Attachment 2e	Vector Control Plan (Required when structural BMPs will not drain in 96 hours)	<input type="checkbox"/> Included <input checked="" type="checkbox"/> Not required because BMPs will drain in less than 96 hours

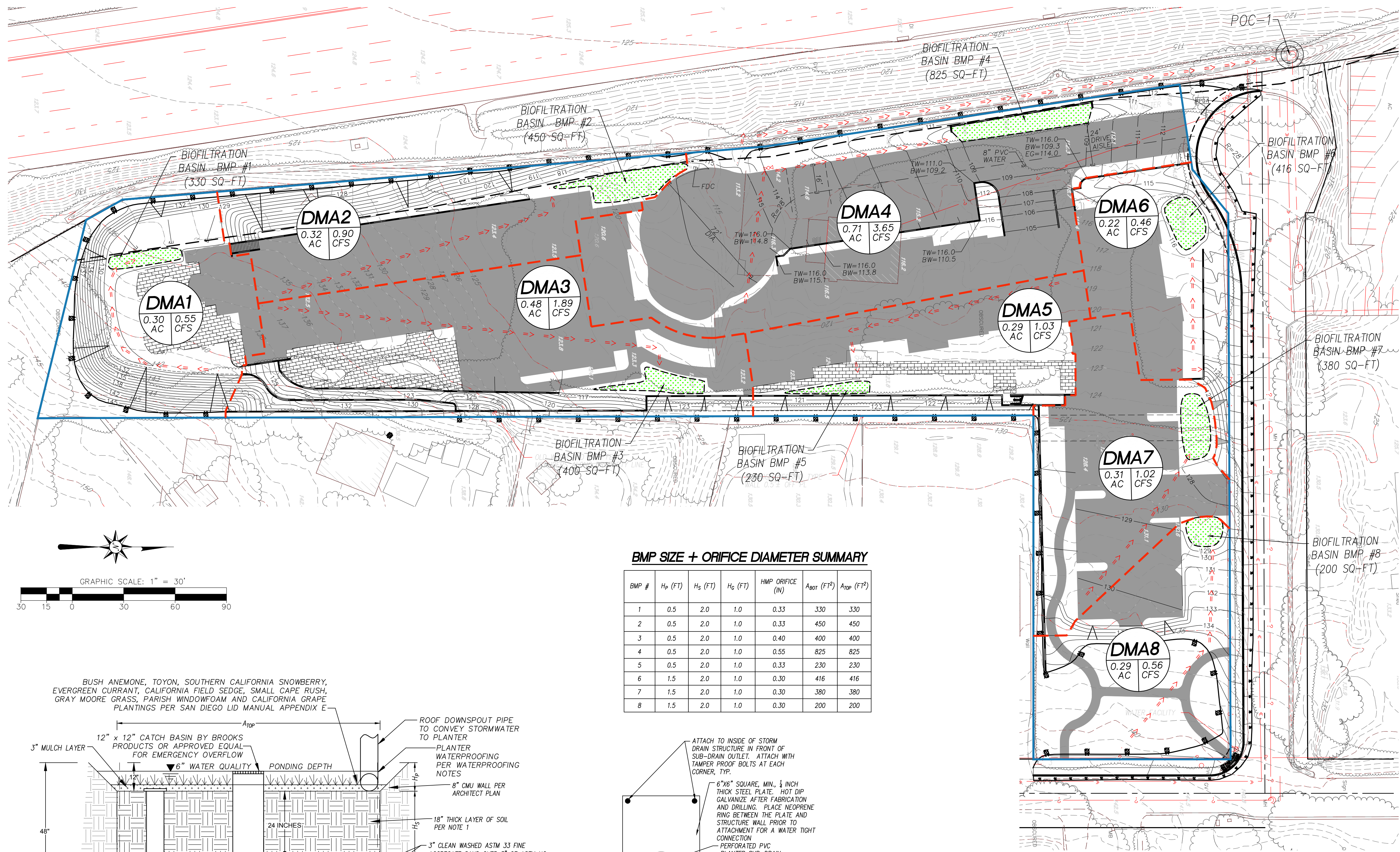


**Use this checklist to ensure the required information has been included on the  
Hydromodification Management Exhibit:**

~~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)

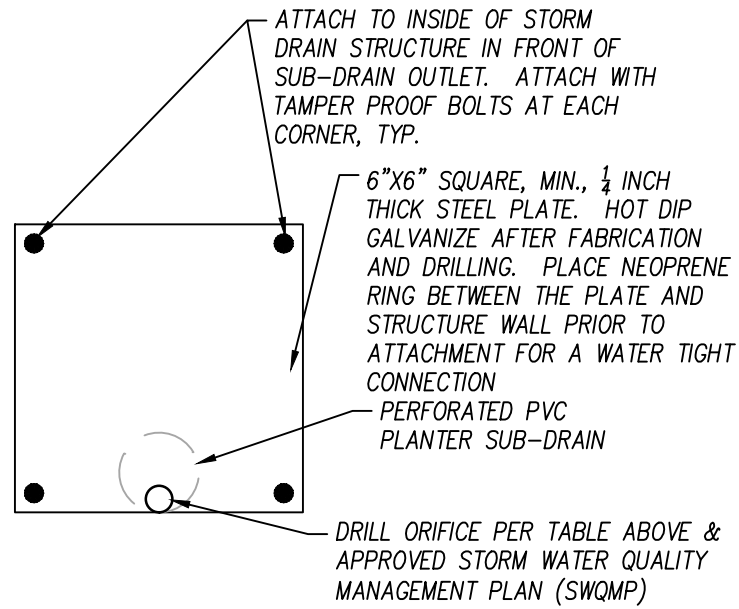




LEGEND	
DESCRIPTION	SYMBOL
LOT LINE	---
EXIST. CONTOUR	--- 300
PROP. CONTOUR	--- 289
BASIN BOUNDARY	---
DMA BOUNDARY	---
FLOWLINE	==>
FLOW DIRECTION	---
BASIN SUMMARY Q	100' <div>EX 1 X.X AC   X.X CFS</div>
IMPERVIOUS AREA	---
PERVIOUS PAVERS	---
BIOFILTRATION BASIN AREA	---
CRITICAL COURSE SEDIMENT YIELD AREAS	---

BMP SIZE + ORIFICE DIAMETER SUMMARY

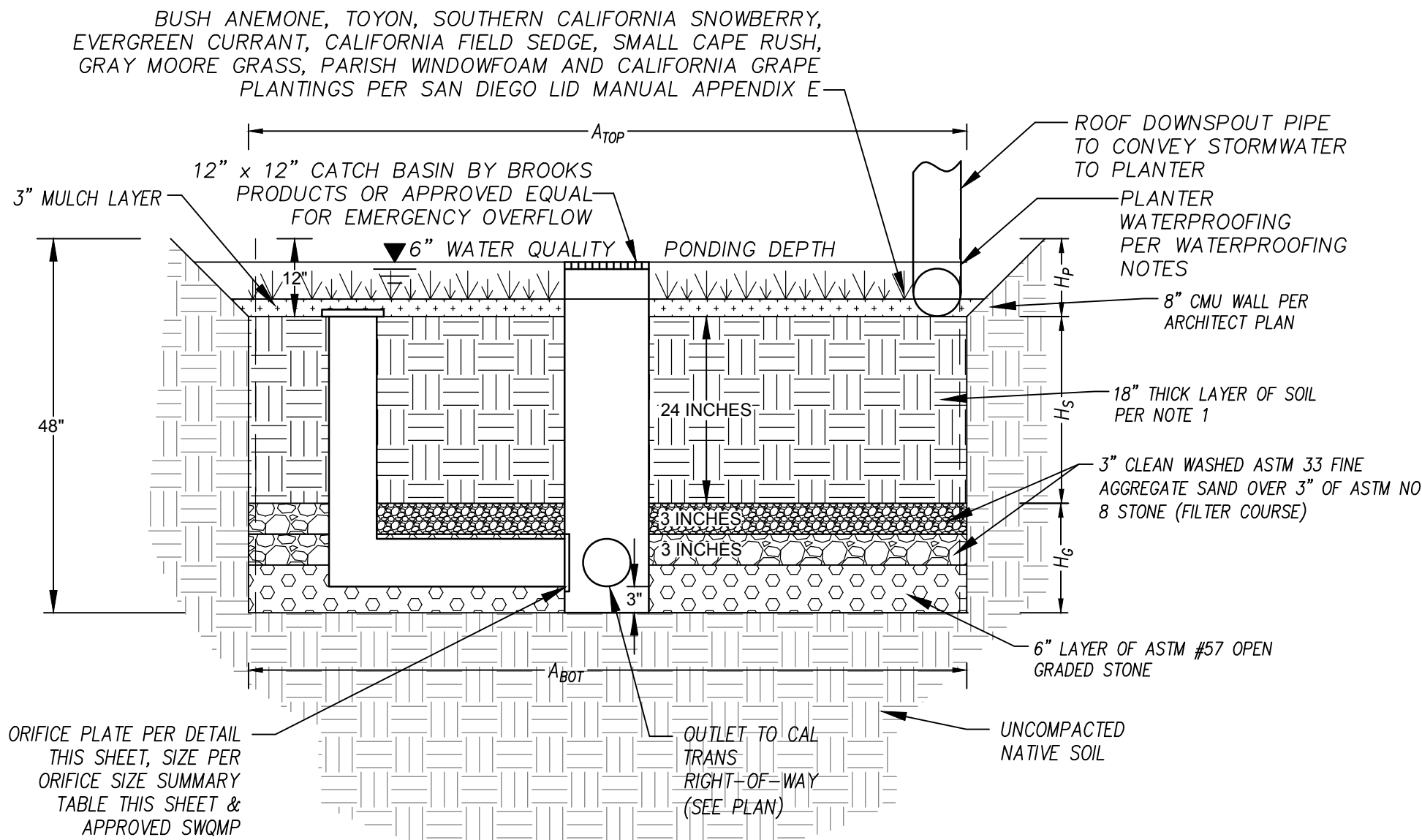
BMP #	H <sub>p</sub> (FT)	H <sub>s</sub> (FT)	H <sub>o</sub> (FT)	HMP ORIFICE (IN)	A <sub>bot</sub> (F <sup>2</sup> )	A <sub>top</sub> (F <sup>2</sup> )
1	0.5	2.0	1.0	0.33	330	330
2	0.5	2.0	1.0	0.33	450	450
3	0.5	2.0	1.0	0.40	400	400
4	0.5	2.0	1.0	0.55	825	825
5	0.5	2.0	1.0	0.33	230	230
6	1.5	2.0	1.0	0.30	416	416
7	1.5	2.0	1.0	0.30	380	380
8	1.5	2.0	1.0	0.30	200	200



DRILLED ORIFICE PLATE DETAIL (TYP.)  
NOT TO SCALE

BIOFILTRATION AREA NOTES:

- THE SOIL SHALL HAVE THE FOLLOWING PROPERTIES:
  - 5 IN/HR MINIMUM INFILTRATION RATE
  - ORGANIC CONTENT > 5 PERCENT
  - CATION EXCHANGE CAPACITY > 5 MILLIEQUIVALENT/100 G SOIL
  - 85% WASHED COURSE CONCRETE SAND, 10 PERCENT FINES
  - FINES SHOULD PASS A #270 (SCREEN SIZE) SIEVE
- THE PROJECT'S GEOTECHNICAL ENGINEER SHALL PROVIDE CERTIFICATION TO THE ENGINEER OF WORK STATING THAT THE SOIL PLACED IN EACH BIOFILTRATION AREA MEETS INFILTRATION SPECIFICATIONS LISTED ABOVE.
- COMPACTION OF SOIL IN BIOFILTRATION AREAS SHALL BE MINIMIZED TO ALLOW INFILTRATION TO OCCUR.
- PERFORATED 3-INCH DIA. UNDERDRAIN PIPE SHALL HAVE PERFORATIONS ALL THE WAY AROUND THE PIPE AND BE SET AS CLOSE TO THE BOTTOM OF THE PLANTER AS POSSIBLE.
- IRRIGATION SYSTEM PER LANDSCAPE PLANS.



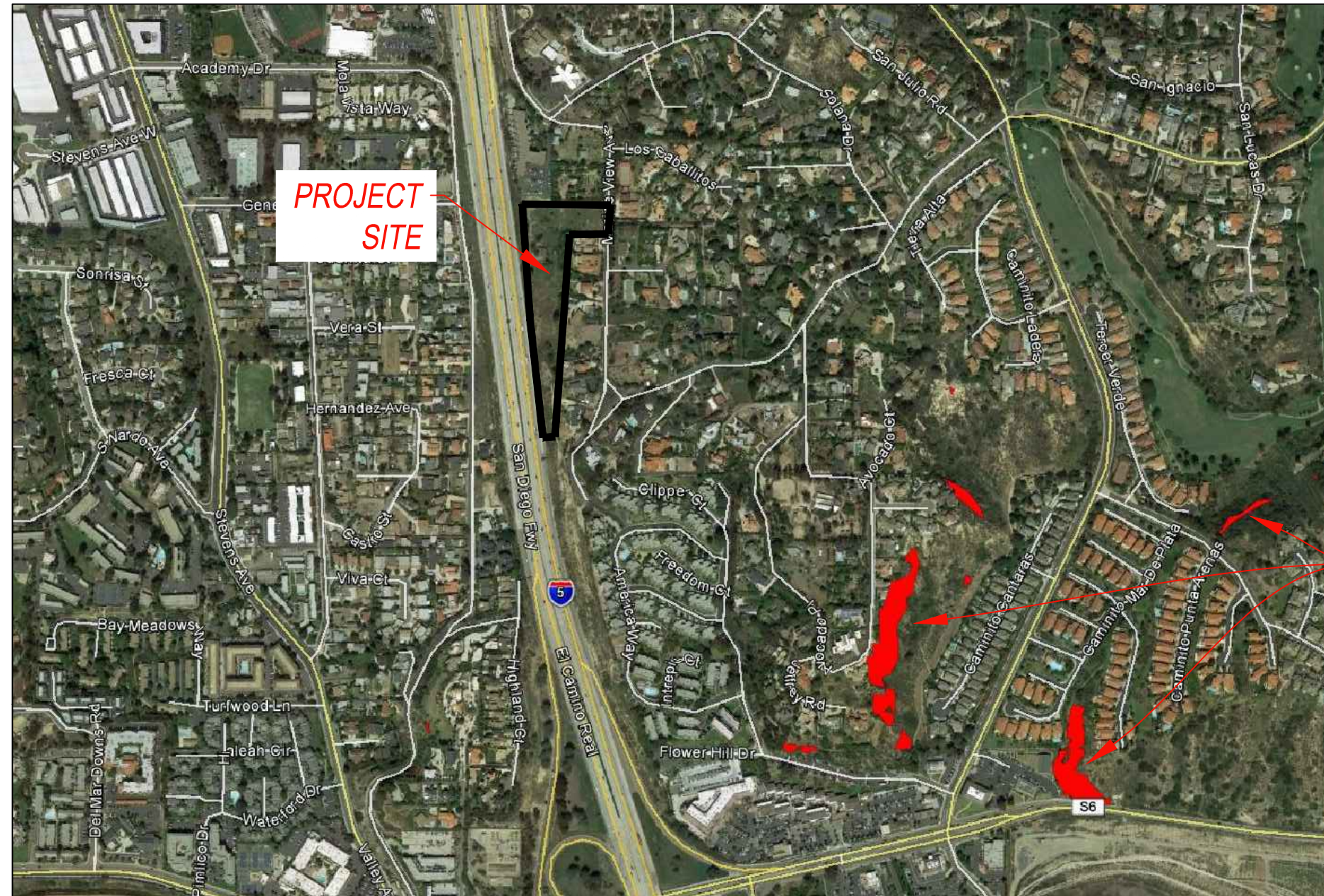
TYPICAL SECTION: BIOFILTRATION PLANTER (INF-2)  
NOT TO SCALE

HYDROMODIFICATION MANAGEMENT  
POST-PROJECT WORKMAP

RESIDENTIAL CARE FACILITY  
959 GENEVIEVE ST., SOLANA BEACH, CA 92075  
PROJECT NUMBER: J-1890  
SCALE: 1" = 20'  
DATE: DECEMBER 7, 2016  
SHEET 1 OF 1

**PASCO LARET SUITER**  
& ASSOCIATES  
CIVIL ENGINEERING + LAND PLANNING + LAND SURVEYING  
535 North Highway 101, Ste A, Solana Beach, CA 92075  
ph 858.259.8212 | fx 858.259.4812 | plsengineering.com





CCSYA  
FROM  
WMAA



## POTENTIAL CCSYA EXHIBIT

RESIDENTIAL CARE FACILITY

959 GENEVIEVE ST, SOLANA BEACH, CA 92075

PROJECT NUMBER: PE 1890

SCALE: NOT TO SCALE

DATE: SEPTEMBER 26, 2017

SHEET 1 OF 1

## PASCO LARET SUITER

& ASSOCIATES

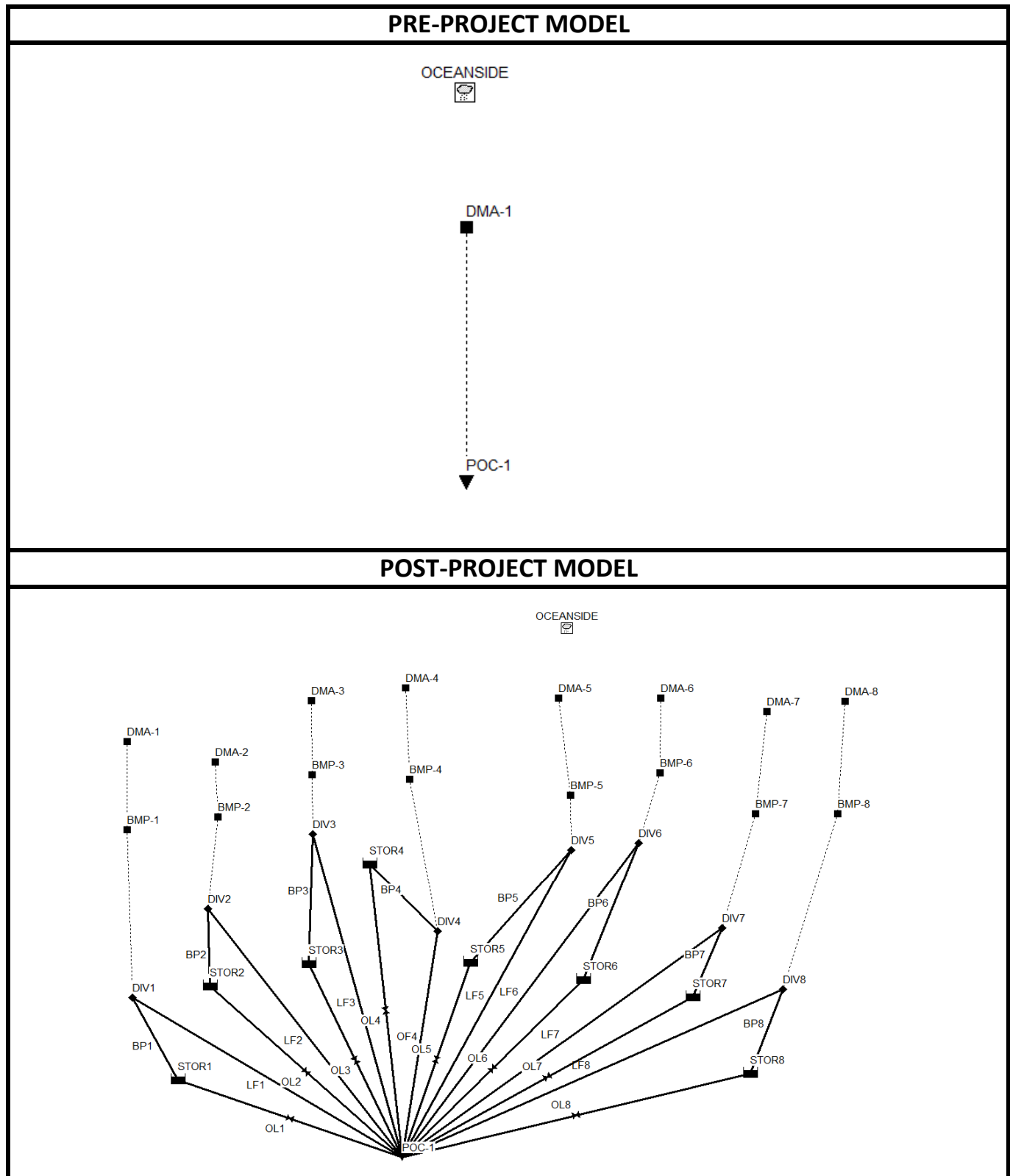
CIVIL ENGINEERING + LAND PLANNING + LAND SURVEYING

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## SWMM MODEL SCHEMATICS FOR BASIN



## RESIDENTIAL CARE FACILITY

J-1890

9/26/2017

PRE-PROJECT										
DMA	Basin	Area (ac)	Width (Area/ Flow Length) (ft)	% Slope	% Impervious	% "A" Soils	% "B" Soils	Weighted Infiltration (in/hr):	Weighted Suction Head (in):	Weighted Initial Deficit:
DMA-1	1	2.91	203.99	4.3%	0%	3%	97%	0.203	2.955	0.310
Total:		2.91								

POST-PROJECT										
DMA	BMP	Area (ac)	Width (Area/ Flow Length) (ft)	% Impervious	% Slope	% "A" Soils	% "B" Soils	Weighted Infiltration (in/hr):	Weighted Suction Head (in):	Weighted Initial Deficit:
DMA-1	1	0.30	94.84	12%	2.0%	0%	100%	0.200	3.000	0.310
DMA-2	2	0.32	73.14	54%	2.0%	0%	100%	0.200	3.000	0.310
DMA-3	3	0.48	84.21	54%	2.0%	0%	100%	0.200	3.000	0.310
DMA-4	4	0.71	154.36	79%	2.0%	0%	100%	0.200	3.000	0.310
DMA-5	5	0.29	75.47	43%	2.0%	0%	100%	0.200	3.000	0.310
DMA-6	6	0.22	99.98	43%	2.0%	0%	100%	0.200	3.000	0.310
DMA-7	7	0.31	121.97	70%	2.0%	0%	100%	0.200	3.000	0.310
DMA-8	8	0.29	92.24	23%	2.0%	0%	100%	0.200	3.000	0.310
Total:		2.91								

Infiltration:		
A:	0.3	in/hr
B:	0.2	in/hr

Suction Head:		
A:	1.5	in
B:	3	in

Initial Deficit	
A:	0.3
B:	0.31

OUTLET RATING CURVE	
HEAD (ft)	12" X 12" BROOKS BOX Q (cfs)
0.1	0.4
0.2	1.14
0.3	2.1
0.4	3.24
0.5	4.52

## [TITLE]

```
;; Project Title/Notes
RESIDENTIAL CARE FACILITY
J-1890
PRE-PROJECT CONDITION
```

## [OPTIONS]

```
;; Option Value
FLOW_UNITS CFS
INFILTRATION GREEN_AMPT
FLOW_ROUTING KINWAVE
LINK_OFFSETS DEPTH
MIN_SLOPE 0
ALLOW_PONDING NO
SKIP_STEADY_STATE NO
```

```
START_DATE 08/28/1951
START_TIME 05:00:00
REPORT_START_DATE 08/28/1951
REPORT_START_TIME 05:00:00
END_DATE 05/23/2008
END_TIME 23:00:00
SWEEP_START 01/01
SWEEP_END 12/31
DRY_DAYS 0
REPORT_STEP 01:00:00
WET_STEP 00:15:00
DRY_STEP 04:00:00
ROUTING_STEP 0:01:00
```

```
INERTIAL_DAMPING PARTIAL
NORMAL_FLOW_LIMITED BOTH
FORCE_MAIN_EQUATION H-W
VARIABLE_STEP 0.75
LENGTHENING_STEP 0
MIN_SURFAREA 12.557
MAX_TRIALS 8
HEAD_TOLERANCE 0.005
SYS_FLOW_TOL 5
LAT_FLOW_TOL 5
MINIMUM_STEP 0.5
THREADS 1
```

## [EVAPORATION]

```
;; Data Source Parameters
;; -----
MONTHLY 0.03 0.05 0.08 0.11 0.13 0.15 0.15 0.13 0.11
0.08 0.04 0.02
DRY_ONLY NO
```

## [RAINGAGES]

```
;; Name Format Interval SCF Source
;; -----
OCEANSIDE INTENSITY 1:00 1.0 TIMESERIES OCEANSIDE
```

## [SUBCATCHMENTS]

```
;; Name Rain Gage Outlet Area %Imperv Width
%Slope CurbLen SnowPack
;; -----
DMA-1 OCEANSIDE POC-1 2.91 0 203.99 4.3
0
```

1890\_PRE.TXT

```

[SUBAREAS]
;; Subcatchment      N-Imperv      N-Perv      S-Imperv      S-Perv      PctZero      RouteTo
;; PctRouted
;; -----
DMA-1                0.012        0.032        0.05          0.1         25           OUTLET

[INFILTRATION]
;; Subcatchment      Suction      Ksat         IMD
;; -----
DMA-1                9.0          0.025        0.330

[OUTFALLS]
;; Name              El evati on    Type          Stage Data      Gated      Route To
;; -----
Basin 200
POC-1                0             FREE          NO              NO

[TIMESERIES]
;; Name              Date          Time          Value
;; -----
OCEANSIDE            FILE "J: \Active Jobs\1890\CIVIL\REPORTS\SWQMP\SWMM\ELECTRONIC
FILES\Rainfall_data\oceanside.txt"

[REPORT]
;; Reporting Options
INPUT                NO
CONTROLS             NO
SUBCATCHMENTS       ALL
NODES                ALL
LINKS                ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]
;; Node              X-Coord        Y-Coord
;; -----
POC-1                1100.000        3500.000

[VERTICES]
;; Link              X-Coord        Y-Coord
;; -----

[Polygons]
;; Subcatchment      X-Coord        Y-Coord
;; -----
DMA-1                1100.000        6000.000

[SYMBOLS]
;; Gage              X-Coord        Y-Coord
;; -----
OCEANSIDE            1100.000        7300.000

```

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.009)  
-----

## RESIDENTIAL CARE FACILITY

J-1890

## POST PROJECT CONDITION

WARNING 04: minimum elevation drop used for Conduit LF1  
WARNING 04: minimum elevation drop used for Conduit BP1  
WARNING 04: minimum elevation drop used for Conduit LF2  
WARNING 04: minimum elevation drop used for Conduit LF3  
WARNING 04: minimum elevation drop used for Conduit OF4  
WARNING 04: minimum elevation drop used for Conduit LF5  
WARNING 04: minimum elevation drop used for Conduit LF6  
WARNING 04: minimum elevation drop used for Conduit LF7  
WARNING 04: minimum elevation drop used for Conduit LF8  
WARNING 04: minimum elevation drop used for Conduit BP2  
WARNING 04: minimum elevation drop used for Conduit BP3  
WARNING 04: minimum elevation drop used for Conduit BP4  
WARNING 04: minimum elevation drop used for Conduit BP5  
WARNING 04: minimum elevation drop used for Conduit BP6  
WARNING 04: minimum elevation drop used for Conduit BP7  
WARNING 04: minimum elevation drop used for Conduit BP8

\*\*\*\*\*

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

\*\*\*\*\*

\*\*\*\*\*

## Analysis Options

\*\*\*\*\*

Flow Units ..... CFS

## Process Models:

Rainfall/Runoff ..... YES

RDII ..... NO

Snowmelt ..... NO

Groundwater ..... NO

Flow Routing ..... YES

Ponding Allowed ..... NO

Water Quality ..... NO

Infiltration Method ..... GREEN\_AMPT

Flow Routing Method ..... KINWAVE

Starting Date ..... AUG-28-1951 05:00:00

Ending Date ..... MAY-23-2008 23:00:00

Antecedent Dry Days ..... 0.0

Report Time Step ..... 00:15:00



## SWMM OUTPUT REPORT

## POST-PROJECT CONDITION

Wet Time Step ..... 00:05:00  
Dry Time Step ..... 01:00:00  
Routing Time Step ..... 60.00 sec

```
*****
Volume      Depth
Runoff Quantity Continuity  acre-feet  inches
*****
Initial LID Storage .....    0.015    0.060
Total Precipitation .....   168.478   675.090
Evaporation Loss .....     15.048    60.297
Infiltration Loss .....    95.625   383.167
Surface Runoff .....     13.908    55.730
LID Drainage .....       44.157   176.938
Final Storage .....       0.026    0.105
Continuity Error (%) .....    -0.161
```

```
*****
Volume      Volume
Flow Routing Continuity  acre-feet  10^6 gal
*****
Dry Weather Inflow .....    0.000    0.000
Wet Weather Inflow .....   58.066   18.922
Groundwater Inflow .....    0.000    0.000
RDII Inflow .....         0.000    0.000
External Inflow .....      0.000    0.000
External Outflow .....     57.015   18.579
Flooding Loss .....        4.063    1.324
Evaporation Loss .....      0.000    0.000
Exfiltration Loss .....     0.000    0.000
Initial Stored Volume ....    0.000    0.000
Final Stored Volume .....    0.000    0.000
Continuity Error (%) .....   -5.188
```

\*\*\*\*\*

## Highest Flow Instability Indexes

\*\*\*\*\*

All links are stable.

\*\*\*\*\*

## Routing Time Step Summary

\*\*\*\*\*

Minimum Time Step : 60.00 sec  
Average Time Step : 60.00 sec  
Maximum Time Step : 60.00 sec  
Percent in Steady State : 0.00

Average Iterations per Step : 1.00  
Percent Not Converging : 0.00

\*\*\*\*\*

Analysis begun on: Fri Sep 22 11:47:52 2017  
Analysis ended on: Fri Sep 22 11:52:00 2017  
Total elapsed time: 00:04:08

## [TITLE]

```
;; Project Title/Notes
RESIDENTIAL CARE FACILITY
J-1890
POST PROJECT CONDITION
```

## [OPTIONS]

```
;; Option      Value
FLOW_UNITS     CFS
INFILTRATION   GREEN_AMPT
FLOW_ROUTING   KINWAVE
LINK_OFFSETS   DEPTH
MIN_SLOPE      0
ALLOW_PONDING  NO
SKIP_STEADY_STATE NO
```

```
START_DATE      08/28/1951
START_TIME      05:00:00
REPORT_START_DATE 08/28/1951
REPORT_START_TIME 05:00:00
END_DATE        05/23/2008
END_TIME        23:00:00
SWEEP_START     01/01
SWEEP_END       12/31
DRY_DAYS        0
REPORT_STEP     00:15:00
WET_STEP        00:05:00
DRY_STEP        01:00:00
ROUTING_STEP    0:01:00
```

```
INERTIAL_DAMPING PARTIAL
NORMAL_FLOW_LIMITED BOTH
FORCE_MAIN_EQUATION H-W
VARIABLE_STEP    0.75
LENGTHENING_STEP 0
MIN_SURFAREA     12.557
MAX_TRIALS       8
HEAD_TOLERANCE   0.005
SYS_FLOW_TOL     5
LAT_FLOW_TOL     5
MINIMUM_STEP     0.5
THREADS          1
```

## [EVAPORATION]

```
;; Data Source      Parameters
;; -----
MONTHLY             0.03   0.05   0.08   0.11   0.13   0.15   0.15   0.13   0.11
0.08   0.04   0.02
DRY_ONLY            NO
```

## [RAINGAGES]

```
;; Name      Format      Interval  SCF      Source
;; -----
OCEANSIDE    INTENSITY  1:00      1.0      TIMESERIES OCEANSIDE
```

## [SUBCATCHMENTS]

```
;; Name      Rain Gage      Outlet      Area      %Imperv  Width
%Slope  CurbLen  SnowPack
;; -----
DMA-1      OCEANSIDE      BMP-1      0.30      12      94.84      2
0
BMP-1      OCEANSIDE      DIV1      0.00775941205 0      10
```

1890_POST. TXT							
0	0						
DMA-2		OCEANSI DE	BMP-2	0. 32	54	73. 14	2
0							
DMA-3		OCEANSI DE	BMP-3	0. 48	54	84. 21	2. 0
0							
DMA-4		OCEANSI DE	BMP-4	0. 71	79	154. 36	2
0							
DMA-5		OCEANSI DE	BMP-5	0. 29	43	75. 47	2. 0
0							
DMA-6		OCEANSI DE	BMP-6	0. 22	43	99. 98	2. 0
0							
DMA-7		OCEANSI DE	BMP-7	0. 31	70	121. 97	2. 0
0							
DMA-8		OCEANSI DE	BMP-8	0. 29	23	92. 24	2. 0
0							
BMP-2		OCEANSI DE	DI V2	0. 01033057851	0	10. 5	
0	0						
BMP-3		OCEANSI DE	DI V3	0. 0091827365	0	12. 7	
0	0						
BMP-4		OCEANSI DE	DI V4	0. 01935261708	0	10	
0	0						
BMP-5		OCEANSI DE	DI V5	0. 0052800735	0	19. 16	
0	0						
BMP-6		OCEANSI DE	DI V6	0. 009550045914	0	5	
0	0						
BMP-7		OCEANSI DE	DI V7	0. 008723599633	0	17. 2	
0	0						
BMP-8		OCEANSI DE	DI V8	0. 004591368228	0	32. 5	
0	0						

[SUBAREAS]							
;; Subcatchment	N-Imperv	N-Perv	S-Imperv	S-Perv	PctZero	RouteTo	
PctRouted							
;; -----	-----	-----	-----	-----	-----	-----	
DMA-1	0. 012	0. 15	0. 05	0. 05	25	OUTLET	
BMP-1	0. 012	0. 15	0. 05	0. 05	25	OUTLET	
DMA-2	0. 012	0. 15	0. 05	0. 05	25	OUTLET	
DMA-3	0. 012	0. 15	0. 05	0. 05	25	OUTLET	
DMA-4	0. 012	0. 15	0. 05	0. 05	25	OUTLET	
DMA-5	0. 012	0. 15	0. 05	0. 05	25	OUTLET	
DMA-6	0. 012	0. 15	0. 05	0. 05	25	OUTLET	
DMA-7	0. 012	0. 15	0. 05	0. 05	25	OUTLET	
DMA-8	0. 012	0. 15	0. 05	0. 05	25	OUTLET	
BMP-2	0. 012	0. 15	0. 05	0. 05	25	OUTLET	
BMP-3	0. 012	0. 15	0. 05	0. 05	25	OUTLET	
BMP-4	0. 012	0. 15	0. 05	0. 05	25	OUTLET	
BMP-5	0. 012	0. 15	0. 05	0. 05	25	OUTLET	
BMP-6	0. 012	0. 15	0. 05	0. 05	25	OUTLET	

BMP-7	0.012	0.15	1890_POST.TXT 0.05	0.05	25	OUTLET
BMP-8	0.012	0.15	0.05	0.05	25	OUTLET

[INFILTRATION] Subcatchment	Suction	Ksat	IMD
DMA-1	3.0	0.2	0.31
BMP-1	3	0.2	0.31
DMA-2	3.0	0.2	0.31
DMA-3	3.0	0.2	0.31
DMA-4	3.0	0.2	0.31
DMA-5	3.0	0.2	0.31
DMA-6	3.0	0.2	0.31
DMA-7	3.0	0.2	0.31
DMA-8	3.0	0.2	0.31
BMP-2	3	0.2	0.31
BMP-3	3	0.2	0.31
BMP-4	3	0.2	0.31
BMP-5	3	0.2	0.31
BMP-6	3	0.2	0.31
BMP-7	3	0.2	0.31
BMP-8	3	0.2	0.31

[LID_CONTROLS] Name	Type/Layer	Parameters				
BF-1	BC					
BF-1	SURFACE	8	0.0	0	0	5
BF-1 5	SOIL	24	0.4	0.2	0.1	5
BF-1	STORAGE	12	0.67	0.1	0	
BF-1	DRAIN	0.1053	0.5	3	6	
BF-2	BC					
BF-2	SURFACE	8	0.0	0.1	1.0	5
BF-2 5	SOIL	24	0.4	0.2	0.1	5
BF-2	STORAGE	12	0.67	0.1	0	
BF-2	DRAIN	0.0791	0.5	3	6	
BF-3	BC					
BF-3	SURFACE	8	0.0	0	0	5
BF-3 5	SOIL	24	0.4	0.2	0.1	5
BF-3	STORAGE	12	0.67	0.1	0	
BF-3	DRAIN	0.1307	0.5	3	6	
BF-4	BC					
BF-4	SURFACE	8	0.0	0	0	5
BF-4 5	SOIL	24	0.4	0.2	0.1	5
BF-4	STORAGE	12	0.67	0.1	0	
BF-4	DRAIN	0.1171	0.5	3	6	
BF-5	BC					
BF-5	SURFACE	8	0.0	0	0	5

1890_POST.TXT							
BF-5 5	1.5	SOI L	24	0.4	0.2	0.1	5
BF-5		STORAGE	12	0.67	0.1	0	
BF-5		DRAI N	0.1548	0.5	3	6	
BF-6 BF-6	1.5	BC SURFACE	8	0.0	0	0	5
BF-6 5		SOI L	24	0.4	0.2	0.1	5
BF-6 BF-6		STORAGE DRAI N	12 0.0707	0.67 0.5	0.1 3	0 6	
BF-7 BF-7	1.5	BC SURFACE	8	0.0	0	0	5
BF-7 5		SOI L	24	0.4	0.2	0.1	5
BF-7 BF-7		STORAGE DRAI N	12 0.0774	0.67 0.5	0.1 3	0 6	
BF-8 BF-8	1.5	BC SURFACE	8	0.0	0	0	5
BF-8 5		SOI L	24	0.4	0.2	0.1	5
BF-8 BF-8		STORAGE DRAI N	12 0.1471	0.67 0.5	0.1 3	0 6	

[LID\_USAGE]

Subcatchment	LID Process	Number	Area	Width	InitSat
FromImp	ToPerv	RptFile		DrainTo	
-----					
BMP-1	BF-1	1	338.00	0	0
0					100
BMP-2	BF-2	1	450.00	0	0
0					100
BMP-3	BF-3	1	400.00	0	0
0					100
BMP-4	BF-4	1	843.00	0	0
0					0
BMP-5	BF-5	1	230.00	0	0
0					100
BMP-6	BF-6	1	416.00	0	0
0					100
BMP-7	BF-7	1	380.00	0	0
0					100
BMP-8	BF-8	1	200.00	0	0
0					100

[OUTFALLS]

Name	Elevation	Type	Stage Data	Gated	Route To
POC-1	0	FREE		NO	

[DIVIDERS]

Name	Elevation	Diverted Link	Type	Parameters		
DI V1 0	0	BP1	CUTOFF	0.00547	1.5	0
DI V2 0	0	BP2	CUTOFF	0.00547	1.5	0

1890_POST.TXT							
DIV3	0	0	BP3	CUTOFF	0.01516	1.5	0
DIV4	0	0	BP4	CUTOFF	0.01516	1.5	0
DIV5	0	0	BP5	CUTOFF	0.00547	1.5	0
DIV6	0	0	BP6	CUTOFF	0.00452	1.5	0
DIV7	0	0	BP7	CUTOFF	0.00452	1.5	0
DIV8	0	0	BP8	CUTOFF	0.00452	1.5	0

[STORAGE]

;; Name	El ev. Fevap	MaxDepth Psi	Ini tDepth Ksat IMD	Shape	Curve Name/Params
STOR1	0	2	0	TABULAR	STOR1
STOR2	0	2	0	TABULAR	STOR2
STOR3	0	2	0	TABULAR	STOR3
STOR4	0	2	0	TABULAR	STOR4
STOR5	0	2	0	TABULAR	STOR5
STOR6	0	2	0	TABULAR	STOR6
STOR7	0	2	0	TABULAR	STOR7
STOR8	0	2	0	TABULAR	STOR8

[CONDUITS]

;; Name	From Node	To Node	Length	Roughness	InOffset
OutOffset	Ini tFlow	MaxFlow			
LF1	DIV1	POC-1	400	0.01	0
BP1	DIV1	STOR1	400	0.01	0
LF2	DIV2	POC-1	400	0.01	0
LF3	DIV3	POC-1	400	0.01	0
OF4	DIV4	POC-1	400	0.01	0
LF5	DIV5	POC-1	400	0.01	0
LF6	DIV6	POC-1	400	0.01	0
LF7	DIV7	POC-1	400	0.01	0
LF8	DIV8	POC-1	400	0.01	0
BP2	DIV2	STOR2	400	0.01	0
BP3	DIV3	STOR3	400	0.01	0
BP4	DIV4	STOR4	400	0.01	0

			1890_POST.TXT				
0	0	0					
BP5		DI V5	STOR5	400	0.01	0	
0	0	0					
BP6		DI V6	STOR6	400	0.01	0	
0	0	0					
BP7		DI V7	STOR7	400	0.01	0	
0	0	0					
BP8		DI V8	STOR8	400	0.01	0	
0	0	0					

[OUTLETS]

;; Name QTabl e/Qcoeff	From Node Qexpon	Gated	To Node	Offset	Type
-----	-----	-----	-----	-----	-----
OL1	STOR1		POC-1	0	TABULAR/DEPTH
12x12		NO			
OL2	STOR2		POC-1	0	TABULAR/DEPTH
12x12		NO			
OL3	STOR3		POC-1	0	TABULAR/DEPTH
12x12		NO			
OL4	STOR4		POC-1	0	TABULAR/DEPTH
12x12		NO			
OL5	STOR5		POC-1	0	TABULAR/DEPTH
12x12		NO			
OL6	STOR6		POC-1	0	TABULAR/DEPTH
12x12		NO			
OL7	STOR7		POC-1	0	TABULAR/DEPTH
12x12		NO			
OL8	STOR8		POC-1	0	TABULAR/DEPTH
12x12		NO			

[XSECTIONS]

;; Link Barrel s	Shape Cul vert	Geom1	Geom2	Geom3	Geom4	
-----	-----	-----	-----	-----	-----	-----
LF1	DUMMY	0	0	0	0	1
BP1	DUMMY	0	0	0	0	1
LF2	CI RCULAR	1	0	0	0	1
LF3	CI RCULAR	1	0	0	0	1
OF4	CI RCULAR	1	0	0	0	1
LF5	CI RCULAR	1	0	0	0	1
LF6	CI RCULAR	1	0	0	0	1
LF7	CI RCULAR	1	0	0	0	1
LF8	CI RCULAR	1	0	0	0	1
BP2	CI RCULAR	1	0	0	0	1
BP3	CI RCULAR	1	0	0	0	1
BP4	CI RCULAR	1	0	0	0	1
BP5	CI RCULAR	1	0	0	0	1



BP6	CIRCULAR	1	1890_POST. TXT	0	0	0	1
BP7	CIRCULAR	1		0	0	0	1
BP8	CIRCULAR	1		0	0	0	1

[CURVES]							
Name	Type	X-Value	Y-Value				
; 12"x12" BROOKS BOX							
12x12	Rating	0	0				
12x12		0.1	0.1				
12x12		0.2	1.14				
12x12		0.3	2.1				
12x12		0.4	3.24				
12x12		0.5	4.52				
; 24x24 Brooks Box							
24x24	Rating	0	0				
24x24		0.1	0.69				
24x24		0.2	1.94				
24x24		0.3	3.56				
24x24		0.4	5.48				
24x24		0.5	7.66				
; BMP-1 Above the Berm							
STOR1	Storage	0	338				
STOR1		0.5	338				
STOR1		1	338				
; BMP-2 ABOVE THE GRATE							
STOR2	Storage	0	450				
STOR2		0.5	450				
STOR2		1	450				
; BMP-3 ABOVE THE GRATE							
STOR3	Storage	0	400				
STOR3		0.5	400				
STOR3		1.0	400				
; BMP-4 ABOVE THE GRATE							
STOR4	Storage	0	843				
STOR4		0.5	843				
STOR4		1	843				
; BMP-5 ABOVE THE GRATE							
STOR5	Storage	0	230				
STOR5		0.5	230				
STOR5		1.0	230				
; BMP-6							
STOR6	Storage	0	416				
STOR6		0.5	416				
STOR6		1.0	416				
; BMP-7 ABOVE THE GRATE							
STOR7	Storage	0	380				
STOR7		0.5	380				
STOR7		1	380				
; BMP-8 ABOVE THE GRATE							
STOR8	Storage	0	200				

STOR8	0.5	1890_POST.TXT
STOR8	1	200

[TIMESERIES]

Name	Date	Time	Value
------	------	------	-------

OCEANSIDE FILE "J:\Active Jobs\1890\CIVIL\REPORTS\SWQMP\SWMM\ELECTRONIC FILES\Rainfall\_data\oceanside.txt"

[REPORT]

;; Reporting Options

INPUT NO

CONTROLS NO

SUBCATCHMENTS ALL

NODES ALL

LINKS ALL

[TAGS]

[MAP]

DI MENSIONS 0.000 0.000 10000.000 10000.000

Units None

[COORDINATES]

Node	X-Coord	Y-Coord
------	---------	---------

POC-1	1480.263	383.772
DIV1	-2767.094	3012.821
DIV2	-1570.513	4476.496
DIV3	74.786	5715.812
DIV4	2035.446	4103.115
DIV5	4134.615	5448.718
DIV6	5202.991	5566.239
DIV7	6517.094	4155.983
DIV8	7467.949	3151.709
STOR1	-2051.282	1655.983
STOR2	-1549.145	3205.128
STOR3	10.684	3568.376
STOR4	961.538	5224.359
STOR5	2553.419	3589.744
STOR6	4326.923	3311.966
STOR7	6047.009	3023.504
STOR8	6955.128	1762.821

[VERTICES]

Link	X-Coord	Y-Coord
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[Polygons]

Subcatchment	X-Coord	Y-Coord
--------------	---------	---------

DMA-1	-2841.880	7232.906
BMP-1	-2841.880	5790.598
DMA-2	-1463.675	6901.709
DMA-3	53.419	7905.983
DMA-4	1538.462	8119.658
DMA-5	3942.308	7948.718
DMA-6	5544.872	7948.718
DMA-7	7211.538	7735.043
DMA-8	8440.171	7895.299
BMP-2	-1420.940	5993.590
BMP-3	64.103	6688.034
BMP-4	1591.880	6613.248

		1890_POST.TXT
BMP-5	4123. 932	6356. 838
BMP-6	5534. 188	6720. 085
BMP-7	7040. 598	6047. 009
BMP-8	8333. 333	6047. 009
[SYMBOLS]		
;; Gage	X-Coord	Y-Coord
;; -----	-----	-----
OCEANSI DE	4081. 197	9081. 197

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.009)  
-----

## RESIDENTIAL CARE FACILITY

J-1890

## POST PROJECT CONDITION

WARNING 04: minimum elevation drop used for Conduit LF1  
WARNING 04: minimum elevation drop used for Conduit BP1  
WARNING 04: minimum elevation drop used for Conduit LF2  
WARNING 04: minimum elevation drop used for Conduit LF3  
WARNING 04: minimum elevation drop used for Conduit OF4  
WARNING 04: minimum elevation drop used for Conduit LF5  
WARNING 04: minimum elevation drop used for Conduit LF6  
WARNING 04: minimum elevation drop used for Conduit LF7  
WARNING 04: minimum elevation drop used for Conduit LF8  
WARNING 04: minimum elevation drop used for Conduit BP2  
WARNING 04: minimum elevation drop used for Conduit BP3  
WARNING 04: minimum elevation drop used for Conduit BP4  
WARNING 04: minimum elevation drop used for Conduit BP5  
WARNING 04: minimum elevation drop used for Conduit BP6  
WARNING 04: minimum elevation drop used for Conduit BP7  
WARNING 04: minimum elevation drop used for Conduit BP8

\*\*\*\*\*

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

\*\*\*\*\*

\*\*\*\*\*

## Analysis Options

\*\*\*\*\*

Flow Units ..... CFS

## Process Models:

Rainfall/Runoff ..... YES

RDII ..... NO

Snowmelt ..... NO

Groundwater ..... NO

Flow Routing ..... YES

Ponding Allowed ..... NO

Water Quality ..... NO

Infiltration Method ..... GREEN\_AMPT

Flow Routing Method ..... KINWAVE

Starting Date ..... AUG-28-1951 05:00:00

Ending Date ..... MAY-23-2008 23:00:00

Antecedent Dry Days ..... 0.0

Report Time Step ..... 00:15:00

Wet Time Step ..... 00:05:00  
 Dry Time Step ..... 01:00:00  
 Routing Time Step ..... 60.00 sec

	Volume	Depth
Runoff Quantity Continuity	acre-feet	inches
Initial LID Storage .....	0.015	0.060
Total Precipitation .....	168.478	675.090
Evaporation Loss .....	15.048	60.297
Infiltration Loss .....	95.625	383.167
Surface Runoff .....	13.908	55.730
LID Drainage .....	44.157	176.938
Final Storage .....	0.026	0.105
Continuity Error (%) .....	-0.161	

	Volume	Volume
Flow Routing Continuity	acre-feet	10^6 gal
Dry Weather Inflow .....	0.000	0.000
Wet Weather Inflow .....	58.066	18.922
Groundwater Inflow .....	0.000	0.000
RDII Inflow .....	0.000	0.000
External Inflow .....	0.000	0.000
External Outflow .....	57.015	18.579
Flooding Loss .....	4.063	1.324
Evaporation Loss .....	0.000	0.000
Exfiltration Loss .....	0.000	0.000
Initial Stored Volume ....	0.000	0.000
Final Stored Volume .....	0.000	0.000
Continuity Error (%) .....	-5.188	

\*\*\*\*\*

#### Highest Flow Instability Indexes

\*\*\*\*\*

All links are stable.

\*\*\*\*\*

#### Routing Time Step Summary

\*\*\*\*\*

Minimum Time Step : 60.00 sec  
 Average Time Step : 60.00 sec  
 Maximum Time Step : 60.00 sec  
 Percent in Steady State : 0.00

Average Iterations per Step : 1.00  
Percent Not Converging : 0.00

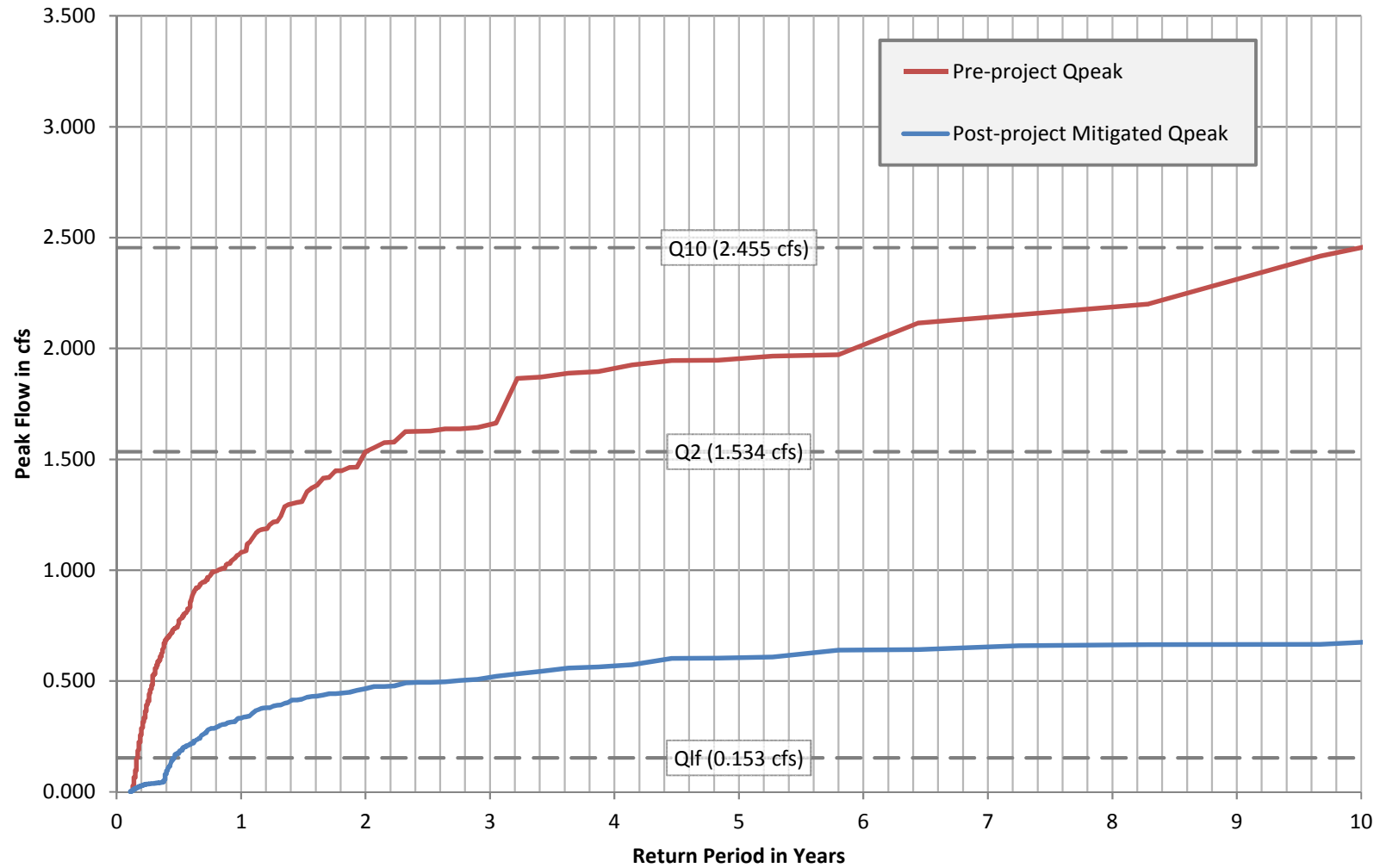
\*\*\*\*\*

Analysis begun on: Fri Sep 22 11:47:52 2017  
Analysis ended on: Fri Sep 22 11:52:00 2017  
Total elapsed time: 00:04:08

**Peak Flow Frequency Summary**

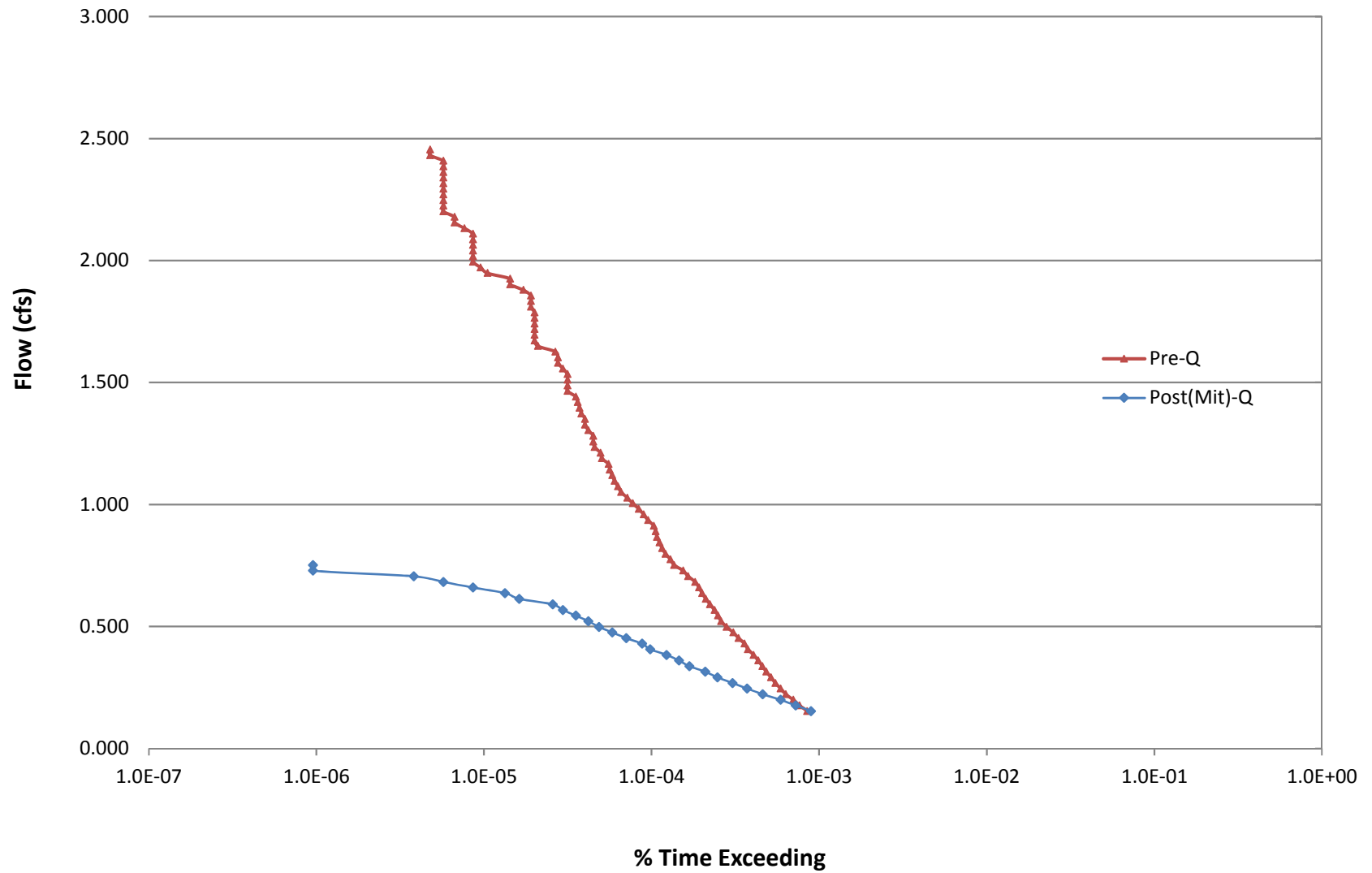
Return Period	Pre-project Q (cfs)	Post-project - Mitigated Q (cfs)
LF = 0.1*Q2	0.153	0.047
2-year	1.534	0.465
3-year	1.657	0.517
4-year	1.910	0.569
5-year	1.954	0.606
6-year	2.016	0.641
7-year	2.140	0.654
8-year	2.187	0.663
9-year	2.311	0.665
10-year	2.455	0.675

## Peak Flow Frequency Curves





## Flow Duration Curve [Pre vs. Post (Mitigated)]



# BMP-1

## SWMM Model Drain Coefficient Calculation

PARAMETER	ABBREV.	Basin 1	
Ponding Depth	PD	6	in
Bioretention Soil Layer	S	24	in
Gravel Layer	G	12	in
TOTAL		3.5	ft
		42	in
Orifice Coefficient	$c_g$	0.6	--
Low Flow Orifice Diameter	D	0.33	in
Drain exponent	n	0.5	--
Flow Rate (volumetric)	Q	0.005	cfs
Ponding Depth Surface Area	$A_{PD}$	330	ft <sup>2</sup>
Bioretention Surface Area	$A_S, A_G$	330	ft <sup>2</sup>
	$A_S, A_G$	0.0076	ac
Flow Rate (per unit area)	q	0.699	in/hr
Effective Ponding Depth	$PD_{eff}$	6.00	in
Drain Coefficient	C	0.1079	--
Cutoff Flow	$Q_{cutoff}$	0.00534	cfs

# BMP-2

## SWMM Model Drain Coefficient Calculation

PARAMETER	ABBREV.	Basin 1	
Ponding Depth	PD	6	in
Bioretention Soil Layer	S	24	in
Gravel Layer	G	12	in
TOTAL		3.5	ft
		42	in
Orifice Coefficient	$c_g$	0.6	--
Low Flow Orifice Diameter	D	0.33	in
Drain exponent	n	0.5	--
Flow Rate (volumetric)	Q	0.005	cfs
Ponding Depth Surface Area	$A_{PD}$	450	ft <sup>2</sup>
Bioretention Surface Area	$A_S, A_G$	450	ft <sup>2</sup>
	$A_S, A_G$	0.0103	ac
Flow Rate (per unit area)	q	0.513	in/hr
Effective Ponding Depth	$PD_{eff}$	6.00	in
Drain Coefficient	C	0.0791	--
Cutoff Flow	$Q_{cutoff}$	0.00534	cfs

# BMP-3

## SWMM Model Drain Coefficient Calculation

PARAMETER	ABBREV.	Basin 1	
Ponding Depth	PD	6	in
Bioretention Soil Layer	S	24	in
Gravel Layer	G	12	in
TOTAL		3.5	ft
		42	in
Orifice Coefficient	$c_g$	0.6	--
Low Flow Orifice Diameter	D	0.4	in
Drain exponent	n	0.5	--
Flow Rate (volumetric)	Q	0.008	cfs
Ponding Depth Surface Area	$A_{PD}$	400	ft <sup>2</sup>
Bioretention Surface Area	$A_S, A_G$	400	ft <sup>2</sup>
	$A_S, A_G$	0.0092	ac
Flow Rate (per unit area)	q	0.847	in/hr
Effective Ponding Depth	$PD_{eff}$	6.00	in
Drain Coefficient	C	0.1307	--
Cutoff Flow	$Q_{cutoff}$	0.00784	cfs

**BMP-4****SWMM Model Drain Coefficient Calculation**

PARAMETER	ABBREV.	Basin 1	
Ponding Depth	PD	6	in
Bioretention Soil Layer	S	24	in
Gravel Layer	G	12	in
TOTAL		3.5	ft
		42	in
Orifice Coefficient	$c_g$	0.6	--
Low Flow Orifice Diameter	D	0.55	in
Drain exponent	n	0.5	--
Flow Rate (volumetric)	Q	0.015	cfs
Ponding Depth Surface Area	$A_{PD}$	825	ft <sup>2</sup>
Bioretention Surface Area	$A_S, A_G$	825	ft <sup>2</sup>
	$A_S, A_G$	0.0189	ac
Flow Rate (per unit area)	q	0.776	in/hr
Effective Ponding Depth	$PD_{eff}$	6.00	in
Drain Coefficient	C	0.1197	--
Cutoff Flow	$Q_{cutoff}$	0.01481	cfs

# BMP-5

## SWMM Model Drain Coefficient Calculation

PARAMETER	ABBREV.	Basin 1	
Ponding Depth	PD	6	in
Bioretention Soil Layer	S	24	in
Gravel Layer	G	12	in
TOTAL		3.5	ft
		42	in
Orifice Coefficient	$c_g$	0.6	--
Low Flow Orifice Diameter	D	0.33	in
Drain exponent	n	0.5	--
Flow Rate (volumetric)	Q	0.005	cfs
Ponding Depth Surface Area	$A_{PD}$	230	ft <sup>2</sup>
Bioretention Surface Area	$A_S, A_G$	230	ft <sup>2</sup>
	$A_S, A_G$	0.0053	ac
Flow Rate (per unit area)	q	1.003	in/hr
Effective Ponding Depth	$PD_{eff}$	6.00	in
Drain Coefficient	C	0.1548	--
Cutoff Flow	$Q_{cutoff}$	0.00534	cfs

# BMP-6

## SWMM Model Drain Coefficient Calculation

PARAMETER	ABBREV.	Basin 1	
Ponding Depth	PD	8	in
Bioretention Soil Layer	S	24	in
Gravel Layer	G	12	in
TOTAL		3.7	ft
		44	in
Orifice Coefficient	$c_g$	0.6	--
Low Flow Orifice Diameter	D	0.3	in
Drain exponent	n	0.5	--
Flow Rate (volumetric)	Q	0.005	cfs
Ponding Depth Surface Area	$A_{PD}$	416	ft <sup>2</sup>
Bioretention Surface Area	$A_S, A_G$	416	ft <sup>2</sup>
	$A_S, A_G$	0.0096	ac
Flow Rate (per unit area)	q	0.469	in/hr
Effective Ponding Depth	$PD_{eff}$	8.00	in
Drain Coefficient	C	0.0707	--
Cutoff Flow	$Q_{cutoff}$	0.00452	cfs

# BMP-7

## SWMM Model Drain Coefficient Calculation

PARAMETER	ABBREV.	Basin 1	
Ponding Depth	PD	8	in
Bioretention Soil Layer	S	24	in
Gravel Layer	G	12	in
TOTAL		3.7	ft
		44	in
Orifice Coefficient	$c_g$	0.6	--
Low Flow Orifice Diameter	D	0.3	in
Drain exponent	n	0.5	--
Flow Rate (volumetric)	Q	0.005	cfs
Ponding Depth Surface Area	$A_{PD}$	380	ft <sup>2</sup>
Bioretention Surface Area	$A_S, A_G$	380	ft <sup>2</sup>
	$A_S, A_G$	0.0087	ac
Flow Rate (per unit area)	q	0.514	in/hr
Effective Ponding Depth	$PD_{eff}$	8.00	in
Drain Coefficient	C	0.0774	--
Cutoff Flow	$Q_{cutoff}$	0.00452	cfs



# BMP-8

## SWMM Model Drain Coefficient Calculation

PARAMETER	ABBREV.	Basin 1	
Ponding Depth	PD	8	in
Bioretention Soil Layer	S	24	in
Gravel Layer	G	12	in
TOTAL		3.7	ft
		44	in
Orifice Coefficient	$c_g$	0.6	--
Low Flow Orifice Diameter	D	0.3	in
Drain exponent	n	0.5	--
Flow Rate (volumetric)	Q	0.005	cfs
Ponding Depth Surface Area	$A_{PD}$	200	ft <sup>2</sup>
Bioretention Surface Area	$A_S, A_G$	200	ft <sup>2</sup>
	$A_S, A_G$	0.0046	ac
Flow Rate (per unit area)	q	0.976	in/hr
Effective Ponding Depth	$PD_{eff}$	8.00	in
Drain Coefficient	C	0.1471	--
Cutoff Flow	$Q_{cutoff}$	0.00452	cfs

## RESIDENTIAL CARE FACILITY

J-1890

9/22/2017

**Low-flow Threshold:** 10%  
**0.1xQ2 (Pre):** 0.153 cfs  
**Q10 (Pre):** 2.455 cfs  
**Ordinate #:** 100  
**Incremental Q (Pre):** 0.02301 cfs  
**Total Hourly Data:** 1048571 hours

The proposed BMP: **PASSED**

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
0	0.153	888	8.47E-04	938	8.95E-04	106%	Pass
1	0.176	802	7.65E-04	759	7.24E-04	95%	Pass
2	0.199	735	7.01E-04	617	5.88E-04	84%	Pass
3	0.222	663	6.32E-04	483	4.61E-04	73%	Pass
4	0.245	617	5.88E-04	390	3.72E-04	63%	Pass
5	0.268	574	5.47E-04	319	3.04E-04	56%	Pass
6	0.291	541	5.16E-04	259	2.47E-04	48%	Pass
7	0.314	507	4.84E-04	219	2.09E-04	43%	Pass
8	0.337	480	4.58E-04	176	1.68E-04	37%	Pass
9	0.361	454	4.33E-04	153	1.46E-04	34%	Pass
10	0.384	426	4.06E-04	129	1.23E-04	30%	Pass
11	0.407	394	3.76E-04	103	9.82E-05	26%	Pass
12	0.430	376	3.59E-04	92	8.77E-05	24%	Pass
13	0.453	346	3.30E-04	74	7.06E-05	21%	Pass
14	0.476	322	3.07E-04	61	5.82E-05	19%	Pass
15	0.499	294	2.80E-04	51	4.86E-05	17%	Pass
16	0.522	273	2.60E-04	44	4.20E-05	16%	Pass
17	0.545	261	2.49E-04	37	3.53E-05	14%	Pass
18	0.568	249	2.37E-04	31	2.96E-05	12%	Pass
19	0.591	234	2.23E-04	27	2.57E-05	12%	Pass
20	0.614	221	2.11E-04	17	1.62E-05	8%	Pass
21	0.637	210	2.00E-04	14	1.34E-05	7%	Pass
22	0.660	201	1.92E-04	9	8.58E-06	4%	Pass
23	0.683	191	1.82E-04	6	5.72E-06	3%	Pass
24	0.706	173	1.65E-04	4	3.81E-06	2%	Pass
25	0.729	162	1.54E-04	1	9.54E-07	1%	Pass
26	0.752	143	1.36E-04	1	9.54E-07	1%	Pass
27	0.775	136	1.30E-04	0	0.00E+00	0%	Pass
28	0.798	127	1.21E-04	0	0.00E+00	0%	Pass
29	0.821	121	1.15E-04	0	0.00E+00	0%	Pass
30	0.844	117	1.12E-04	0	0.00E+00	0%	Pass
31	0.867	113	1.08E-04	0	0.00E+00	0%	Pass
32	0.890	111	1.06E-04	0	0.00E+00	0%	Pass
33	0.913	108	1.03E-04	0	0.00E+00	0%	Pass
34	0.936	100	9.54E-05	0	0.00E+00	0%	Pass
35	0.959	94	8.96E-05	0	0.00E+00	0%	Pass
36	0.982	88	8.39E-05	0	0.00E+00	0%	Pass
37	1.005	81	7.72E-05	0	0.00E+00	0%	Pass
38	1.028	75	7.15E-05	0	0.00E+00	0%	Pass
39	1.051	69	6.58E-05	0	0.00E+00	0%	Pass
40	1.074	66	6.29E-05	0	0.00E+00	0%	Pass
41	1.097	63	6.01E-05	0	0.00E+00	0%	Pass
42	1.120	61	5.82E-05	0	0.00E+00	0%	Pass
43	1.143	59	5.63E-05	0	0.00E+00	0%	Pass

## RESIDENTIAL CARE FACILITY

J-1890

9/22/2017

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
44	1.166	58	5.53E-05	0	0.00E+00	0%	Pass
45	1.189	53	5.05E-05	0	0.00E+00	0%	Pass
46	1.212	52	4.96E-05	0	0.00E+00	0%	Pass
47	1.235	48	4.58E-05	0	0.00E+00	0%	Pass
48	1.258	47	4.48E-05	0	0.00E+00	0%	Pass
49	1.281	47	4.48E-05	0	0.00E+00	0%	Pass
50	1.304	44	4.20E-05	0	0.00E+00	0%	Pass
51	1.327	42	4.01E-05	0	0.00E+00	0%	Pass
52	1.350	42	4.01E-05	0	0.00E+00	0%	Pass
53	1.373	40	3.81E-05	0	0.00E+00	0%	Pass
54	1.396	39	3.72E-05	0	0.00E+00	0%	Pass
55	1.419	38	3.62E-05	0	0.00E+00	0%	Pass
56	1.442	37	3.53E-05	0	0.00E+00	0%	Pass
57	1.465	33	3.15E-05	0	0.00E+00	0%	Pass
58	1.488	33	3.15E-05	0	0.00E+00	0%	Pass
59	1.511	33	3.15E-05	0	0.00E+00	0%	Pass
60	1.534	33	3.15E-05	0	0.00E+00	0%	Pass
61	1.557	31	2.96E-05	0	0.00E+00	0%	Pass
62	1.580	29	2.77E-05	0	0.00E+00	0%	Pass
63	1.603	29	2.77E-05	0	0.00E+00	0%	Pass
64	1.626	28	2.67E-05	0	0.00E+00	0%	Pass
65	1.649	22	2.10E-05	0	0.00E+00	0%	Pass
66	1.672	21	2.00E-05	0	0.00E+00	0%	Pass
67	1.695	21	2.00E-05	0	0.00E+00	0%	Pass
68	1.718	21	2.00E-05	0	0.00E+00	0%	Pass
69	1.741	21	2.00E-05	0	0.00E+00	0%	Pass
70	1.764	21	2.00E-05	0	0.00E+00	0%	Pass
71	1.787	21	2.00E-05	0	0.00E+00	0%	Pass
72	1.810	20	1.91E-05	0	0.00E+00	0%	Pass
73	1.833	20	1.91E-05	0	0.00E+00	0%	Pass
74	1.856	20	1.91E-05	0	0.00E+00	0%	Pass
75	1.879	18	1.72E-05	0	0.00E+00	0%	Pass
76	1.902	15	1.43E-05	0	0.00E+00	0%	Pass
77	1.925	15	1.43E-05	0	0.00E+00	0%	Pass
78	1.948	11	1.05E-05	0	0.00E+00	0%	Pass
79	1.971	10	9.54E-06	0	0.00E+00	0%	Pass
80	1.994	9	8.58E-06	0	0.00E+00	0%	Pass
81	2.017	9	8.58E-06	0	0.00E+00	0%	Pass
82	2.040	9	8.58E-06	0	0.00E+00	0%	Pass
83	2.063	9	8.58E-06	0	0.00E+00	0%	Pass
84	2.086	9	8.58E-06	0	0.00E+00	0%	Pass
85	2.109	9	8.58E-06	0	0.00E+00	0%	Pass
86	2.132	8	7.63E-06	0	0.00E+00	0%	Pass
87	2.155	7	6.68E-06	0	0.00E+00	0%	Pass
88	2.178	7	6.68E-06	0	0.00E+00	0%	Pass
89	2.202	6	5.72E-06	0	0.00E+00	0%	Pass
90	2.225	6	5.72E-06	0	0.00E+00	0%	Pass
91	2.248	6	5.72E-06	0	0.00E+00	0%	Pass
92	2.271	6	5.72E-06	0	0.00E+00	0%	Pass
93	2.294	6	5.72E-06	0	0.00E+00	0%	Pass

## RESIDENTIAL CARE FACILITY

J-1890

9/22/2017

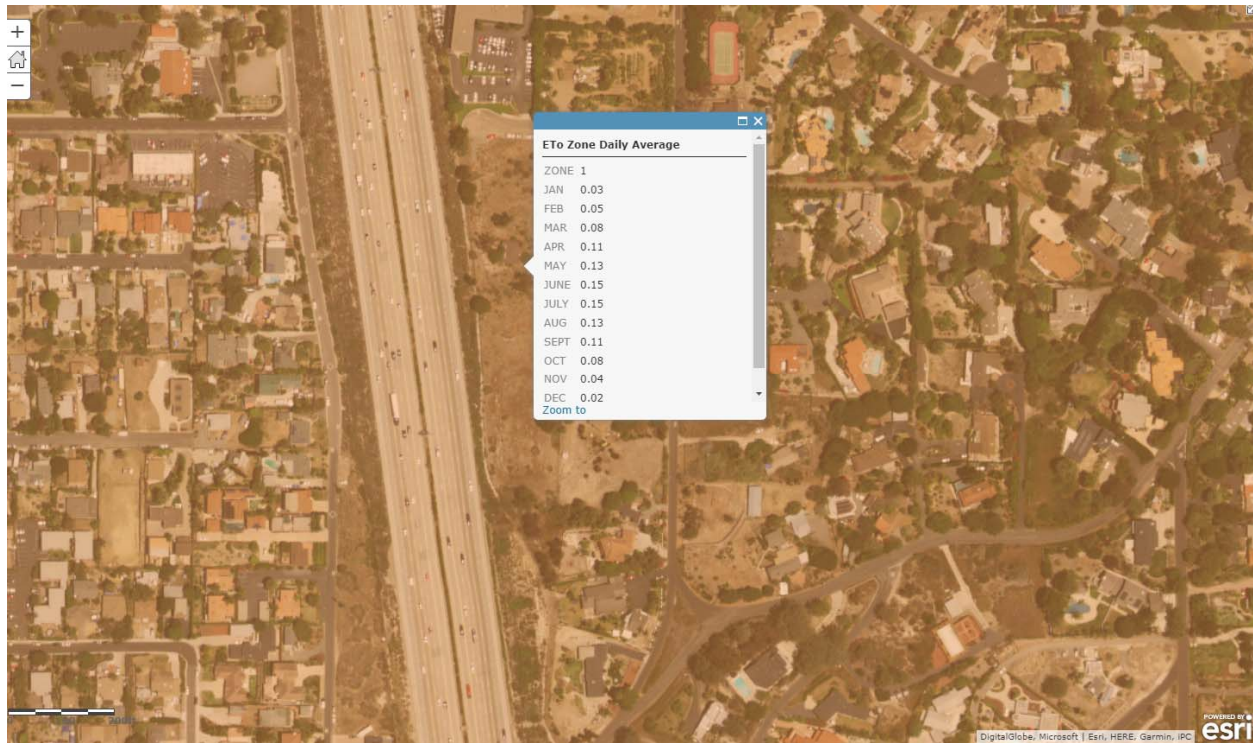
Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post- project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
94	2.317	6	5.72E-06	0	0.00E+00	0%	Pass
95	2.340	6	5.72E-06	0	0.00E+00	0%	Pass
96	2.363	6	5.72E-06	0	0.00E+00	0%	Pass
97	2.386	6	5.72E-06	0	0.00E+00	0%	Pass
98	2.409	6	5.72E-06	0	0.00E+00	0%	Pass
99	2.432	5	4.77E-06	0	0.00E+00	0%	Pass
100	2.455	5	4.77E-06	0	0.00E+00	0%	Pass

## RESIDENTIAL CARE FACILITY

J-1890

9/10/2016

### SHERIDAN AVENUE



Source:

<http://www.arcgis.com/home/webmap/viewer.html?webmap=46368de75d69480db276c0b42e4afd80>




Hydrologic Soil Group—San Diego County Area, California  
(Solana Beach Senior Care Facility)



Hydrologic Soil Group—San Diego County Area, California  
(Solana Beach Senior Care Facility)

## MAP LEGEND

### Area of Interest (AOI)









 Area of Interest (AOI)

### Soils

#### Soil Rating Polygons





 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

#### Soil Rating Lines


 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

#### Soil Rating Points






 A  
 A/D  
 B  
 B/D

 C  
 C/D  
 D  
 Not rated or not available

### Water Features

 Streams and Canals

### Transportation

 Rails  
 Interstate Highways  
 US Routes  
 Major Roads  
 Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Diego County Area, California  
 Survey Area Data: Version 10, Sep 12, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 3, 2014—Nov 22, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — San Diego County Area, California (CA638)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CbD	Carlsbad gravelly loamy sand, 9 to 15 percent slopes	B	0.1	3.0%
CsD	Corralitos loamy sand, 9 to 15 percent slopes	A	3.0	97.0%
<b>Totals for Area of Interest</b>			<b>3.1</b>	<b>100.0%</b>

## Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.



## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

**ATTACHMENT 3**  
**Structural BMP Maintenance Information**

This is the cover sheet for Attachment 3.

**Indicate which Items are Included behind this cover sheet:**

<b>Attachment Sequence</b>	<b>Contents</b>	<b>Checklist</b>
Attachment 3a	Structural BMP Maintenance Thresholds and Actions (Required)	<input checked="" type="checkbox"/> Included  See Structural BMP Maintenance Information Checklist on the back of this Attachment cover sheet.
Attachment 3b	Draft Maintenance Agreement (when applicable)	<input checked="" type="checkbox"/> Included <input type="checkbox"/> 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).

### Attachment 3a: Structural BMP Maintenance Thresholds and Actions

#### Inspection and Maintenance Activities for Treatment Control BMPs

The structural treatment control BMPs for the proposed project consists of eight (8) biofiltration basin. The discussions below provide inspection frequency, maintenance indicators and maintenance activities for the proposed structural BMPs. The proposed biofiltration basins should be inspected and maintained to ensure proper functionality over time. The discussion below provides recommendations for inspection and maintenance for the biofiltration basins in order to ensure their lasting effectiveness.

During inspection, the inspector shall check for the maintenance indicators given below and take the appropriate maintenance action:

Typical Maintenance Indicator(s) for Vegetated BMPs	Maintenance Actions
Accumulation of sediment, litter, or debris	Remove and properly dispose of accumulated materials, without damage to the vegetation.
Poor vegetation establishment	Re-seed, re-plant, or re-establish vegetation per original plans.
Overgrown vegetation	Mow or trim as appropriate, but not less than the design height of the vegetation per original plans when applicable
Erosion due to concentrated irrigation flow	Repair/re-seed/re-plant eroded areas and adjust the irrigation system.
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.
Standing water in or biofiltration basin for longer than 96 hours following a storm event*	Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, clearing underdrains (where applicable), or repairing/replacing clogged or compacted soils.
Obstructed inlet or outlet structure	Clear obstructions.
Damage to structural components such as weirs, inlet or outlet structures	Repair or replace as applicable.

\*These BMPs typically include a surface ponding layer as part of their function which may take 96 hours to drain following a storm event.

## Inspection and Maintenance Frequency

The Table below lists the TC-BMPs to be inspected and maintained and the minimum frequency of inspection and maintenance activities.

**Table 4.1: Summary Table of Inspection and Maintenance Frequency**

<b>BMP</b>	<b>Inspection Frequency</b>	<b>Maintenance Frequency</b>
Biofiltration Basins	At a minimum: annually, and after major storm events	Routine maintenance to remove accumulated materials at the inlets and outlets: annually, on or before September 30 <sup>th</sup> . As-needed maintenance based on maintenance indicators

The frequencies given in the Summary Table of Inspection and Maintenance Frequency are minimum recommended frequencies for inspection and maintenance activities for the project. Typically, the frequency of maintenance required for structural BMPs is site and drainage area specific. If it is determined during the regularly scheduled inspection and/or routine maintenance that a structural BMP requires more frequent maintenance (e.g., to remove accumulated trash) it may be necessary to increase the frequency of inspection and/or routine maintenance.

## Recordkeeping Requirements

The party responsible to ensure implementation and funding of maintenance of structural BMPs shall maintain records documenting the inspection and maintenance activities. The records must be kept a minimum of 5 years and shall be made available to the City of Solana Beach for inspection upon request at any time.

RECORDING REQUESTED BY:

WHEN RECORDED MAIL TO:

(property owner)

SPACE ABOVE THIS LINE FOR RECORDER'S USE

## MAINTENANCE NOTIFICATION AGREEMENT FOR CATEGORY 1 STORMWATER STRUCTURAL BMP's

THIS AGREEMENT is made on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ and replaces and rescinds the previous agreement with document number \_\_\_\_\_.

\_\_\_\_\_, the Owner(s) of the hereinafter described real property:

Address \_\_\_\_\_ Post Office \_\_\_\_\_ Zip Code \_\_\_\_\_

Assessor Parcel No.(s) \_\_\_\_\_

List, identify, locate (in Exhibit A) and describe the Structural Best Management Practice below:

Owner(s) of the above property acknowledge the existence of the stormwater Structural Best Management Practice (BMP) on the said property. Perpetual maintenance of the Structural BMP(s) is the requirement of the State NPDES Permit, Order No. R9-2015-0001, Section E.3.e. and the County of San Diego Watershed Protection Ordinance (WPO) Ordinance No. 10385 Section 67.812 through Section 67.814, and County BMP Design Manual (BMP DM) Chapters 7 & 8. In consideration of the requirement to construct and maintain Structural BMP(s), as conditioned by Discretionary Permit, Grading Permit, and/or Building Permit (as may be applicable), I/we hereby covenant and agree that:

1. I/We are the owner(s) of the existing (or to be constructed concurrently) premises located on the above described property.
2. I/We shall take the responsibility for the perpetual maintenance of the Structural BMP(s) as listed above in accordance with the maintenance plan (in Exhibit B) and in compliance with County's self-inspection reporting and verification for as long as I/we have ownership of said property(ies).
3. I/We shall cooperate with and allow the County staff to come onto said property(ies) and perform inspection duties as prescribed by local and state regulators.
4. I/We shall inform future buyer(s) or successors of said property(ies) of the existence and perpetual maintenance requirement responsibilities for Structural BMP(s) as listed above and to ensure that such responsibility shall transfer to the future owner(s).
5. I/We will abide by all of the requirements and standards of Section 67.812 through Section 67.814 of the WPO (or renumbering thereof) as it exists on the date of this Agreement, and which hereby is incorporated herein by reference.

This Agreement shall run with the land. If the subject property is conveyed to any other person, firm, or corporation, the instrument that conveys title or any interest in or to said property, or any portion thereof, shall contain a provision transferring maintenance responsibility for Structural BMP(s) to the successive owner according to the terms of this Agreement. Any violation of this Agreement is grounds for the County to impose penalties upon the property owner as prescribed in County Code of Regulatory Ordinances, Title 1, Division 8, Chapter 1 Administrative Citations §§18.101-18.116.

\_\_\_\_\_  
Owner(s) Signature(s)

\_\_\_\_\_  
Print Owner(s) Name(s) and Title

STATE OF CALIFORNIA )  
COUNTY OF \_\_\_\_\_ )

On \_\_\_\_\_ before me, \_\_\_\_\_ Notary Public,  
personally appeared \_\_\_\_\_ who proved to me on the basis of satisfactory evidence to be  
the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the  
same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s) or the entity  
upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

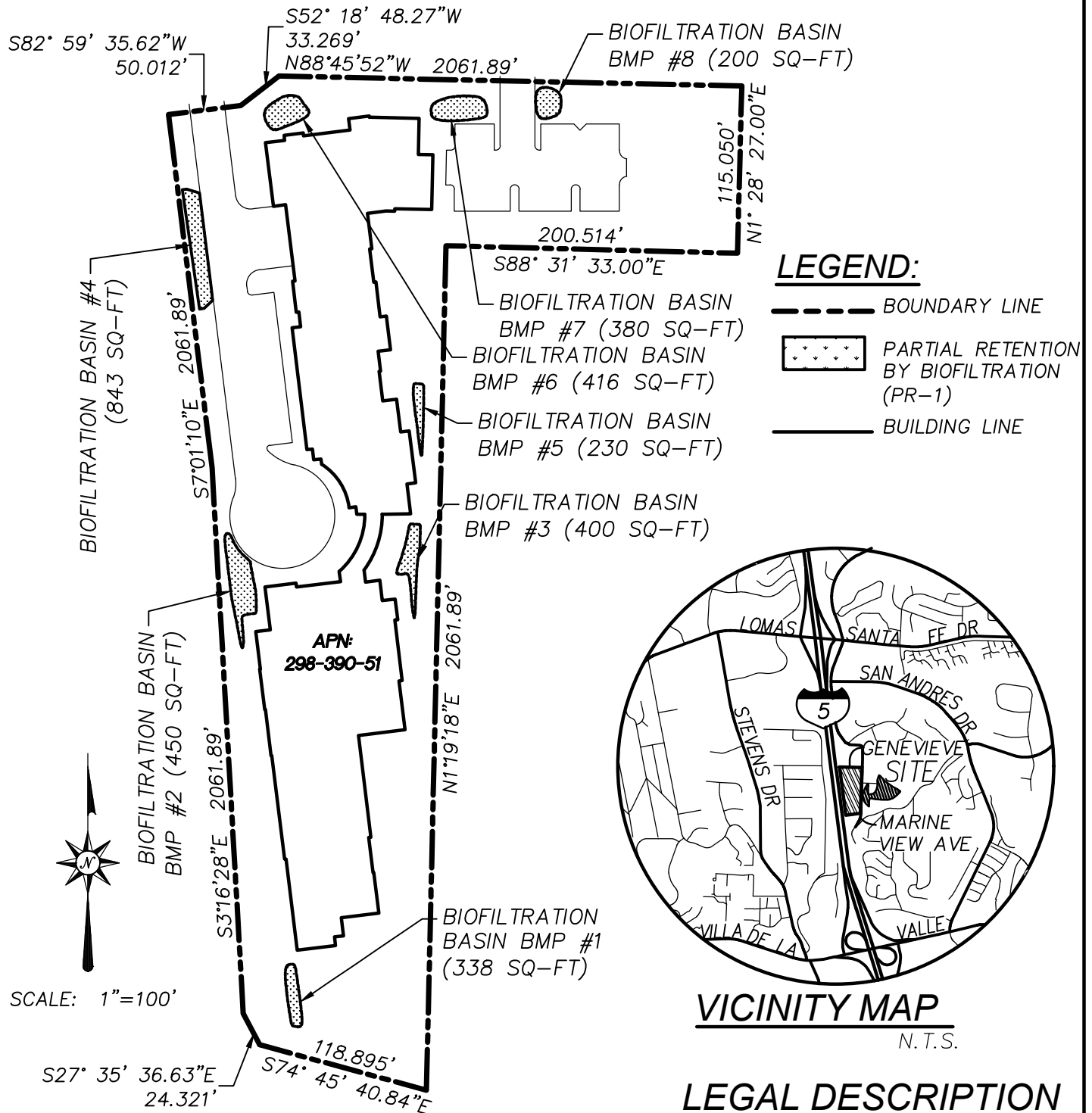
Include Exhibits that illustrate:

- Exhibit A: Project Site Vicinity; the Project Site Map; and a map for each BMP and its Drainage Management Area
- Exhibit B: the maintenance plan.

# EXHIBIT 'A'

SHEET 1 OF 3

## STORM WATER MANAGEMENT AND DISCHARGE CONTROL MAINTENANCE AGREEMENT EXHIBIT (SWMDCMA)



**959 GENEVIEVE ST. PERMANENT  
STORM WATER BMP's**

### LEGAL DESCRIPTION

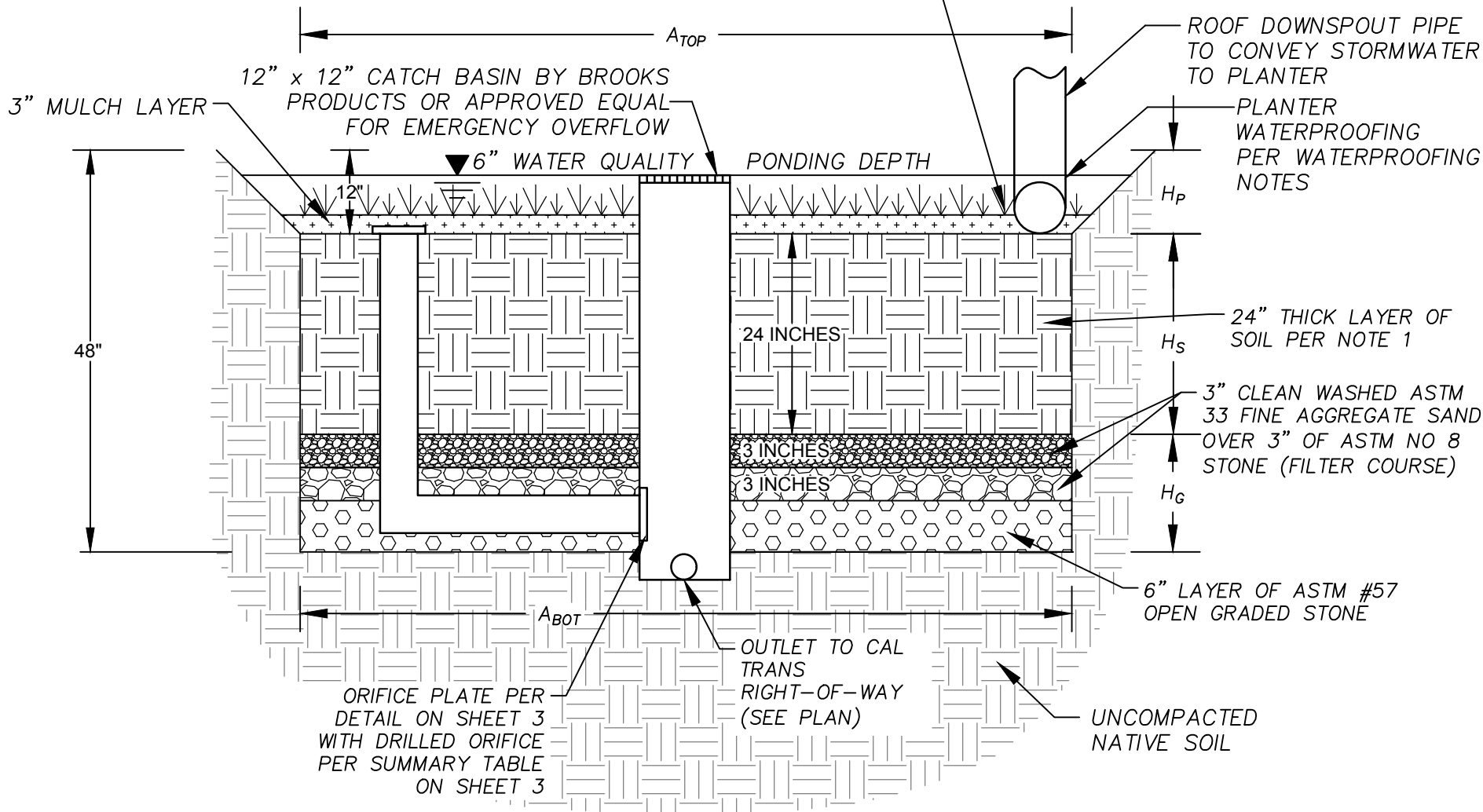
PORTION OF LOTS 1 & 2  
IN BLOCK OF KENNEY'S  
MARINE VIEW GARDENS



***EXHIBIT 'B'***

***SHEET 2 OF 3***

BUSH ANEMONE, TOYON, SOUTHERN CALIFORNIA SNOWBERRY,  
EVERGREEN CURRANT, CALIFORNIA FIELD SEDGE, SMALL CAPE RUSH,  
GRAY MOORE GRASS, PARISH WINDOWFOAM AND CALIFORNIA GRAPE  
PLANTINGS PER SAN DIEGO LID MANUAL APPENDIX E



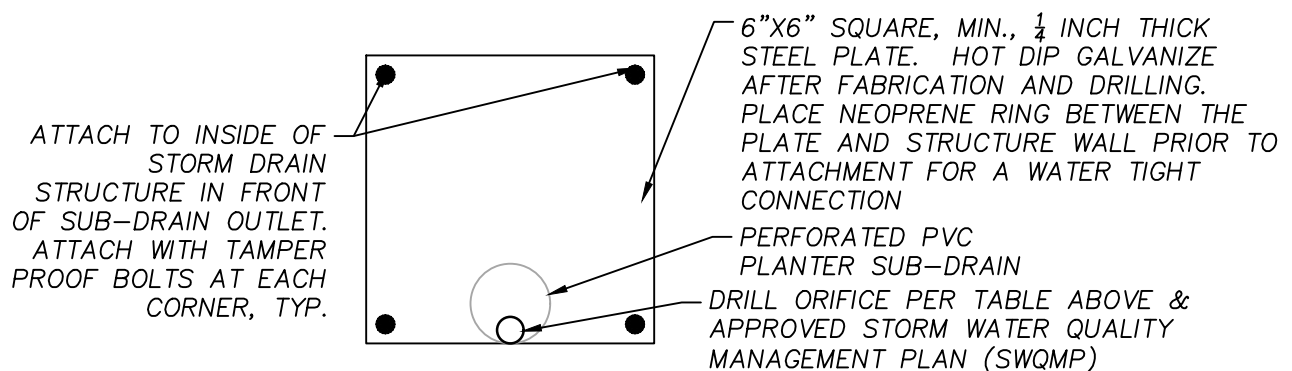
**TYPICAL SECTION:**

## BIOFILTRATION PLANTER (PR-1)

NOT TO SCALE

BMP #	$H_P$ (FT)	$H_S$ (FT)	$H_G$ (FT)	HMP ORIFICE (IN)	$A_{BOT}$ (FT <sup>2</sup> )	$A_{TOP}$ (FT <sup>2</sup> )
1	0.5	2.0	1.0	0.33	330	330
2	0.5	2.0	1.0	0.33	450	450
3	0.5	2.0	1.0	0.40	400	400
4	0.5	2.0	1.0	0.55	825	825
5	0.5	2.0	1.0	0.33	230	230
6	1.5	2.0	1.0	0.30	416	416
7	1.5	2.0	1.0	0.30	380	380
8	1.5	2.0	1.0	0.30	200	200

### **BMP SIZE + ORIFICE DIAMETER SUMMARY**



### **DRILLED ORIFICE PLATE DETAIL (TYP.)**

NOT TO SCALE

#### POST-CONSTRUCTION PERMANENT BMP OPERATION & MAINTENANCE PROCEDURE DETAILS

STORM WATER MANAGEMENT AND DISCHARGE CONTROL  
CONTROL MAINTENANCE AGREEMENT APPROVAL NO.:

O&amp;M RESPONSIBLE PARTY DESIGNEE: PACIFIC SOUND INVESTORS, LLC

BMP DESCRIPTION	INSPECTION	MAINTENANCE	MAINTENANCE METHOD	QUANTITY	SHEET NUMBER(S)
	FREQUENCY	FREQUENCY			
BIOFILTRATION PLANTER LID AND TREATMENT CONTROL	BI-ANNUAL	BI-ANNUAL, AS NEEDED	MOWING AND DEBRIS COLLECTION AS NECESSARY. REPAIR AS NEEDED.	8	C1.0
SELF MITIGATING AREAS (PER APPENDIX E)	BI-ANNUAL	BI-ANNUAL, AS NEEDED	MOWING AND DEBRIS COLLECTION AS NECESSARY. REPAIR AS NEEDED.	1	C1.0
SITE DESIGN AREAS (PER APPENDIX E)	BI-ANNUAL	BI-ANNUAL, AS NEEDED	MOWING AND DEBRIS COLLECTION AS NECESSARY. REPAIR AS NEEDED.	1	C1.0

**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 4 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.
- ☒ A single plan BMP sheet for each construction drawing highlighting only those BMPs included in the referenced construction drawing. (See Section 5.5.2 of the City's JRMP for further detail.)



# PREPARED FOR

PACIFIC SOUND INVESTORS, LLC

## SITE ADDRESS

959 GENEVIEVE STREET  
SOLANA BEACH, CA 92075

## APN'S

298-390-51

## LEGAL DESCRIPTION

PORTION OF LOTS 1 & 2 IN BLOCK 3 OF KENNEY'S MARINE VIEW GARDENS IN THE CITY OF SOLANA BEACH, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 1774 REC. 12-31-1923 IN THE OFFICE OF THE COUNTY RECORDER OF SAID SAN DIEGO COUNTY, BEING PARCEL A OF CERTIFICATE OF COMPLETION RECORDED APRIL 28, 2003 AS DOC. NO. 2003-48729 OF OFFICIAL RECORDS OF SAID SAN DIEGO COUNTY.

## BENCHMARK

ELEVATIONS SHOWN ON THIS MAP ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). THE BENCHMARK USED TO ESTABLISH SAID ELEVATIONS IS THE CITY OF SOLANA BEACH, CONTROL POINT NUMBER 2004, PER RECORD OF SURVEY 18971.

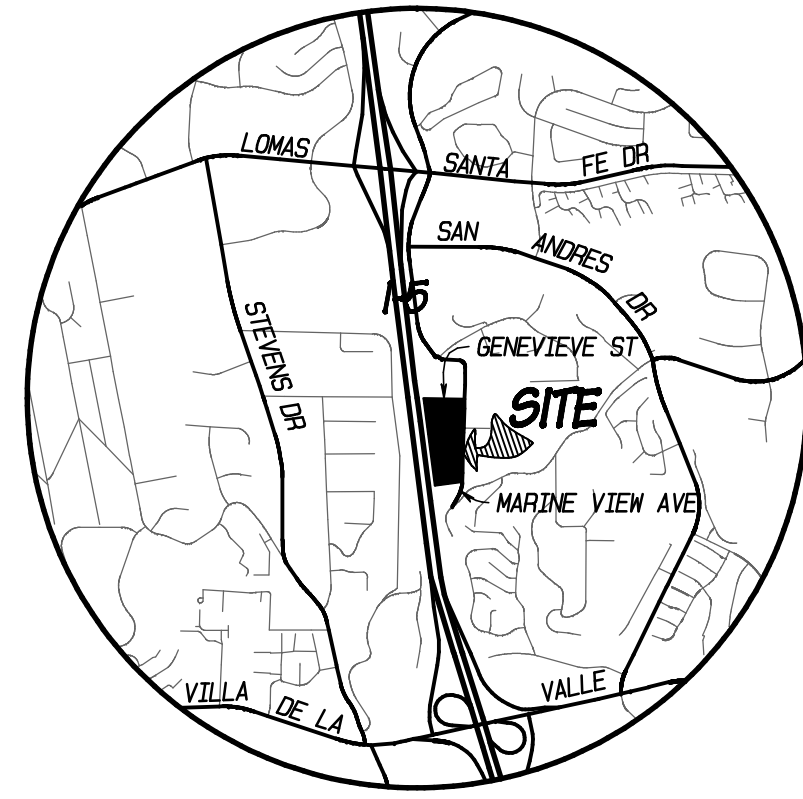
THE PUBLISHED NAVD88 ELEVATION OF SAID BENCHMARK IS 315.148 FEET, EPOC 2004.0

## PROPOSED DISTURBED AREA

2.57 AC

## LEGEND

DESCRIPTION	SYMBOL
SITE BOUNDARY	---
RIGHT-OF-WAY CENTERLINE	---
OFFSITE PROPERTY LINE	---
EXISTING EASEMENT	---
EXISTING CONTOUR LINE	---
EXISTING FENCE	---
EXISTING WATER LINE	---
EXISTING SEWER LINE	---
EXISTING OVERHEAD UTILITIES	---
PROPOSED CONTOUR LINE	---
PROPOSED LIMIT OF GRADING	---
PROPOSED LOWER BUILDING LEVEL	---
PROPOSED RETAINING WALL	---
PROPOSED CUT SLOPE	---
PROPOSED DRAIN DITCH	---
PROPOSED DRAINAGE DIRECTION	---
PROPOSED PERMANENT BMP AREA	---
PROPOSED PVC STORMDRAIN	---
PROPOSED DRAIN INLET	---
PROPOSED RIP-RAP ENERGY DISSIPATOR	---
PROPOSED CONCRETE DROP INLET	---
PROPOSED BOX CULVERT	---
PROPOSED CONCRETE WING HEADWALL	---
TYPE G CATCH BASIN	---
PROPOSED SANICUT LINE	---
PROPOSED G-2 CURB, GUTTER & G-7 SIDEWALK	---
PROPOSED ROLLED CURB & DG SIDEWALK	---
PROPOSED AC PAVING	---
PROPOSED ENHANCED PAVING PER LANDSCAPE PLAN	---



VICINITY MAP  
NOT TO SCALE

# PRELIMINARY GRADING PLAN FOR RESIDENTIAL CARE FACILITY 959 GENEVIEVE STREET

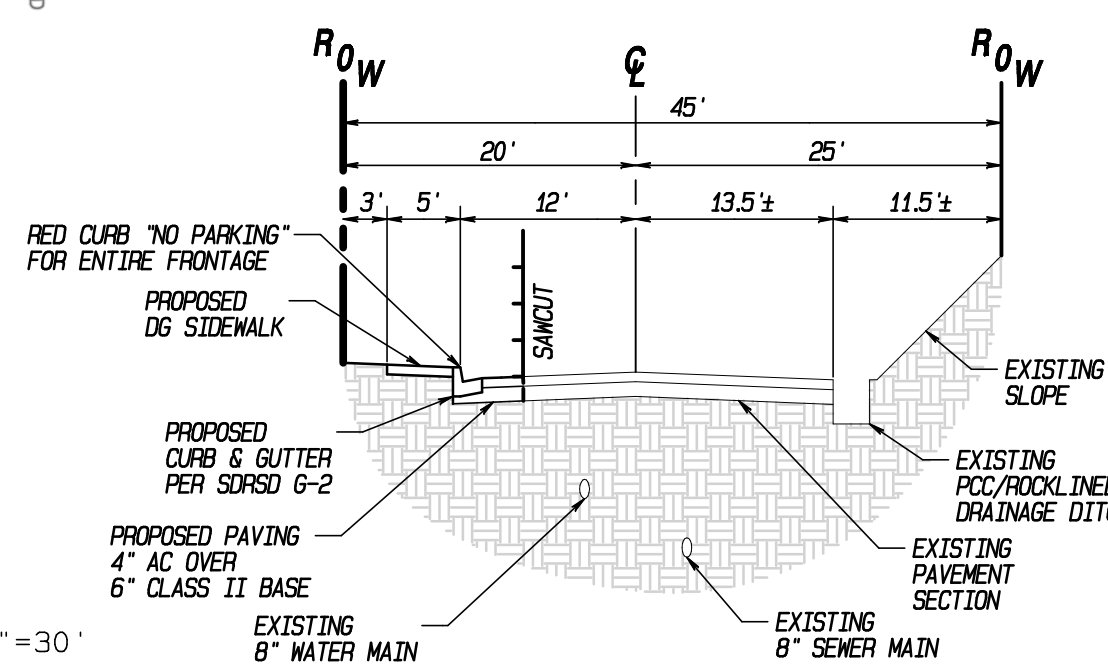
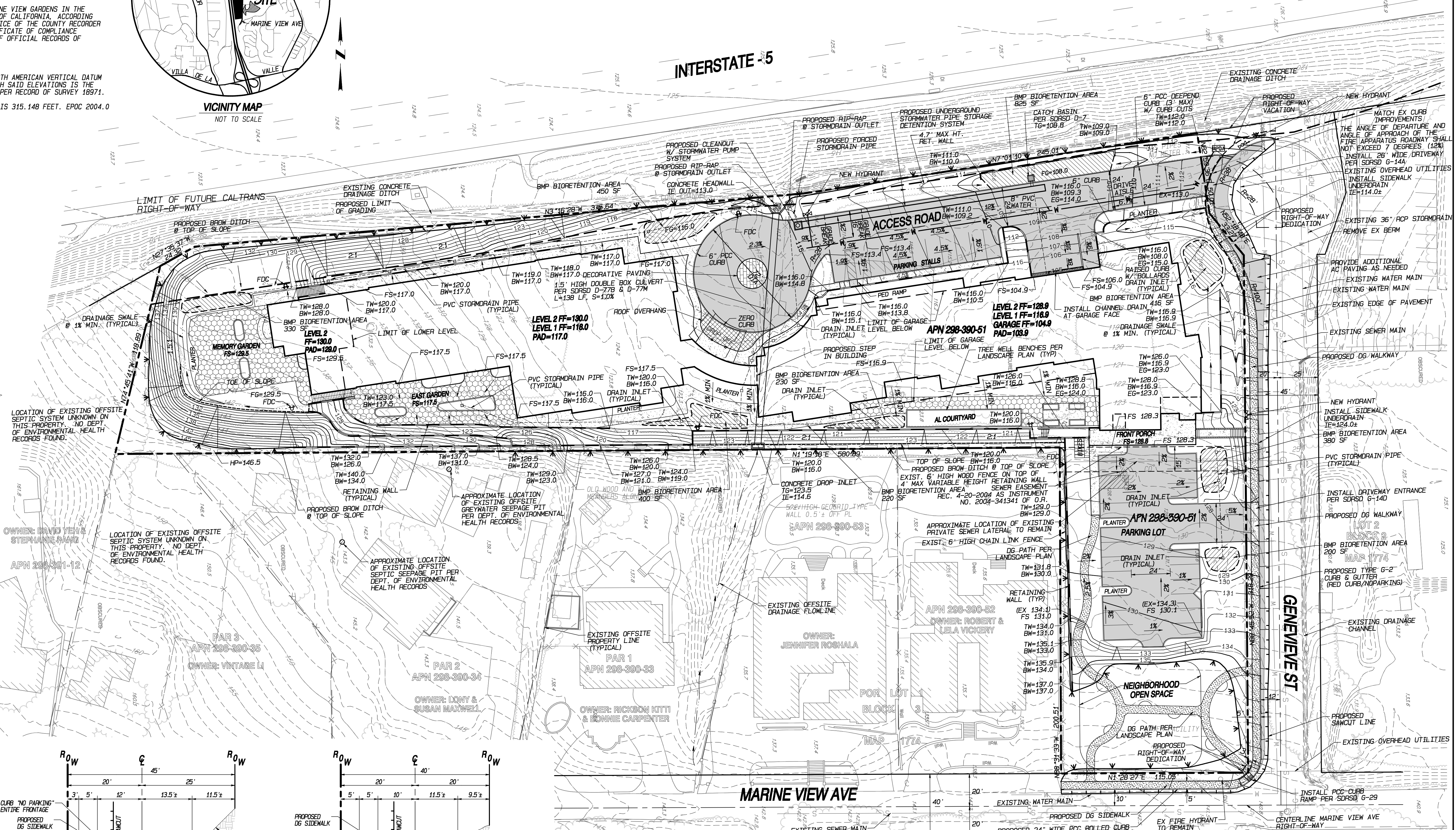
## PROJECT AREA TABULATION:

GROSS AREA: 126,875 SF (2.91 AC)  
AREA OF DEDICATION: -347 SF  
AREA OF STREET VACATION: +603 SF  
NET AREA: 127,131 SF (2.91 AC)

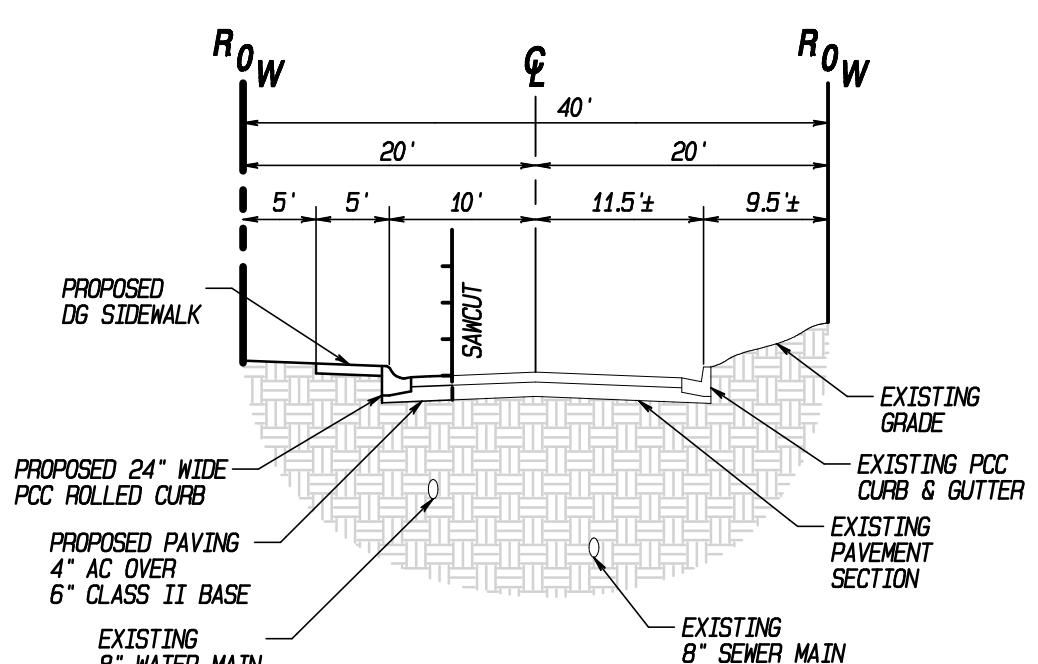
## ESTIMATED EARTHWORK QUANTITIES

28,000 CY CUT  
1,200 CY FILL  
26,800 CY NET EXPORT

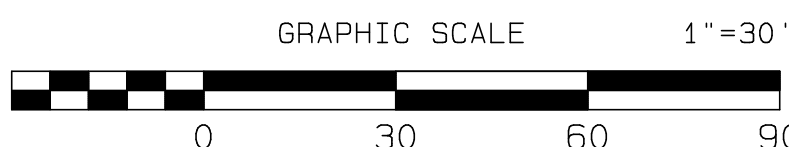
NOTE:  
GRADING QUANTITIES HEREON REPRESENT  
COMPACTED SOIL VOLUMES AND DO NOT  
ACCOUNT FOR SPOILS GENERATED FROM  
FOOTINGS OR UTILITY TRENCHES OR FOR  
REMEDIAL GRADING THAT MAY BE REQUIRED  
PER THE PROJECT GEOTECHNICAL  
RECOMMENDATIONS



TYPICAL SECTION  
GENEVIEVE ST.  
NOT TO SCALE



TYPICAL SECTION  
MARINE VIEW AVE.  
NOT TO SCALE



**PASCO LARET SUITER & ASSOCIATES**  
CIVIL ENGINEERING + LAND PLANNING + LAND SURVEYING  
555 North Highway 101, Ste A, Solana Beach, CA 92075  
ph 858.259.8212 | fx 858.259.4812 | pls@pascoengineering.com

DATE PREPARED: 10/2/2017