City of Escondido
PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Cleveland Residential

NO SITUS ADDRESS - CLEVELAND AVE
ESCONDIDO, CA 92026

ASSESSOR'S PARCEL NUMBER(S):
224-151-51-00

ENGINEER OF WORK:

Robert D. Dentino RCE# 45629

PREPARED FOR:
THE TRUE LIFE COMPANIES
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PDP SWQMP PREPARED BY:
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DATE OF SWQMP:
November 17th, 2025

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SWQMP APPROVED BY:

APPROVAL DATE:

ESCONDIDO
City of Choice

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ATTACHMENTS

Attachment 1: Backup for PDP Pollutant Control BMPs
- Attachment 1a: Storm Water Pollutant Control Worksheet Calculations (Applicable worksheets)
- Attachment 1b: Form I-8, Categorization of Infiltration Feasibility Condition
- Attachment 1c: Form I-9, Factor of Safety and Design Infiltration Rate Worksheet
- Attachment 1d: Drainage Management Area (DMA) Exhibit
- Attachment 1e: Individual Structural BMP DMA Mapbook

Attachment 2: Backup for PDP Hydromodification Control Measures
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- Attachment 2c: Management of Critical Coarse Sediment Yield Areas
- Attachment 2d: Geomorphic Assessment of Receiving Channels (optional)
- Attachment 2e: Vector Control Plan (if applicable)

Attachment 3: Structural BMP Maintenance Plan
- Attachment 3a: Structural BMP Maintenance Thresholds and Actions
- Attachment 3b: Draft Maintenance Agreements / Notifications (when applicable)

Attachment 4: City of Escondido PDP Structural BMP Verification

Attachment 5: Copy of Plan Sheets Showing Permanent Storm Water BMPs

ACRONYMS

ACP	Alternative Compliance Project
APN	Assessor's Parcel Number
BMP	Best Management Practice
DMA	Drainage Management Area
EOW	Engineer of Work
HMP	Hydromodification Management Plan
HSG	Hydrologic Soil Group
MS4	Municipal Separate Storm Sewer System
N/A	Not Applicable
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
SWDM	Storm Water Design Manual
SWQMP	Storm Water Quality Management Plan
USGS	US Geological Survey
WMAA	Watershed Management Area Analysis
WQIP	Water Quality Improvement Plan

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

PDP SWQMP PREPARER'S CERTIFICATION PAGE

Project Name: Cleveland Residential
Permit Number: PL25-0030

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 Escondido Storm Water Design Manual, which is a design manual for compliance with the City of Escondido Municipal Code (Chapter 22, Article 2) and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2013-0001 as amended by R9-2015-0001 and R9-2015-0100) requirements for storm water management.

I have read and understand that the City of Escondido has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the Storm Water Design Manual. I certify that this PDP SWQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this PDP SWQMP by City staff 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.

RCE#45629, 12-13-26

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

Robery D. Dentino

Print Name

Excel Engineering

Company

November 17th, 2025

Date

Engineer's Seal:

SUBMITTAL RECORD

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

Preliminary Design / Planning / CEQA

Submittal Number	Date	Summary of Changes
1	12/03/24	Initial Submittal
2	9/03/25	2nd Submittal
3	11/17/25	3rd Submittal
4		

Final Design

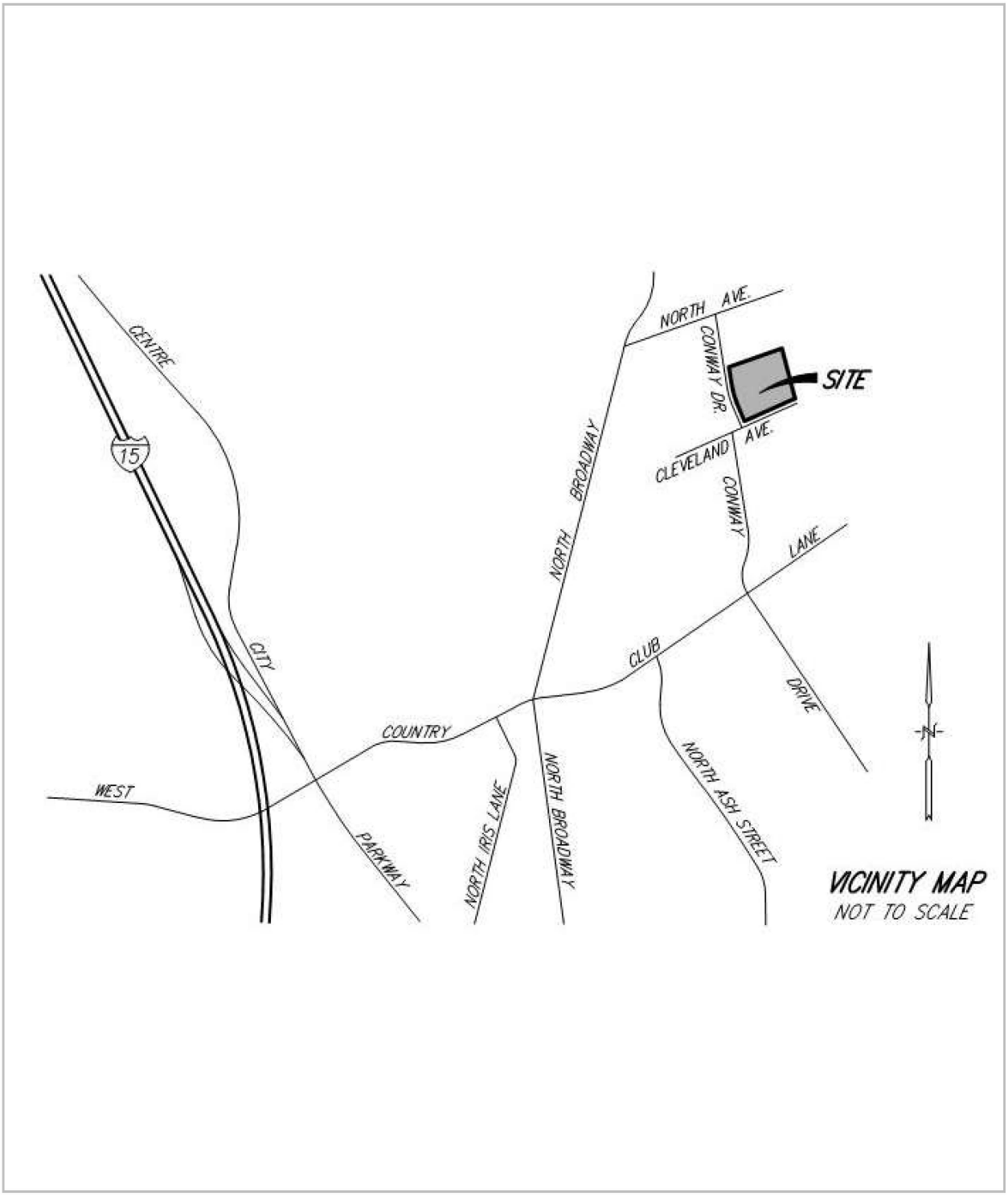
Submittal Number	Date	Summary of Changes
1		Initial Submittal
2		
3		
4		

Plan Changes

Submittal Number	Date	Summary of Changes
1		Initial Submittal
2		
3		
4		

PROJECT VICINITY MAP

Project Name: Cleveland Residential
Permit Number: PL25-0030



Step 1: Project type determination

Site Information Checklist for PDPs	Form I-2a
Project Summary Information	
Project Name	Cleveland Residential
Project Address	Cleveland Avenue Escondido, California 92026
Assessor's Parcel Number(s)	224-151-51-00
Permit Number	PL25-0030
Project Watershed (Hydrologic Unit)	Select One: ☑ Carlsbad 904 ☐ San Dieguito 905
Parcel Area (total area of Assessor's Parcel(s) associated with the project)	10.38 Acres (452,167 Square Feet)
Area to be disturbed by the project (Project Area)	11.08 Acres (482,837 Square Feet)
Project Proposed Impervious Area (subset of Project Area)	5.34 Acres (232,610 Square Feet)
Project Proposed Pervious Area (subset of Project Area)	5.74 Acres (250,227 Square Feet)
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Parcel Area.	

Step 1.1: Storm Water Quality Management Plan requirements

Site Information Checklist for PDPs		Form I-2a
Step	**Answer**	**Progression**
Is the project a Standard Project, Priority Development Project (PDP), or exception to PDP definitions? To answer this item, complete Step 1 Project Type Determination Checklist on Pages 3 and 4, and see PDP exemption information below. For further guidance, see Section 1.4 of the Storm Water Design Manual *in its entirety*.	☐ Standard Project	Standard Project requirements apply. **Complete Form I-1.**
	■ PDP	Standard and PDP requirements apply, including PDP SWQMP. **SWQMP Required.**
	☐ PDP with ACP	If participating in offsite alternative compliance, **complete Step 5.1** (Offsite Alternative Compliance Participation Form) **and an ACP SWQMP.**
	☐ PDP Exemption	**Go to Step 1.2 below.**

Step 1.2: Exemption to PDP definitions

Site Information Checklist for PDPs	Form I-2a
Is the project exempt from PDP definitions based on either of the following: ☐ Projects that are only new or retrofit paved sidewalks, bicycle lanes, or trails that meet the following criteria: (i) Designed and constructed to direct storm water runoff to adjacent vegetated areas, or other non-erodible permeable areas; OR (ii) Designed and constructed to be hydraulically disconnected from paved streets or roads [i.e., runoff from the new improvement does not drain directly onto paved streets or roads]; OR (iii) Designed and constructed with permeable pavements or surfaces in accordance with County of San Diego Green Streets Infrastructure;	If so: Standard Project requirements apply, AND any additional requirements specific to the type of project. City concurrence with the exemption is required. *Provide discussion and list any additional requirements below in this form.*
☐ Projects that are only retrofitting or redeveloping existing paved alleys, streets or roads that are designed and constructed in accordance with the County of San Diego Green Streets Infrastructure;	**PDP Exempt.**
Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:	

Step 1.3: Confirmation of PDP Determination

Site Information Checklist for PDPs			Form I-2a
The project is (select one): ■ New Development ☐ Redevelopment[1]			
The total proposed newly created or replaced impervious area is: 232,610 ft²			
The project meets the following categories, (a) through (f): [select all that apply]			
Yes ☑	No ☐	(a)	New development projects that create 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☐	No ☐	(b)	Redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☑	No ☐	(c)	New and redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site), and support one or more of the following uses: (i) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (Standard Industrial Classification (SIC) code 5812). *Information and an SIC search function are available at www.osha.gov/pls/imis/sicsearch.html.* (ii) Hillside development projects. This category includes development on any natural slope that is twenty-five percent or greater. (iii) Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce. (iv) Streets, roads, highways, freeways, and driveways. This category is defined as any paved impervious surface used for the transportation of automobiles, trucks, motorcycles, and other vehicles.
Yes ☐	No ☑	(d)	New or redevelopment projects that create and/or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharging directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands). *Note: ESAs are areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Board and San Diego Water Board; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and San Diego Water Board; and any*

[1] Redevelopment is defined as: The creation and/or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition to or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that is not part of a routine maintenance activity where impervious material(s) are removed, exposing underlying soil during construction. Redevelopment does not include routine maintenance activities, such as trenching and resurfacing associated with utility work; pavement grinding; resurfacing existing roadways; sidewalks; pedestrian ramps; or bike lanes on existing roads; and routine replacement of damaged pavement, such as pothole repair.

Site Information Checklist for PDPs			Form I-2a
			other equivalent environmentally sensitive areas which have been identified by the Copermittees. *For projects adjacent to an ESA, but not discharging to an ESA, the 2,500 square foot threshold does not apply as long as the project does not physically disturb the ESA and the ESA is upstream of the project.*
Yes ☐	No ☑	(e)	New development projects, or redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface, that support one or more of the following uses: (i) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. *Information and an SIC search function are available at www.osha.gov/pls/imis/sicsearch.html.* (ii) Retail gasoline outlets (RGOs). This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.
Yes ☑	No ☐	(f)	New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction. Note: See Storm Water Design Manual Section 1.4.2 for additional guidance.

The following is for redevelopment PDPs only:

The area of existing (pre-project) impervious area at the project site is:	A	N/A	ft^2
The total proposed newly created or replaced impervious area is:	B	N/A	ft^2
Percent impervious surface created or replaced:	(B/A)*100	N/A	%

The percent impervious surface created or replaced is (select one based on the above calculation):

☐ **less than or equal to fifty percent (50%)** – only newly created or replaced impervious areas are considered a PDP and subject to stormwater requirements

OR

☐ **greater than fifty percent (50%)** – the entire project site is considered a PDP and subject to stormwater requirements

Step 2: City of Escondido PDP SWQMP Site Information Checklist

Step 2.1: Description of Existing Site Condition and Drainage Patterns

Site Information Checklist for PDPs	Form I-2a
Current Status of the Site (select all that apply): ☐ Existing development ☒ Previously graded but not built out ☐ Demolition completed without new construction ☐ Agricultural or other non-impervious use ☒ Vacant, undeveloped/natural Description / Additional Information:	
Existing Land Cover Includes (select all that apply and provide each area on site): ☒ Vegetative Cover 10.38 Acres (452,167 Square Feet) ☐ Non-Vegetated Pervious Areas _____ Acres (_____ Square Feet) ☐ Impervious Areas _____ Acres (_____ Square Feet) Description / Additional Information:	
Underlying Soil belongs to Hydrologic Soil Group (select all that apply): ☒ NRCS Type A ☐ NRCS Type B ☒ NRCS Type C ☐ NRCS Type D	
Approximate Depth to Groundwater (GW) (or N/A for no infiltration BMPs): ☐ Groundwater Depth < 5 feet ☐ 5 feet < Groundwater Depth < 10 feet ☐ 10 feet < Groundwater Depth < 20 feet ☒ Groundwater Depth > 20 feet	
Existing Natural Hydrologic Features (select all that apply): ☐ Watercourses ☐ Seeps ☐ Springs ☐ Wetlands ☒ None ☐ Other Description / Additional Information:	

Step 2.2: Description of Existing Site Drainage Patterns

Site Information Checklist for PDPs	Form I-2a
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) describe existing constructed storm water conveyance systems, if applicable; and (3) is runoff from offsite conveyed through the site? If so, describe:	
The parcel lot is currently an undeveloped and vacant lot in which storm water naturally sheet flows northeast to southwest across the site (DMA-1). The southeast corner of the lot contains a hill that causes the remaining onsite runoff (DMA-2) to sheet flow northwest to southeast to the southeast property corner. The existing runoff from DMA-1 is collected at a headwall located at the southwest corner of the lot and is conveyed through an existing 18" RCP storm drain which connects to an existing curb inlet at the southeast side of Conway Drive (POC-1). From the curb inlet, runoff is routed to the other side of Conway Drive via an existing 24" RCP storm drain and is outlet at an existing headwall. The existing runoff from DMA-2 confluences at an existing curb cut at the southeast corner of Cleveland Avenue and continues to flow south via an existing brow ditch. Offsite runoff is conveyed through the site from the adjacent parcels to the north and east. The offsite runoff sheet flows across the project site and confluences with onsite flows at POC-1.	

Step 2.3: Description of Proposed Site Development

Site Information Checklist for PDPs	Form I-2a
Project Description / Proposed Land Use and/or Activities:	
The existing parcel will be subdivided and used to construct 29 new single family residential homes.	
List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):	
The proposed impervious features of the project include: 29 single family residential houses and associated concrete driveways and porches, asphalt roadways and concrete sidewalks, and concrete brow ditches.	
List/describe proposed pervious features of the project (e.g., landscape areas):	
The proposed pervious features of the project include landscape areas and 2 water quality basin lots.	
Does the project include grading and changes to site topography? ■ Yes ☐ No Description / Additional Information:	
The project includes grading, but the intent of the existing sloping of the lot will remain as is and drainage will still drain to the previously designed locations.	

Insert acreage or square feet for the different land cover types in the table below:

Change in Land Cover Type Summary

Land Cover Type	Existing (acres or ft^2)	Proposed (acres or ft^2)	Percent Change
Vegetation	11.08 ac	5.74 ac	-48%
Pervious (non-vegetated)			
Impervious	0 ac	5.34 ac	
total	11.08 ac	11.08 ac	Sum Existing must equal Sum Proposed

Step 2.4: Description of Proposed Site Drainage Patterns

Site Information Checklist for PDPs	Form I-2a

Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)?

- ☒ Yes
- ☐ No

If yes, provide details regarding the proposed project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels, and the method for conveying offsite flows through or around the proposed project site. Identify all discharge locations from the proposed project site along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide a summary of pre- and post-project drainage areas and design flows to each of the runoff discharge locations. Reference the drainage study for detailed calculations.

Describe proposed site drainage patterns:

On-site storm drains will be installed with new bioretention and water quality features to collect, treat, detain, and then discharge storm water to the previously designed conveyance systems discharging to the south of the project.

Step 2.5: Potential Pollutant Source Areas

Site Information Checklist for PDPs	Form I-2a

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
- ☐ Large Trash Generating Facilities
- ☐ Animal Facilities
- ☐ Nurseries and Garden Centers
- ☐ Automotive Facilities
- ☐ Other (provide description)

Description / Additional Information:

Step 2.6: Identification of Receiving Water and Pollutants of Concern

Site Information Checklist for PDPs		Form I-2a
Describe path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable):		
Discharged storm water will reach Escondido Creek and ultimately into the San Elijo Lagoon which then routes to the Pacific Ocean Shoreline and into 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 for the impaired water bodies:		
303(d) Impaired Water Body	**Pollutant(s)/Stressor(s)**	**TMDLs / WQIP Highest Priority Pollutant**
Escondido Creek HS (904.62)	Benthic Community Effects, Bifenthrin, Cyfluthrin, Cypermethrin, DDT (Dichlorodiphenyltrichloroethane), Indicator Bacteria, Iron, Manganese, Nitrogen, Phosphate, Phosphorus, Pyrethroids, Selenium, Sulfates, Total Dissolved Solids, Toxicity, and Turbidity.	Needed
San Elijo Lagoon (904.61)	Eutrophic, Indicator Bacteria, Oxygen, Dissolved, Phosphorus, Sedimentation/Siltation, Toxicity, and Turbidity.	Needed
Pacific Ocean Shoreline, San Elijo HSA, at Cardiff State Beach at Chart House parking	Indicator Bacteria	Needed
Pacific Ocean (904.61)	Total Coliform	Needed

Identification of Project Site Pollutants*

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

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

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

Step 2.7: Hydromodification Management Requirements

Site Information Checklist for PDPs	Form I-2a

Do hydromodification management requirements apply (see Section 1.6 of the Storm Water Design Manual)?

- ■ Yes, hydromodification management requirements for flow control and preservation of critical coarse sediment yield areas are applicable.
- ☐ No, the project will discharge runoff directly to the exempt portion of Escondido Creek as detailed in the Carlsbad Watershed WQIP (May 2018 Update). Direct discharge is defined in section 1.6 of the Escondido Storm Water Design Manual.
- ☐ No, the project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. Refer to HMP Exhibit in Attachment 2.
- ☐ No, the project will discharge runoff directly to conveyance channels whose bed and bank are concrete-lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. Refer to HMP Exhibit in Attachment 2.

Note: Direct Discharge refers to an uninterrupted hardened conveyance system. Projects claiming the Direct Discharge exemption must satisfy the applicable criteria (energy dissipation, invert elevation, etc.) included in Section 1.6 of the Escondido Storm Water Design Manual.

Description / Additional Information (to be provided if a 'No' answer has been selected above):

HMP Exemption Exhibit

Attach an HMP Exemption Exhibit that shows direct storm water runoff discharge from the project site to the HMP exempt area. Include project area, applicable underground storm drain line and/or concrete lined channels, outfall information, and exempt waterbody.

Reference applicable drawing number(s).

Step 2.7.1: Critical Coarse Sediment Yield Areas

Site Information Checklist for PDPs	Form I-2a

☐ **N/A - 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 Appendix H of the manual been performed?

☐ H.6.1 Site-Specific GLU Analysis

☐ H.7 Downstream Systems Sensitivity to Coarse Sediment

- H.7.1 Depositional Analysis,
- H.7.2 Threshold Channel Analysis, or
- H.7.3 Course Sediment Source Area Verification Analysis

☐ 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 8 of the SWQMP.

☐ Critical coarse sediment yield areas exist and require protection. The project will implement management measures described in Sections H.2, H.3, and H.4 as applicable, and the areas are identified on the SWQMP Exhibit.

Discussion / Additional Information:

Step 2.7.2: Flow Control for Post-Project Runoff

Site Information Checklist for PDPs	Form I-2a

☐ **N/A - This Section only required if hydromodification management requirements apply**

List and describe point(s) of compliance (POCs) for flow control for hydromodification management (see Section 6.3.1). For each POC, provide a POC identification name or number correlating to the project's HMP Exhibit and a receiving channel identification name or number correlating to the project's HMP Exhibit.

POC-1 & POC-2

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)

Select method used to determine low flow threshold:

- ☒ Sizing Factor Method
- ☐ US Geological Survey (USGS) Equation
- ☐ Continuous Simulation Modeling

Step 2.8: Other Site Requirements and Constraints

Site Information Checklist for PDPs	Form I-2a
When applicable, list other site requirements or constraints that will influence storm water management design, such as zoning requirements including setbacks and open space, or local codes governing minimum street width, sidewalk construction, allowable pavement types, and drainage requirements.	
Optional Additional Information or Continuation of Previous Sections As Needed	
This space provided for additional information or continuation of information from previous sections as needed.	

Step 3: Source Control BMP Checklist

Source Control BMP Checklist for PDPs			Form I-2b
All development projects must implement source control BMPs 4.2.1 through 4.2.6 where applicable and feasible. See Chapter 4.2 and Appendix E of the City Storm Water Design Manual for information to implement source control BMPs shown in this checklist. The following checklists serve as guides only. Mark what elements are included in your project. See Storm Water Design Manual Chapter 4 and Appendix E for more information on determining appropriate BMPs for your project. Answer each category below pursuant to the following: • "Yes" means the project will implement the source control BMP as described in Chapter 4.2 and/or Appendix E of the City Storm Water Design Manual. Discussion / justification is not required. • "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided. • "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas). Discussion / justification must be provided.			
Source Control Requirement	**Applied?**		
4.2.1 Prevention of Illicit Discharges into the MS4	■ Yes	☐ No	☐ N/A
Discussion / justification if 4.2.1 not implemented:			
4.2.2 Storm Drain Stenciling or Signage	■ Yes	☐ No	☐ N/A
Discussion / justification if 4.2.2 not implemented:			
4.2.3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	■ N/A
Discussion / justification if 4.2.3 not implemented:			
No outdoor materials storage areas are proposed.			
4.2.4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	■ N/A
Discussion / justification if 4.2.4 not implemented:			
No such area is proposed.			
4.2.5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	■ N/A
Discussion / justification if 4.2.5 not implemented:			
No trash storage area is proposed.			

Form I-2b Page 2 of 2			
Source Control Requirement	**Applied?**		
4.2.6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below):			
■ Onsite storm drain inlets	■ Yes	☐ No	☐ N/A
☐ Interior floor drains and elevator shaft sump pumps	☐ Yes	☐ No	■ N/A
☐ Interior parking garages	☐ Yes	☐ No	■ N/A
☐ Need for future indoor & structural pest control	☐ Yes	☐ No	■ N/A
■ Landscape/outdoor pesticide use	☐ Yes	☐ No	☐ N/A
☐ Pools, spas, ponds, decorative fountains, and other water features	☐ Yes	☐ No	■ N/A
☐ Food service	☐ Yes	☐ No	■ N/A
☐ Refuse areas	☐ Yes	☐ No	■ N/A
☐ Industrial processes	☐ Yes	☐ No	■ N/A
☐ Outdoor storage of equipment or materials	☐ Yes	☐ No	■ N/A
☐ Vehicle and equipment cleaning	☐ Yes	☐ No	■ N/A
☐ Vehicle/equipment repair and maintenance	☐ Yes	☐ No	■ N/A
☐ Fuel dispensing areas	☐ Yes	☐ No	■ N/A
☐ Loading docks	☐ Yes	☐ No	■ N/A
☐ Fire sprinkler test water	☐ Yes	☐ No	■ N/A
■ Miscellaneous drain or wash water	☐ Yes	☐ No	☐ N/A
■ Plazas, sidewalks, and parking lots	☐ Yes	☐ No	☐ N/A
Discussion / justification if 4.2.6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for <u>all</u> "No" answers shown above.			

Note: Show all source control measures described above that are included in design capture volume calculations in the plan sheets of Attachment 5.

Step 4: Site Design BMP Checklist

Site Design BMP Checklist for PDPs			Form I-2c
All development projects must implement site design BMPs SD-1 through SD-8 where applicable and feasible. See Chapter 4 and Appendix E of the manual for information to implement site design BMPs shown in this checklist. Answer each category below pursuant to the following. • "Yes" means the project will implement the site design BMP as described in Chapter 4 and/or Appendix E of the manual. Discussion / justification is not required. • "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided. • "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project site has no existing natural areas to conserve). Discussion / justification must be provided.			
Site Design Requirement	**Applied?**		
4.3.1 Maintain Natural Drainage Pathways and Hydrologic Features	■ Yes	☐ No	☐ N/A
Discussion / justification if 4.3.1 not implemented:			
1-1 Are existing natural drainage pathways and hydrologic features mapped on the site map?	■ Yes	☐ No	☐ N/A
1-2 Are trees implemented? If yes, are they shown on the site map?	■ Yes	☐ No	☐ N/A
1-3 Implemented trees meet the design criteria in 4.3.1 Fact Sheet (e.g. soil volume, maximum credit, etc.)?	■ Yes	☐ No	☐ N/A
1-4 Is tree credit volume calculated using Appendix B.2.2.1 and SD-1 Fact Sheet in Appendix E?	■ Yes	☐ No	☐ N/A
4.3.2 Conserve Natural Areas, Soils, and Vegetation	☐ Yes	☐ No	■ N/A
Discussion / justification if 4.3.2 not implemented:			
4.3.3 Minimize Impervious Area	■ Yes	☐ No	☐ N/A
Discussion / justification if 4.3.3 not implemented:			
Install parking and driving aisles to minimum width requirements to meet standards.			
4.3.4 Minimize Soil Compaction	■ Yes	☐ No	☐ N/A
Discussion / justification if 4.3.4 not implemented:			
Avoid compaction in planned landscape spaces. Till and amend soil for improved infiltration capacity.			

Form I-2c Page 2 of 2			
Site Design Requirement	**Applied?**		
4.3.5 Impervious Area Dispersion	☐ Yes	■ No	☐ N/A
Discussion / justification if 4.3.5 not implemented:			
With the large footprint requirement for the site development, the creation of dispersion areas was infeasible.			
5-1 Is the pervious area receiving runon from impervious area identified on the site map?	☐ Yes	☐ No	■ N/A
5-2 Does the pervious area satisfy the design criteria in 4.3.5. Fact Sheet in Appendix E (e.g. maximum slope, minimum length, etc.)	☐ Yes	☐ No	■ N/A
5-3 Is impervious area dispersion credit volume calculated using Appendix B.2.1.1 and 4.3.5 Fact Sheet in Appendix E?	☐ Yes	☐ No	■ N/A
4.3.6 Runoff Collection	■ Yes	☐ No	☐ N/A
Discussion / justification if 4.3.6 not implemented:			
6a-1 Are green roofs implemented in accordance with design criteria in 4.3.6A Fact Sheet? If yes, are they shown on the site map?	☐ Yes	☐ No	■ N/A
6a-2 Is the green roof credit volume calculated using Appendix B.2.1.2 and 4.3.6A Fact Sheet in Appendix E?	☐ Yes	☐ No	■ N/A
6b-1 Are permeable pavements implemented in accordance with design criteria in 4.3.6B Fact Sheet? If yes, are they shown on the site map?	☐ Yes	☐ No	■ N/A
6b-2 Is the permeable pavement credit volume calculated using Appendix B.2.1.3 and 4.3.6B Fact Sheet in Appendix E?	☐ Yes	☐ No	■ N/A
4.3.7 Landscaping with Native or Drought Tolerant Species	■ Yes	☐ No	☐ N/A
Discussion / justification if 4.3.7 not implemented:			
4.3.8 Harvesting and Using Precipitation	☐ Yes	■ No	☐ N/A
Discussion / justification if 4.3.8 not implemented:			
Due to the lack of demand, harvest and use was considered to be infeasible. See form I-7 harvest and use feasibility checklist.			
8-1 Are rain barrels implemented in accordance with design criteria in 4.3.8 Fact Sheet? If yes, are they shown on the site map?	☐ Yes	☐ No	■ N/A
8-2 Is the rain barrel credit volume calculated using Appendix B.2.2.2 and 4.3.8 Fact Sheet in Appendix E?	☐ Yes	☐ No	■ N/A

Note: Show all site design measures described above that are included in design capture volume calculations in the plan sheets of Attachment 5.

Step 5: Summary of Structural BMPs

Summary of Structural BMPs	Form I-3

PDP Structural BMPs

All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the 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 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 to certify construction of the structural BMPs (see Section 1.12 of the manual). PDP structural BMPs must be maintained into perpetuity, and the local jurisdiction must confirm the maintenance (see Section 7 of the 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).

Description of Structural BMP Strategy

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 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 biofiltration treatment basins have a medium or high rating for removal of all likely pollutants from stormwater.

Step 1. Site design evaluation to minimize proposed impervious areas, implementing landscaping, runoff collections to minimize pollutants created from proposed site design, minimizing soil compaction, keep the onsite de minimis areas to a minimum, maximize self mitigation areas to maximum pervious lands.
Step 2. Calculate DCV after identifying location & category of BMP and DMA delineation.
Step 3. Conduct feasibility analysis for Harvest and Use BMP
Step 4. Conduct feasibility analysis for infiltration for the BMP locations selected.
Step 5. Evaluate if required BMP footprint will fit at selected BMP locations.
Step 6. Implement flow-thru treatment control BMPs for the remaining DCV (NOT APPLICABLE).

(Continue on page 2 as necessary.)

Form I-3 Page 2 of 3
(Page reserved for continuation of description of general strategy for structural BMP implementation at the site)
(Continued from page 1) Step 7. Prepare a SWQMP documenting site planning and opportunity assessment activities, final site layout and storm water management design. Step 8. Identify and document O&M requirement.

Form I-3 Page 3 of 3

Structural BMP Summary Information

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

Structural BMP ID No. BMP-A

Construction Plan Sheet No.

Type of structural BMP:

☐Retention by harvest and use (HU-1)
☐Retention by infiltration basin (INF-1)
☐Retention by bioretention (INF-2)
☐Retention by permeable pavement (INF-3)
☐Retention by dry wells (INF-4)
☐Partial retention by biofiltration with partial retention (PR-1)
■Biofiltration (BF-1)
☐Biofiltration with Nutrient Sensitive Media Design (BF-2)
☐Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F
☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)
☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)
☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)
☐Detention pond or vault for hydromodification management
☐Other (describe in discussion section below)

Purpose:

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

Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms (See Section 8.2.3.2 of the Storm Water Design Manual)	To be determined in final engineering
Who will be the final owner of this BMP?	■HOA ☐Property Owner ☐City ☐Other (describe)
Who will maintain this BMP into perpetuity?	■HOA ☐Property Owner ☐City ☐Other (describe)

Discussion (as needed):

Form I-3 Page 3 of 3

Structural BMP Summary Information

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

Structural BMP ID No. BMP-B

Construction Plan Sheet No.

Type of structural BMP:

☐Retention by harvest and use (HU-1)
☐Retention by infiltration basin (INF-1)
☐Retention by bioretention (INF-2)
☐Retention by permeable pavement (INF-3)
☐Retention by dry wells (INF-4)
☐Partial retention by biofiltration with partial retention (PR-1)
■Biofiltration (BF-1)
☐Biofiltration with Nutrient Sensitive Media Design (BF-2)
☐Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F
☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)
☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)
☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)
☐Detention pond or vault for hydromodification management
☐Other (describe in discussion section below)

Purpose:

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

Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms (See Section 8.2.3.2 of the Storm Water Design Manual)	To be determined in final engineering
Who will be the final owner of this BMP?	■HOA ☐Property Owner ☐City ☐Other (describe)
Who will maintain this BMP into perpetuity?	■HOA ☐Property Owner ☐City ☐Other (describe)

Discussion (as needed):

Form I-3 Page 3 of 3

Structural BMP Summary Information

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

Structural BMP ID No. BMP-C

Construction Plan Sheet No.

Type of structural BMP:

☐Retention by harvest and use (HU-1)
☐Retention by infiltration basin (INF-1)
☐Retention by bioretention (INF-2)
☐Retention by permeable pavement (INF-3)
☐Retention by dry wells (INF-4)
☐Partial retention by biofiltration with partial retention (PR-1)
■Biofiltration (BF-1)
☐Biofiltration with Nutrient Sensitive Media Design (BF-2)
☐Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F
☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)
☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)
☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)
☐Detention pond or vault for hydromodification management
☐Other (describe in discussion section below)

Purpose:

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

Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms (See Section 8.2.3.2 of the Storm Water Design Manual)	To be determined in final engineering
Who will be the final owner of this BMP?	■HOA ☐Property Owner ☐City ☐Other (describe)
Who will maintain this BMP into perpetuity?	■HOA ☐Property Owner ☐City ☐Other (describe)

Discussion (as needed):

Form I-3 Page 3 of 3

Structural BMP Summary Information

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

Structural BMP ID No. BMP-D

Construction Plan Sheet No.

Type of structural BMP:

☐Retention by harvest and use (HU-1)
☐Retention by infiltration basin (INF-1)
☐Retention by bioretention (INF-2)
☐Retention by permeable pavement (INF-3)
☐Retention by dry wells (INF-4)
☐Partial retention by biofiltration with partial retention (PR-1)
■Biofiltration (BF-1)
☐Biofiltration with Nutrient Sensitive Media Design (BF-2)
☐Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F
☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)
☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)
☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)
☐Detention pond or vault for hydromodification management
☐Other (describe in discussion section below)

Purpose:

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

Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms (See Section 8.2.3.2 of the Storm Water Design Manual)	To be determined in final engineering
Who will be the final owner of this BMP?	■HOA ☐Property Owner ☐City ☐Other (describe)
Who will maintain this BMP into perpetuity?	■HOA ☐Property Owner ☐City ☐Other (describe)

Discussion (as needed):

Step 5.1: Offsite Alternative Compliance Participation Form

THIS FORM IS NOT APPLICABLE AT THIS TIME: An Alternative Compliance Program is under consideration by the City of Escondido.	
PDP INFORMATION	
Record ID:	
Assessor's Parcel Number(s) [APN(s)]	
What are your PDP Pollutant Control Debits? *See Attachment 1 of the PDP SWQMP	
What are your PDP HMP Debits? (if applicable) *See Attachment 2 of the PDP SWQMP	
ACP Information	
Record ID:	
Assessor's Parcel Number(s) [APN(s)]	
Project Owner/Address	
What are your ACP Pollutant Control Credits? *See Attachment 1 of the ACP SWQMP	
What are your ACP HMP Debits? (if applicable) *See Attachment 2 of the ACP SWQMP	
Is your ACP in the same watershed as your PDP? ☐Yes ☐No	Will your ACP project be completed prior to the completion of the PDP? ☐Yes ☐No
Does your ACP account for all Deficits generated by the PDP? ☐Yes ☐No (PDP and/or ACP must be redesigned to account for all deficits generated by the PDP.)	What is the difference between your PDP debits and ACP Credits? *(ACP Credits -Total PDP Debits = Total Earned Credits) _____

ATTACHMENT 1

BACKUP FOR PDP POLLUTANT CONTROL BMPS

This is the cover sheet for Attachment 1.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 1a	Storm Water Pollutant Control Worksheet Calculations -Worksheet B.1-DMA Summary (Optional) -Worksheet B.2-1- DCV (Required) -Worksheet B.3-1- H&U Checklist (Required) -Worksheet B.4-1-Simple Sizing Inf. (if applicable) -Worksheet B.5-1-Biofilt. Sizing (Pollutant)(if applicable) -Worksheet B.5-2-Biofilt. Sizing (Volume) (if applicable) -Worksheet B.5-3-Biofilt. Volume Ret. (if applicable) -Worksheet B.5-4-Biofilt. Alt. Min. Footprint(if applicable) -Worksheet B.5-5-Biofilt. w/Upstream Stor. (if applicable) -Worksheet B.5-6-Biofilt. Ret. No Inf. (if applicable) -Worksheet B.5-7-Vol. Ret. Amended Soils (if applicable) -Worksheet B.6-1-Flow-Thru Design Flow (if applicable) -Form I-10-Compact Biofilt. Checklist (if applicable) -Summary Worksheet (optional)	■ Worksheet B.1 (Optional) ■ Worksheet B.2-1 (Required) ■ Worksheet B.3-1 (Required) ☐ Worksheet B.4-1 (if applicable) ■ Worksheet B.5-1 (if applicable) ■ Worksheet B.5-2 (if applicable) ■ Worksheet B.5-3 (if applicable) ☐ Worksheet B.5-4 (if applicable) ☐ Worksheet B.5-5 (if applicable) ■ Worksheet B.5-6 (if applicable) ☐ Worksheet B.5-7 (if applicable) ☐ Worksheet B.6-1 (if applicable) ☐ Form I-10 (if applicable) ☐ Summary Worksheet (optional)
Attachment 1b	-Worksheet C.4-1 (Form I-8A), Categorization of Infiltration Feasibility Condition Based on Geotechnical Conditions -Worksheet C.4-2 (Form I-8B), Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions (Required unless the project will use harvest and use BMPs, or an Infiltration Feasibility Condition Letter is submitted) Refer to Appendices C and D of the Storm Water Design Manual to complete Form I-8.	■Included ☐Not included because the entire project will use harvest and use BMPs ☐Not included because an Infiltration Feasibility Condition Letter is submitted
Attachment 1c	Form I-9, Factor of Safety and Design Infiltration Rate Worksheet (Required unless the project will use harvest and use BMPs, or an Infiltration Feasibility Condition Letter is submitted) Refer to Appendices C and D of the Storm Water Design Manual to complete Form I-9.	■Included ☐Not included because the entire project will use harvest and use BMPs ☐Not included because an Infiltration Feasibility Condition Letter is submitted
Attachment 1d	DMA Exhibit (Required) See DMA Exhibit Checklist on the back of this Attachment cover sheet.	■Included
Attachment 1e	Individual Structural BMP DMA Mapbook (Required) -Place each map on 8.5”x11” paper. -Show at a minimum the DMA, Structural BMP, and any existing hydrologic features within the DMA.	■Included

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

The DMA Exhibit must identify:

- ☒ 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 Step 3.5)
- ☒ Structural BMPs (identify location, structural BMP ID#, type of BMP, and size/detail)
- ☒ Flow direction arrows
- ☒ Site Design BMPs used for volume reduction credits
- ☒ Existing and proposed site drainage network and connections to drainage offsite
- ☒ Trash Enclosure(s), if available
- ☒ Roof downspouts

Additionally, it is generally best practice (and the City may require) that these additional features listed below be included on the DMA Exhibit:

- ☒ 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
- ☒ Proposed grading
- ☒ Proposed impervious features

ATTACHMENT 1a

Worksheet B-1: Tabular Summary of DMAs

Tabular Summary of DMAs								Worksheet B-1	
DMA Unique Identifier	Area (acres)	Impervious Area (acres)	% Imp	HSG	Area Weighted Runoff Coefficient	DCV (cubic feet)	Treated By (BMP ID)	Pollutant Control Type	Drain to (POC ID)
Summary of DMA Information (Must match project description and SWQMP Narrative)									
No. of DMAs	Total DMA Area (acres)	Total Impervious Area (acres)	% Imp		Area Weighted Runoff Coefficient	Total DCV (cubic feet)	Total Area Treated (acres)		No. of POCs

Worksheet B.2-1. BMP Design Capture Volume

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=		inches
2	Area tributary to BMP (s)	A=		acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=		unitless
4	Tree well volume reduction	TCV=		cubic-feet
5	Rain barrels volume reduction	RCV=		cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=		cubic-feet

Worksheet B.2-1. BMP Design Capture Volume

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=		inches
2	Area tributary to BMP (s)	A=		acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=		unitless
4	Tree well volume reduction	TCV=		cubic-feet
5	Rain barrels volume reduction	RCV=		cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=		cubic-feet

Worksheet B.2-1. BMP Design Capture Volume

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=		inches
2	Area tributary to BMP (s)	A=		acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=		unitless
4	Tree well volume reduction	TCV=		cubic-feet
5	Rain barrels volume reduction	RCV=		cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=		cubic-feet

Worksheet B.3-1. Harvest and Use Feasibility Checklist (Form I-7)

<table>
<tr><th colspan="2">Harvest and Use Feasibility Checklist</th><th>Worksksheet B.3-1</th></tr>
<tr><td colspan="3">1. Is there a demand for harvested water (check all that apply) at the project site that is reliably present during the wet season?
☒ Toilet and urinal flushing
☒ Landscape irrigation
☐ Other:_____</td></tr>
<tr><td colspan="3">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.</td></tr>
<tr><td colspan="3">3. Calculate the DCV using worksheet B-2.1.</td></tr>
<tr><td>3a. Is the 36-hour demand greater than or equal to the DCV?
Yes / No ⇨
⇩</td><td>3b. Is the 36-hour demand greater than 0.25DCV but less than the full DCV?
Yes / No ⇨
⇩</td><td>3c. Is the 36-hour demand less than 0.25DCV?
Yes
⇩</td></tr>
<tr><td>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.</td><td>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.</td><td>Harvest and use is considered to be infeasible.</td></tr>
</table>

Note: 36-hour demand calculations are for feasibility analysis only. Once feasibility analysis is complete the applicant may be allowed to use a different drawdown time provided they meet the 80% annual capture standard (refer to B.4.2) and 96-hour vector control drawdown requirement.

ESCONDIDO City of Choice	**Project Name**	Cleveland	
	BMP ID	BMP-A	
Sizing Method for Pollutant Removal Criteria		**Worksheet B.5-1**	
1	Area draining to the BMP	400438	sq. ft.
2	Adjusted runoff factor for drainage area (Refer to Appendix B.1 and B.2)	0.45	
3	85th percentile 24-hour rainfall depth	0.71	inches
4	Design capture volume [Line 1 x Line 2 x (Line 3/12)]	10662	cu. ft.
BMP Parameters			
5	Surface ponding [6 inch minimum, 12 inch maximum]	6	inches
6	Media thickness [18 inches minimum], also add mulch layer and washed ASTM 33 fine aggregate sand thickness to this line for sizing calculations	21	inches
7	Aggregate storage (also add ASTM No 8 stone) above underdrain invert (12 inches typical) – use 0 inches if the aggregate is not over the entire bottom surface area	12	inches
8	Aggregate storage below underdrain invert (3 inches minimum) – use 0 inches if the aggregate is not over the entire bottom surface area	3	inches
9	Freely drained pore storage of the media	0.2	in/in
10	Porosity of aggregate storage	0.4	in/in
11	Media filtration rate to be used for sizing (maximum filtration rate of 5 in/hr. with no outlet control; if the filtration rate is controlled by the outlet use the outlet controlled rate (includes infiltration into the soil and flow rate through the outlet structure) which will be less than 5 in/hr.)	0.013	in/hr.
Baseline Calculations			
12	Allowable routing time for sizing	6	hours
13	Depth filtered during storm [Line 11 x Line 12]	0.078	inches
14	Depth of Detention Storage [Line 5 + (Line 6 x Line 9) + (Line 7 x Line 10) + (Line 8 x Line 10)]	16.2	inches
15	Total Depth Treated [Line 13 + Line 14]	16.278	inches
Option 1 – Biofilter 1.5 times the DCV			
16	Required biofiltered volume [1.5 x Line 4]	15992	cu. ft.
17	Required Footprint [Line 16/ Line 15] x 12	11790	sq. ft.
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
18	Required Storage (surface + pores) Volume [0.75 x Line 4]	7996	cu. ft.
19	Required Footprint [Line 18/ Line 14] x 12	5923	sq. ft.
Footprint of the BMP			
20	BMP Footprint Sizing Factor (Default 0.03 or an alternative minimum footprint sizing factor from Line 11 in Worksheet B.5-4)	0.03	
21	Minimum BMP Footprint [Line 1 x Line 2 x Line 20]	5406	sq. ft.
22	Footprint of the BMP = Maximum(Minimum(Line 17, Line 19), Line 21)	5923	sq. ft.
23	Provided BMP Footprint	11148	sq. ft.
24	Is Line 23 ≥ Line 22?	**Yes, Performance Standard is Met**	

ESCONDIDO City of Choice	**Project Name**	Cleveland	
	BMP ID	BMP-B	
Sizing Method for Pollutant Removal Criteria		**Worksheet B.5-1**	
1	Area draining to the BMP	31689	sq. ft.
2	Adjusted runoff factor for drainage area (Refer to Appendix B.1 and B.2)	0.49	
3	85th percentile 24-hour rainfall depth	0.71	inches
4	Design capture volume [Line 1 x Line 2 x (Line 3/12)]	919	cu. ft.
BMP Parameters			
5	Surface ponding [6 inch minimum, 12 inch maximum]	6	inches
6	Media thickness [18 inches minimum], also add mulch layer and washed ASTM 33 fine aggregate sand thickness to this line for sizing calculations	21	inches
7	Aggregate storage (also add ASTM No 8 stone) above underdrain invert (12 inches typical) – use 0 inches if the aggregate is not over the entire bottom surface area	12	inches
8	Aggregate storage below underdrain invert (3 inches minimum) – use 0 inches if the aggregate is not over the entire bottom surface area	3	inches
9	Freely drained pore storage of the media	0.2	in/in
10	Porosity of aggregate storage	0.4	in/in
11	Media filtration rate to be used for sizing (maximum filtration rate of 5 in/hr. with no outlet control; if the filtration rate is controlled by the outlet use the outlet controlled rate (includes infiltration into the soil and flow rate through the outlet structure) which will be less than 5 in/hr.)	0.044	in/hr.
Baseline Calculations			
12	Allowable routing time for sizing	6	hours
13	Depth filtered during storm [Line 11 x Line 12]	0.264	inches
14	Depth of Detention Storage [Line 5 + (Line 6 x Line 9) + (Line 7 x Line 10) + (Line 8 x Line 10)]	16.2	inches
15	Total Depth Treated [Line 13 + Line 14]	16.464	inches
Option 1 – Biofilter 1.5 times the DCV			
16	Required biofiltered volume [1.5 x Line 4]	1378	cu. ft.
17	Required Footprint [Line 16/ Line 15] x 12	1004	sq. ft.
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
18	Required Storage (surface + pores) Volume [0.75 x Line 4]	689	cu. ft.
19	Required Footprint [Line 18/ Line 14] x 12	510	sq. ft.
Footprint of the BMP			
20	BMP Footprint Sizing Factor (Default 0.03 or an alternative minimum footprint sizing factor from Line 11 in Worksheet B.5-4)	0.03	
21	Minimum BMP Footprint [Line 1 x Line 2 x Line 20]	466	sq. ft.
22	Footprint of the BMP = Maximum(Minimum(Line 17, Line 19), Line 21)	510	sq. ft.
23	Provided BMP Footprint	1960	sq. ft.
24	Is Line 23 ≥ Line 22?	**Yes, Performance Standard is Met**	

ESCONDIDO City of Choice	**Project Name**	Cleveland	
	BMP ID	BMP-A	
Sizing Method for Volume Retention Criteria		**Worksheet B.5-2**	
1	Area draining to the BMP	400438	sq. ft.
2	Adjusted runoff factor for drainage area (Refer to Appendix B.1 and B.2)	0.45	
3	85th percentile 24-hour rainfall depth	0.71	inches
4	Design capture volume [Line 1 x Line 2 x (Line 3/12)]	10662	cu. ft.
Volume Retention Requirement			
5	Measured infiltration rate in the DMA Note: When mapped hydrologic soil groups are used enter 0.10 for NRCS Type D soils and for NRCS Type C soils enter 0.30 When in no infiltration condition and the actual measured infiltration rate is unknown enter 0.0 if there are geotechnical and/or groundwater hazards identified in Appendix C or enter 0.05	0.5	in/hr.
6	Factor of safety	2	
7	Reliable infiltration rate, for biofiltration BMP sizing [Line 5 / Line 6]	0.25	in/hr.
8	Average annual volume reduction target (Figure B.5-2) When Line 7 > 0.01 in/hr. = Minimum (40, 166.9 x Line 7 +6.62) When Line 7 ≤ 0.01 in/hr. = 3.5%	40.0	%
9	Fraction of DCV to be retained (Figure B.5-3) When Line 8 > 8% = 0.0000013 x Line 8^3 - 0.000057 x Line 8^2 + 0.0086 x Line 8 - 0.014 When Line 8 ≤ 8% = 0.023	0.322	
10	Target volume retention [Line 9 x Line 4]	3433	cu. ft.

ESCONDIDO City of Choice	**Project Name**	Cleveland	
	BMP ID	BMP-B	
Sizing Method for Volume Retention Criteria		**Worksheet B.5-2**	
1	Area draining to the BMP	31689	sq. ft.
2	Adjusted runoff factor for drainage area (Refer to Appendix B.1 and B.2)	0.49	
3	85th percentile 24-hour rainfall depth	0.71	inches
4	Design capture volume [Line 1 x Line 2 x (Line 3/12)]	919	cu. ft.
Volume Retention Requirement			
5	Measured infiltration rate in the DMA Note: When mapped hydrologic soil groups are used enter 0.10 for NRCS Type D soils and for NRCS Type C soils enter 0.30 When in no infiltration condition and the actual measured infiltration rate is unknown enter 0.0 if there are geotechnical and/or groundwater hazards identified in Appendix C or enter 0.05	0.3	in/hr.
6	Factor of safety	2	
7	Reliable infiltration rate, for biofiltration BMP sizing [Line 5 / Line 6]	0.15	in/hr.
8	Average annual volume reduction target (Figure B.5-2) When Line 7 > 0.01 in/hr. = Minimum (40, 166.9 x Line 7 +6.62) When Line 7 ≤ 0.01 in/hr. = 3.5%	31.7	%
9	Fraction of DCV to be retained (Figure B.5-3) When Line 8 > 8% = 0.0000013 x Line 8^3 - 0.000057 x Line 8^2 + 0.0086 x Line 8 - 0.014 When Line 8 ≤ 8% = 0.023	0.242	
10	Target volume retention [Line 9 x Line 4]	222	cu. ft.

ESCONDIDO City of Choice	Project Name	Cleveland	
	BMP ID	BMP-A	
Volume Retention from Biofiltration with Partial Retention BMPs		**Worksheet B.5-3**	
1	Area draining to the BMP	400438	sq. ft.
2	Adjusted runoff factor for drainage area (Refer to Appendix B.1 and B.2)	0.45	
3	85th percentile 24-hour rainfall depth	0.71	inches
4	Design capture volume [Line 1 x Line 2 x (Line 3/12)]	10662	cu. ft.
BMP Parameters			
5	Footprint of the BMP	11148	sq. ft.
6	Media thickness [18 inches minimum], also add mulch layer and washed ASTM 33 fine aggregate sand thickness to this line for sizing calculations	21	inches
7	Media retained pore space [50% of (Field Capacity-Wilting Point)]	0.05	in/in
8	Aggregate storage below underdrain invert (3 inches minimum) – use 0 inches if the aggregate is not over the entire bottom surface area	3	inches
9	Porosity of aggregate storage	0.4	in/in
10	Measured infiltration rate in the DMA Note: When mapped hydrologic soil groups are used enter 0.10 for NRCS Type D soils and for NRCS Type C soils enter 0.30	0.5	in/hr.
11	Factor of safety	2	
12	Reliable infiltration rate, for biofiltration BMP sizing [Line 10/ Line 11]	0.25	in/hr.
Evapotranspiration: Average Annual Volume Retention			
13	Effective evapotranspiration depth [Line 6 x Line 7]	1.05	inches
14	Retained Pore Volume [(Line 13 x Line 5)/12]	975	cu. ft.
15	Fraction of DCV retained in pore spaces [Line 14/Line 4]	0.09	
16	Evapotranspiration average annual capture [ET nomographs in Figure B.5-5]	6.2	%
Infiltration: Average Annual Volume Retention			
17	Drawdown for infiltration storage [(Line 8 x Line 9)/Line 12]	5	hours
18	Equivalent DCV fraction from evapotranspiration (use Line 16 and Line 17 in Figure B.4-1; Refer to Appendix B.4.2.2)	0.02	
19	Infiltration volume storage [(Line 5 x Line 8 x Line 9)/12]	1115	cu. ft.
20	Infiltration Storage Fraction of DCV [Line 19/Line 4]	0.10	
21	Total Equivalent Fraction of DCV [Line 18 + Line 20]	0.12	
22	Biofiltration BMP average annual capture [use Line 21 and 17 in Figure B.4-1]	40.04	%
23	Fraction of DCV retained (Figure B.5-3) 0.0000013 x Line 22^3 - 0.000057 x Line 22^2 + 0.0086 x Line 22 - 0.014	0.322	
24	Volume retention achieved by biofiltration BMP [Line 23 x Line 4]	3433	cu. ft.
Volume Retention = 3433 cubic feet			

ESCONDIDO City of Choice		**Project Name**	Cleveland				
		BMP ID	BMP-B				
Volume Retention for No Infiltration Condition					**Worksheet B.5-6**		
1	Area draining to the biofiltration BMP				31689	sq. ft.	
2	Adjusted runoff factor for drainage area (Refer to Appendix B.1 and B.2)				0.49		
3	Effective impervious area draining to the BMP [Line 1 x Line 2]				15528	sq. ft.	
4	Required area for Evapotranspiration [Line 3 x 0.03]				466	sq. ft.	
5	Biofiltration BMP Footprint				1960	sq. ft.	
Landscape Area (must be identified on DS-3247)							
		Identification	**1**	**2**	**3**	**4**	**5**
6	Landscape area that meet the requirements in SD-B and SD-F Fact Sheet (sq. ft.)		0				
7	Impervious area draining to the landscape area (sq. ft.)		0				
8	Impervious to Pervious Area ratio [Line 7/Line 6]		0.00	0.00	0.00	0.00	0.00
9	Effective Credit Area If (Line 8 >1.5, Line 6, Line 7/1.5]		0	0	0	0	0
10	Sum of Landscape area [sum of Line 9 Id's 1 to 5]				0	sq. ft.	
11	Provided footprint for evapotranspiration [Line 5 + Line 10]				1960	sq. ft.	
Volume Retention Performance Standard							
12	Is Line 11 ≥ Line 4?		Volume Retention Performance Standard is Met				
13	Fraction of the performance standard met through the BMP footprint and/or landscaping [Line 11/Line 4]				4.21		
14	Target Volume Retention [Line 10 from Worksheet B.5.2]				222	cu. ft.	
15	Volume retention required from other site design BMPs [(1-Line 13) x Line 14]				-712.62	cu. ft.	
Site Design BMP							
	Identification	**Site Design Type**			**Credit**		
16	**1**					cu. ft.	
	2					cu. ft.	
	3					cu. ft.	
	4					cu. ft.	
	5					cu. ft.	
	Sum of volume retention benefits from other site design BMPs (e.g. trees; rain barrels etc.). [sum of Line 16 Credits for Id's 1 to 5] Provide documentation of how the site design credit is calculated in the PDP SWQMP.				0	cu. ft.	
17	Is Line 16 ≥ Line 15?		Volume Retention Performance Standard is Met				

ATTACHMENT 1b

Worksheet C.4-2 (Form I-8A): Categorization of Infiltration Feasibility Condition Based on Geotechnical Conditions[2]

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A[3]
Part 1 - Full Infiltration Feasibility Screening Criteria		
DMA(s) Being Analyzed:		**Project Phase:**
DMA-1		Design Phase
Criteria 1: Infiltration Rate Screening		
1A	Is the mapped hydrologic soil group according to the NRCS Web Soil Survey or UC Davis Soil Web Mapper Type A or B and corroborated by available site soil data[4]? ▣ Yes; the DMA may feasibly support full infiltration. Answer "Yes" to Criteria 1 Result or continue to Step 1B if the applicant elects to perform infiltration testing. ☐ No; the mapped soil types are A or B but is not corroborated by available site soil data (continue to Step 1B). ☐ No; the mapped soil types are C, D, or "urban/unclassified" and is corroborated by available site soil data. Answer "No" to Criteria 1 Result. ☐ No; the mapped soil types are C, D, or "urban/unclassified" but is not corroborated by available site soil data (continue to Step 1B).	
1B	Is the reliable infiltration rate calculated using planning phase methods from Table D.3-1? ▣ Yes; Continue to Step 1C. ☐ No; Skip to Step 1D.	
1C	Is the reliable infiltration rate calculated using planning phase methods from Table D.3-1 greater than 0.5 inches per hour? ▣ Yes; the DMA may feasibly support full infiltration. Answer "Yes" to Criteria 1 Result. ☐ No; full infiltration is not required. Answer "No" to Criteria 1 Result.	
1D	**Infiltration Testing Method.** Is the selected infiltration testing method suitable during the design phase (see Appendix D.3)? Note: Alternative testing standards may be allowed with appropriate rationales and documentation. ▣ Yes; continue to Step 1E. ☐ No; select an appropriate infiltration testing method.	

[2] Note that it is not required to investigate each and every criterion in the worksheet, a single "no" answer in Part 1, Part 2, Part 3, or Part 4 determines a full, partial, or no infiltration condition.
[3] This form must be completed each time there is a change to the site layout that would affect the infiltration feasibility condition. Previously completed forms shall be retained to document the evolution of the site storm water design.
[4] Available data includes site-specific sampling or observation of soil types or texture classes, such as obtained from borings or test pits necessary to support other design elements.

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions	Worksheet C.4-1: Form I-8A[3]
1E	**Number of Percolation/Infiltration Tests.** Does the infiltration testing method performed satisfy the minimum number of tests specified in Table D.3-2? ■ Yes; continue to Step 1F. ☐ No; conduct appropriate number of tests.
IF	**Factor of Safety.** Is the suitable Factor of Safety selected for full infiltration design? See guidance in D.5; Tables D.5-1 and D.5-2; and Worksheet D.5-1 (Form I-9). ■ Yes; continue to Step 1G. ☐ No; select appropriate factor of safety.
1G	**Full Infiltration Feasibility.** Is the average measured infiltration rate divided by the Factor of Safety greater than 0.5 inches per hour? ■ Yes; answer "Yes" to Criteria 1 Result. ☐ No; answer "No" to Criteria 1 Result.
Criteria 1 Result	Is the estimated reliable infiltration rate greater than 0.5 inches per hour within the DMA where runoff can reasonably be routed to a BMP? ■ Yes; the DMA may feasibly support full infiltration. Continue to Criteria 2. ☐ No; full infiltration is not required. Skip to Part 1 Result.
Summarize infiltration testing methods, testing locations, replicates, and results and summarize estimates of reliable infiltration rates according to procedures outlined in D.5. Documentation should be included in project geotechnical report.	

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions			Worksheet C.4-1: Form I-8A[3]
Criteria 2: Geologic/Geotechnical Screening			
2A	If all questions in Step 2A are answered "Yes," continue to Step 2B. For any "No" answer in Step 2A answer "No" to Criteria 2, and submit an "Infiltration Feasibility Condition Letter" that meets the requirements in Appendix C.1.1. The geologic/geotechnical analyses listed in Appendix C.2.1 do not apply to the DMA because one of the following setbacks cannot be avoided and therefore result in the DMA being in a no infiltration condition. The setbacks must be the closest horizontal radial distance from the surface edge (at the overflow elevation) of the BMP.		
2A-1	Can the proposed full infiltration BMP(s) avoid areas with existing fill materials greater than 5 feet thick below the infiltrating surface?	■ Yes	☐ No
2A-2	Can the proposed full infiltration BMP(s) avoid placement within 10 feet of existing underground utilities, structures, or retaining walls?	■ Yes	☐ No
2A-3	Can the proposed full infiltration BMP(s) avoid placement within 50 feet of a natural slope (>25%) or within a distance of 1.5H from fill slopes where H is the height of the fill slope?	■ Yes	☐ No
2B	When full infiltration is determined to be feasible, a geotechnical investigation report must be prepared that considers the relevant factors identified in Appendix C.2.1. If all questions in Step 2B are answered "Yes," then answer "Yes" to Criteria 2 Result. If there are "No" answers continue to Step 2C.		
2B-1	**Hydroconsolidation.** Analyze hydroconsolidation potential per approved ASTM standard due to a proposed full infiltration BMP. Can full infiltration BMPs be proposed within the DMA without increasing hydroconsolidation risks?	■ Yes	☐ No
2B-2	**Expansive Soils.** Identify expansive soils (soils with an expansion index greater than 20) and the extent of such soils due to proposed full infiltration BMPs. Can full infiltration BMPs be proposed within the DMA without increasing expansive soil risks?	■ Yes	☐ No

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A[3]	
2B-3	**Liquefaction**. If applicable, identify mapped liquefaction areas. Evaluate liquefaction hazards in accordance with Section 6.4.2 of the City of San Diego's Guidelines for Geotechnical Reports (2011 or most recent edition). Liquefaction hazard assessment shall take into account any increase in groundwater elevation or groundwater mounding that could occur as a result of proposed infiltration or percolation facilities. Can full infiltration BMPs be proposed within the DMA without increasing liquefaction risks?	■ Yes	☐ No
2B-4	**Slope Stability**. If applicable, perform a slope stability analysis in accordance with the ASCE and Southern California Earthquake Center (2002) Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Landslide Hazards in California to determine minimum slope setbacks for full infiltration BMPs. See the City of San Diego's Guidelines for Geotechnical Reports (2011) to determine which type of slope stability analysis is required. Can full infiltration BMPs be proposed within the DMA without increasing slope stability risks?	■ Yes	☐ No
2B-5	**Other Geotechnical Hazards.** Identify site-specific geotechnical hazards not already mentioned (refer to Appendix C.2.1). Can full infiltration BMPs be proposed within the DMA without increasing risk of geologic or geotechnical hazards not already mentioned?	■ Yes	☐ No
2B-6	**Setbacks.** Establish setbacks from underground utilities, structures, and/or retaining walls. Reference applicable ASTM or other recognized standard in the geotechnical report. Can full infiltration BMPs be proposed within the DMA using established setbacks from underground utilities, structures, and/or retaining walls?	■ Yes	☐ No

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A [3]	
2C	**Mitigation Measures.** Propose mitigation measures for each geologic/geotechnical hazard identified in Step 2B. Provide a discussion of geologic/geotechnical hazards that would prevent full infiltration BMPs that cannot be reasonably mitigated in the geotechnical report. See Appendix C.2.1.8 for a list of typically reasonable and typically unreasonable mitigation measures. Can mitigation measures be proposed to allow for full infiltration BMPs? If the question in Step 2 is answered "Yes," then answer "Yes" to Criteria 2 Result. If the question in Step 2C is answered "No," then answer "No" to Criteria 2 Result.	■ Yes	☐ No
Criteria 2 Result	Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geologic or geotechnical hazards that cannot be reasonably mitigated to an acceptable level?	■ Yes	☐ No
Summarize findings and basis; provide references to related reports or exhibits.			

Part 1 Result – Full Infiltration Geotechnical Screening [5]	Result
If answers to both Criteria 1 and Criteria 2 are "Yes", a full infiltration design is potentially feasible based on Geotechnical conditions only. If either answer to Criteria 1 or Criteria 2 is "No", a full infiltration design is not required.	■ Full infiltration Condition ☐ Complete Part 2

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

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions	Worksheet C.4-1: Form I-8A[3]
Part 2 – Partial vs. No Infiltration Feasibility Screening Criteria	
DMA(s) Being Analyzed:	**Project Phase:**
DMA-1	Design Phase
Criteria 3: Infiltration Rate Screening	
3A	**NRCS Type C, D, or "urban/unclassified":** Is the mapped hydrologic soil group according to the NRCS Web Soil Survey or UC Davis Soil Web Mapper is Type C, D, or "urban/unclassified" and corroborated by available site soil data? ☐ Yes; the site is mapped as C soils and a reliable infiltration rate of 0.15 in/hr. is used to size partial infiltration BMPS. Answer "Yes" to Criteria 3 Result. ☐ Yes; the site is mapped as D soils or "urban/unclassified" and a reliable infiltration rate of 0.05 in/hr. is used to size partial infiltration BMPS. Answer "Yes" to Criteria 3 Result. ■ No; infiltration testing is conducted (refer to Table D.3-1), continue to Step 3B.
3B	**Infiltration Testing Result:** Is the reliable infiltration rate (i.e. average measured infiltration rate/2) greater than 0.05 in/hr. and less than or equal to 0.5 in/hr? ■ Yes; the site may support partial infiltration. Answer "Yes" to Criteria 3 Result. ☐ No; the reliable infiltration rate (i.e. average measured rate/2) is less than 0.05 in/hr., partial infiltration is not required. Answer "No" to Criteria 3 Result.
Criteria 3 Result	Is the estimated reliable infiltration rate (i.e., average measured infiltration rate/2) greater than or equal to 0.05 inches/hour and less than or equal to 0.5 inches/hour at any location within each DMA where runoff can reasonably be routed to a BMP? ■ Yes; Continue to Criteria 4. ☐ No: Skip to Part 2 Result.
Summarize infiltration testing and/or mapping results (i.e. soil maps and series description used for infiltration rate).	

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A[3]	
Criteria 4: Geologic/Geotechnical Screening			
4A	If all questions in Step 4A are answered "Yes," continue to Step 2B. For any "No" answer in Step 4A answer "No" to Criteria 4 Result, and submit an "Infiltration Feasibility Condition Letter" that meets the requirements in Appendix C.1.1. The geologic/geotechnical analyses listed in Appendix C.2.1 do not apply to the DMA because one of the following setbacks cannot be avoided and therefore result in the DMA being in a no infiltration condition. The setbacks must be the closest horizontal radial distance from the surface edge (at the overflow elevation) of the BMP.		
4A-1	Can the proposed partial infiltration BMP(s) avoid areas with existing fill materials greater than 5 feet thick?	■ Yes	☐ No
4A-2	Can the proposed partial infiltration BMP(s) avoid placement within 10 feet of existing underground utilities, structures, or retaining walls?	■ Yes	☐ No
4A-3	Can the proposed partial infiltration BMP(s) avoid placement within 50 feet of a natural slope (>25%) or within a distance of 1.5H from fill slopes where H is the height of the fill slope?	■ Yes	☐ No
4B	When full infiltration is determined to be feasible, a geotechnical investigation report must be prepared that considers the relevant factors identified in Appendix C.2.1 If all questions in Step 4B are answered "Yes," then answer "Yes" to Criteria 4 Result. If there are any "No" answers continue to Step 4C.		
4B-1	**Hydroconsolidation.** Analyze hydroconsolidation potential per approved ASTM standard due to a proposed full infiltration BMP. Can partial infiltration BMPs be proposed within the DMA without increasing hydroconsolidation risks?	■ Yes	☐ No
4B-2	**Expansive Soils.** Identify expansive soils (soils with an expansion index greater than 20) and the extent of such soils due to proposed full infiltration BMPs. Can partial infiltration BMPs be proposed within the DMA without increasing expansive soil risks?	■ Yes	☐ No
4B-3	**Liquefaction**. If applicable, identify mapped liquefaction areas. Evaluate liquefaction hazards in accordance with Section 6.4.2 of the City of San Diego's Guidelines for Geotechnical Reports (2011). Liquefaction hazard assessment shall take into account any increase in groundwater elevation or groundwater mounding that could occur as a result of proposed infiltration or percolation facilities. Can partial infiltration BMPs be proposed within the DMA without increasing liquefaction risks?	■ Yes	☐ No

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A[3]	
4B-4	**Slope Stability**. If applicable, perform a slope stability analysis in accordance with the ASCE and Southern California Earthquake Center (2002) Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Landslide Hazards in California to determine minimum slope setbacks for full infiltration BMPs. See the City of San Diego's Guidelines for Geotechnical Reports (2011) to determine which type of slope stability analysis is required. Can partial infiltration BMPs be proposed within the DMA without increasing slope stability risks?	■ Yes	☐ No
4B-5	**Other Geotechnical Hazards.** Identify site-specific geotechnical hazards not already mentioned (refer to Appendix C.2.1). Can partial infiltration BMPs be proposed within the DMA without increasing risk of geologic or geotechnical hazards not already mentioned?	■ Yes	☐ No
4B-6	**Setbacks.** Establish setbacks from underground utilities, structures, and/or retaining walls. Reference applicable ASTM or other recognized standard in the geotechnical report. Can partial infiltration BMPs be proposed within the DMA using recommended setbacks from underground utilities, structures, and/or retaining walls?	■ Yes	☐ No
4C	**Mitigation Measures.** Propose mitigation measures for each geologic/geotechnical hazard identified in Step 4B. Provide a discussion on geologic/geotechnical hazards that would prevent partial infiltration BMPs that cannot be reasonably mitigated in the geotechnical report. See Appendix C.2.1.8 for a list of typically reasonable and typically unreasonable mitigation measures. Can mitigation measures be proposed to allow for partial infiltration BMPs? If the question in Step 4C is answered "Yes," then answer "Yes" to Criteria 4 Result. If the question in Step 4C is answered "No," then answer "No" to Criteria 4 Result.	■ Yes	☐ No
Criteria 4 Result	Can infiltration of greater than or equal to 0.05 inches/hour and less than or equal to 0.5 inches/hour be allowed without increasing the risk of geologic or geotechnical hazards that cannot be reasonably mitigated to an acceptable level?	■ Yes	☐ No

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions	Worksheet C.4-1: Form I-8A [3]
Summarize findings and basis; provide references to related reports or exhibits	

Part 2 – Partial Infiltration Geotechnical Screening Result [6]	Result
If answers to both Criteria 3 and Criteria 4 are "Yes", a partial infiltration design is potentially feasible based on geotechnical conditions only. If answers to either Criteria 3 or Criteria 4 is "No", then infiltration of any volume is considered to be infeasible within the site.	■ Partial Infiltration Condition ☐ No Infiltration Condition

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

Worksheet C.4-2: Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions[7]

Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions		Worksheet C.4-2: Form I-8B[8]
Part 1 - Full Infiltration Feasibility Screening Criteria		
DMA(s) Being Analyzed:		**Project Phase:**
DMA-1		Design Phase
Criteria 1: Groundwater Screening		
1A	**Groundwater Depth.** Is the depth to seasonally high groundwater tables (normal high depth during the wet season) beneath the base of any full infiltration BMP greater than 10 feet? ▣ Yes; continue to Step 1B. ☐ No; The depth to groundwater is less than or equal to 10 feet, but site layout changes or reasonable mitigation measures can be proposed to support full infiltration BMPs. Continue to step 1B. ☐ No; The depth to groundwater is less than or equal to 10 feet and site layout changes or reasonable mitigation measures cannot be proposed to support full infiltration BMPs. Answer "No" for Criteria 1 Result.	
1B	**Contaminated Soil/Groundwater.** Are proposed full infiltration BMPs at least 250 feet away from contaminated soil or groundwater sites? This can be confirmed using GeoTracker (geotracker.waterboards.ca.gov) to identify open contaminated sites. The setbacks must be the closest horizontal radial distance from the surface edge (at the overflow elevation) of the BMP. ▣ Yes; continue to Step 1C. ☐ No; However, site layout changes or reasonable mitigation measures can be proposed to support full infiltration BMPs. Continue to Step 1C. ☐ No; Site layout changes or reasonable mitigation measures cannot be proposed to support full infiltration BMPs. Answer "No" to Criteria 1 Result.	

[7] Note that it is not required to investigate each and every criterion in the worksheet, a single "no" answer in Part 1, Part 2, part 3, or Part 4 determines a full, partial, or no infiltration condition.
[8] This form must be completed each time there is a change to the site layout that would affect the infiltration feasibility condition. Previously completed forms shall be retained to document the evolution of the site storm water design.

Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions	Worksheet C.4-2: Form I-8B[8]
1C	**Inadequate Soil Treatment Capacity.** Are full infiltration BMPs proposed in DMA soils that have adequate soil treatment capacity? The DMA has adequate soil treatment capacity if **ALL** of the following criteria (detailed in C.2.2.1) for all soil layers beneath the infiltrating surface are met: • USDA texture class is sandy loam or loam or silt loam or silt or sandy clay loam or clay loam or silty clay loam or sandy clay or silty clay or clay; and • Cation Exchange Capacity (CEC) greater than 5 milliequivalents/100g; and • Soil organic matter is greater than 1%; and • Groundwater table is equal to or greater than 10 feet beneath the base of the full infiltration BMP. ▣ Yes; continue to Step 1D. ☐ No; However, site layout changes or reasonable mitigation measures can be proposed to support full infiltration BMPs. Continue to Step 1D. ☐ No; Site layout changes or reasonable mitigation measures cannot be proposed to support full infiltration BMPs. Answer "No" to Criteria 1 Result.
1D	**Other Groundwater Contamination Hazards.** Are there site-specific groundwater contamination hazards not already mentioned (refer to Appendix C.2.2) that can be reasonably mitigated to support full infiltration BMPs? ☐ Yes; there are other contamination hazards identified that can be mitigated. Answer "Yes" to Criteria 1 Result. ☐ No; there are other contamination hazards identified that cannot be mitigated. Answer "No" to Criteria 1 Result. ▣ N/A; no contamination hazards are identified. Answer "Yes" to Criteria 1 Result.
Criteria 1 Result	Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination that cannot be reasonably mitigated to an acceptable level? See Appendix C.2.2.8 for a list of typically reasonable and typically unreasonable mitigation measures. ▣ Yes; Continue to Part 1, Criteria 2. ☐ No; Continue to Part 1 Result.

Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions	Worksheet C.4-2: Form I-8B[8]
Summarize groundwater quality and any mitigation measures proposed. Documentation should focus on groundwater table, mapped soil types and contaminated site locations.	

Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions	Worksheet C.4-2: Form I-8B[8]
Criteria 2: Water Balance Screening	
2A	**Ephemeral Stream Setback.** Does the proposed full infiltration BMP meet both the following? • The full infiltration BMP is located at least 250 feet away from an ephemeral stream; **AND** • The bottom surface of the full infiltration BMP is at a depth 20 feet or greater from seasonally high groundwater tables. ▣ Yes; Answer "Yes" to Criteria 2 Result. ☐ No; Continue to Step 2B.
2B	**Mitigation Measures.** Can site layout changes be proposed to support full infiltration BMPs? ▣ Yes; the site can be reconfigured to mitigate potential water balance issues. Answer "Yes" to Criteria 2 Result. ☐ No; the site cannot be reconfigured to mitigate potential water balance issues. Continue to Step 2C and provide discussion.
2C	**Additional studies.** Do additional studies support full infiltration BMPs? In the event that water balance effects are used to reject full infiltration (anticipated to be rare), additional analysis shall be completed and documented by a qualified professional indicating the site-specific information evaluated and the technical basis for this finding. ▣ Yes; Answer "Yes" to Criteria 2 Result. ☐ No; Answer "No" to Criteria 2 Result.
Criteria 2 Result	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? ▣ Yes; Continue to Part 1 Result. ☐ No; Continue to Part 1 Result.

Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions	Worksheet C.4-2: Form I-8B[8]
Summarize potential water balance effects. Documentation should focus on mapping and soil data regarding proximity to ephemeral streams and groundwater depth.	

Part 1 – Full Infiltration Groundwater and Water Balance Screening Result[9]	Result
If answers to Criteria 1 and 2 are "Yes", a full infiltration design is potentially feasible. The feasibility screening category is Full Infiltration based on groundwater conditions. If answer to Criteria 1 or Criteria 2 is "No", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design based on groundwater conditions. Proceed to Part 2.	■ Full Infiltration ☐ Complete Part 2

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

Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions	Worksheet C.4-2: Form I-8B[8]
Part 2 – Partial vs. No Infiltration Feasibility Screening Criteria	
DMA(s) Being Analyzed:	**Project Phase:**
DMA-1	Design Phase

Criteria 3: Groundwater Screening

Contaminated Soil/Groundwater. Are partial infiltration BMPs proposed at least 100 feet away from contaminated soil or groundwater sites? This can be confirmed using GeoTracker (geotracker.waterboards.ca.gov) to identify open contaminated sites. This criterion is intentionally a smaller radius than full infiltration, as the potential quantity of infiltration from partial infiltration BMPs is smaller.

■ Yes; Answer "Yes" to Criteria 3 Result.

☐ No; However, site layout changes can be proposed to avoid contaminated soils or soils that lack adequate treatment capacity. Select "Yes" to Criteria 3 Result. It is a requirement for the SWQMP preparer to identify potential mitigation measures.

☐ No; Contaminated soils or soils that lack adequate treatment capacity cannot be avoided and partial infiltration BMPs are not feasible. Select "No" to Criteria 3 Result.

Criteria 3 Result: Can infiltration of greater than or equal to 0.05 inches/hour and less than or equal to 0.5 inches/hour be allowed without increasing risk of groundwater contamination that cannot be reasonably mitigated to an acceptable level?

Yes; Continue to Part 2, Criteria 4.

☐ No; Skip to Part 2 Result.

Summarize findings and basis. Documentation should focus on mapped soil types and contaminated site locations.

The proposed infiltration BMP is located more than 100 feet away from contaminated soil or groundwater sites as documented by the GeoTracker website. The infiltration rate as justified in the soils report will not increase contamination risk.

Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions	Worksheet C.4-2: Form I-8B[8]
Criteria 4: Water Balance Screening	
Additional studies. In the event that water balance effects are used to reject partial infiltration (anticipated to be rare), a qualified professional must provide an analysis of the incremental effects of partial infiltration BMPs on the water balance compared to incidental infiltration under a no infiltration scenario (e.g. precipitation, irrigation, etc.).	
Criteria 4 Result: Can infiltration of greater than or equal to 0.05 inches/hour and less than or equal to 0.5 inches/hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams? ■ Yes: Continue to Part 2 Result. ☐ No: Continue to Part 2 Result.	
Summarize potential water balance effects. Documentation should focus on mapping and soil data regarding proximity to ephemeral streams and groundwater depth	

Part 2 – Partial Infiltration Groundwater and Water Balance Screening Result[10]	Result
If answers to Criteria 3 and Criteria 4 are "Yes", a partial infiltration design is potentially feasible. The feasibility screening category is Partial Infiltration based on groundwater and water balance conditions. If answer to Criteria 3 or Criteria 4 is "No", then infiltration of any volume is considered to be infeasible within the site. The feasibility screening category is No Infiltration based on groundwater or water balance condition.	■ Partial Infiltration Condition ☐ No Infiltration Condition

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

Worksheet C.4-2 (Form I-8A): Categorization of Infiltration Feasibility Condition Based on Geotechnical Conditions[2]

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A[3]
Part 1 - Full Infiltration Feasibility Screening Criteria		
DMA(s) Being Analyzed:		**Project Phase:**
DMA-2		Design Phase
Criteria 1: Infiltration Rate Screening		
1A	Is the mapped hydrologic soil group according to the NRCS Web Soil Survey or UC Davis Soil Web Mapper Type A or B and corroborated by available site soil data[4]? ☐ Yes; the DMA may feasibly support full infiltration. Answer "Yes" to Criteria 1 Result or continue to Step 1B if the applicant elects to perform infiltration testing. ☐ No; the mapped soil types are A or B but is not corroborated by available site soil data (continue to Step 1B). ■ No; the mapped soil types are C, D, or "urban/unclassified" and is corroborated by available site soil data. Answer "No" to Criteria 1 Result. ☐ No; the mapped soil types are C, D, or "urban/unclassified" but is not corroborated by available site soil data (continue to Step 1B).	
1B	Is the reliable infiltration rate calculated using planning phase methods from Table D.3-1? ☐ Yes; Continue to Step 1C. ☐ No; Skip to Step 1D.	
1C	Is the reliable infiltration rate calculated using planning phase methods from Table D.3-1 greater than 0.5 inches per hour? ☐ Yes; the DMA may feasibly support full infiltration. Answer "Yes" to Criteria 1 Result. ☐ No; full infiltration is not required. Answer "No" to Criteria 1 Result.	
1D	**Infiltration Testing Method.** Is the selected infiltration testing method suitable during the design phase (see Appendix D.3)? Note: Alternative testing standards may be allowed with appropriate rationales and documentation. ☐ Yes; continue to Step 1E. ☐ No; select an appropriate infiltration testing method.	

[2] Note that it is not required to investigate each and every criterion in the worksheet, a single "no" answer in Part 1, Part 2, Part 3, or Part 4 determines a full, partial, or no infiltration condition.
[3] This form must be completed each time there is a change to the site layout that would affect the infiltration feasibility condition. Previously completed forms shall be retained to document the evolution of the site storm water design.
[4] Available data includes site-specific sampling or observation of soil types or texture classes, such as obtained from borings or test pits necessary to support other design elements.

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions	Worksheet C.4-1: Form I-8A[3]
1E	**Number of Percolation/Infiltration Tests.** Does the infiltration testing method performed satisfy the minimum number of tests specified in Table D.3-2? ☐ Yes; continue to Step 1F. ☐ No; conduct appropriate number of tests.
IF	**Factor of Safety.** Is the suitable Factor of Safety selected for full infiltration design? See guidance in D.5; Tables D.5-1 and D.5-2; and Worksheet D.5-1 (Form I-9). ☐ Yes; continue to Step 1G. ☐ No; select appropriate factor of safety.
1G	**Full Infiltration Feasibility.** Is the average measured infiltration rate divided by the Factor of Safety greater than 0.5 inches per hour? ☐ Yes; answer "Yes" to Criteria 1 Result. ☐ No; answer "No" to Criteria 1 Result.
Criteria 1 Result	Is the estimated reliable infiltration rate greater than 0.5 inches per hour within the DMA where runoff can reasonably be routed to a BMP? ☐ Yes; the DMA may feasibly support full infiltration. Continue to Criteria 2. ▣ No; full infiltration is not required. Skip to Part 1 Result.
Summarize infiltration testing methods, testing locations, replicates, and results and summarize estimates of reliable infiltration rates according to procedures outlined in D.5. Documentation should be included in project geotechnical report.	

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A[3]	
Criteria 2: Geologic/Geotechnical Screening			
2A	If all questions in Step 2A are answered "Yes," continue to Step 2B. For any "No" answer in Step 2A answer "No" to Criteria 2, and submit an "Infiltration Feasibility Condition Letter" that meets the requirements in Appendix C.1.1. The geologic/geotechnical analyses listed in Appendix C.2.1 do not apply to the DMA because one of the following setbacks cannot be avoided and therefore result in the DMA being in a no infiltration condition. The setbacks must be the closest horizontal radial distance from the surface edge (at the overflow elevation) of the BMP.		
2A-1	Can the proposed full infiltration BMP(s) avoid areas with existing fill materials greater than 5 feet thick below the infiltrating surface?	■ Yes	☐ No
2A-2	Can the proposed full infiltration BMP(s) avoid placement within 10 feet of existing underground utilities, structures, or retaining walls?	■ Yes	☐ No
2A-3	Can the proposed full infiltration BMP(s) avoid placement within 50 feet of a natural slope (>25%) or within a distance of 1.5H from fill slopes where H is the height of the fill slope?	☐ Yes	■ No
2B	When full infiltration is determined to be feasible, a geotechnical investigation report must be prepared that considers the relevant factors identified in Appendix C.2.1. If all questions in Step 2B are answered "Yes," then answer "Yes" to Criteria 2 Result. If there are "No" answers continue to Step 2C.		
2B-1	**Hydroconsolidation.** Analyze hydroconsolidation potential per approved ASTM standard due to a proposed full infiltration BMP. Can full infiltration BMPs be proposed within the DMA without increasing hydroconsolidation risks?	☐ Yes	☐ No
2B-2	**Expansive Soils.** Identify expansive soils (soils with an expansion index greater than 20) and the extent of such soils due to proposed full infiltration BMPs. Can full infiltration BMPs be proposed within the DMA without increasing expansive soil risks?	☐ Yes	☐ No

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A[3]	
2B-3	**Liquefaction**. If applicable, identify mapped liquefaction areas. Evaluate liquefaction hazards in accordance with Section 6.4.2 of the City of San Diego's Guidelines for Geotechnical Reports (2011 or most recent edition). Liquefaction hazard assessment shall take into account any increase in groundwater elevation or groundwater mounding that could occur as a result of proposed infiltration or percolation facilities. Can full infiltration BMPs be proposed within the DMA without increasing liquefaction risks?	☐ Yes	☐ No
2B-4	**Slope Stability**. If applicable, perform a slope stability analysis in accordance with the ASCE and Southern California Earthquake Center (2002) Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Landslide Hazards in California to determine minimum slope setbacks for full infiltration BMPs. See the City of San Diego's Guidelines for Geotechnical Reports (2011) to determine which type of slope stability analysis is required. Can full infiltration BMPs be proposed within the DMA without increasing slope stability risks?	☐ Yes	☐ No
2B-5	**Other Geotechnical Hazards.** Identify site-specific geotechnical hazards not already mentioned (refer to Appendix C.2.1). Can full infiltration BMPs be proposed within the DMA without increasing risk of geologic or geotechnical hazards not already mentioned?	☐ Yes	☐ No
2B-6	**Setbacks.** Establish setbacks from underground utilities, structures, and/or retaining walls. Reference applicable ASTM or other recognized standard in the geotechnical report. Can full infiltration BMPs be proposed within the DMA using established setbacks from underground utilities, structures, and/or retaining walls?	☐ Yes	☐ No

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A [3]	
2C	**Mitigation Measures.** Propose mitigation measures for each geologic/geotechnical hazard identified in Step 2B. Provide a discussion of geologic/geotechnical hazards that would prevent full infiltration BMPs that cannot be reasonably mitigated in the geotechnical report. See Appendix C.2.1.8 for a list of typically reasonable and typically unreasonable mitigation measures. Can mitigation measures be proposed to allow for full infiltration BMPs? If the question in Step 2 is answered "Yes," then answer "Yes" to Criteria 2 Result. If the question in Step 2C is answered "No," then answer "No" to Criteria 2 Result.	☐ Yes	☐ No
Criteria 2 Result	Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geologic or geotechnical hazards that cannot be reasonably mitigated to an acceptable level?	☐ Yes	■ No
Summarize findings and basis; provide references to related reports or exhibits.			

Part 1 Result – Full Infiltration Geotechnical Screening [5]	Result
If answers to both Criteria 1 and Criteria 2 are "Yes", a full infiltration design is potentially feasible based on Geotechnical conditions only. If either answer to Criteria 1 or Criteria 2 is "No", a full infiltration design is not required.	☐ Full infiltration Condition ■ Complete Part 2

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

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions	Worksheet C.4-1: Form I-8A[3]
Part 2 – Partial vs. No Infiltration Feasibility Screening Criteria	
DMA(s) Being Analyzed:	**Project Phase:**
DMA-2	Design Phase
Criteria 3: Infiltration Rate Screening	
3A	**NRCS Type C, D, or "urban/unclassified":** Is the mapped hydrologic soil group according to the NRCS Web Soil Survey or UC Davis Soil Web Mapper is Type C, D, or "urban/unclassified" and corroborated by available site soil data? ■ Yes; the site is mapped as C soils and a reliable infiltration rate of 0.15 in/hr. is used to size partial infiltration BMPS. Answer "Yes" to Criteria 3 Result. ☐ Yes; the site is mapped as D soils or "urban/unclassified" and a reliable infiltration rate of 0.05 in/hr. is used to size partial infiltration BMPS. Answer "Yes" to Criteria 3 Result. ☐ No; infiltration testing is conducted (refer to Table D.3-1), continue to Step 3B.
3B	**Infiltration Testing Result:** Is the reliable infiltration rate (i.e. average measured infiltration rate/2) greater than 0.05 in/hr. and less than or equal to 0.5 in/hr? ☐ Yes; the site may support partial infiltration. Answer "Yes" to Criteria 3 Result. ■ No; the reliable infiltration rate (i.e. average measured rate/2) is less than 0.05 in/hr., partial infiltration is not required. Answer "No" to Criteria 3 Result.
Criteria 3 Result	Is the estimated reliable infiltration rate (i.e., average measured infiltration rate/2) greater than or equal to 0.05 inches/hour and less than or equal to 0.5 inches/hour at any location within each DMA where runoff can reasonably be routed to a BMP? ☐ Yes; Continue to Criteria 4. ■ No: Skip to Part 2 Result.
Summarize infiltration testing and/or mapping results (i.e. soil maps and series description used for infiltration rate).	

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A[3]	
Criteria 4: Geologic/Geotechnical Screening			
4A	If all questions in Step 4A are answered "Yes," continue to Step 2B. For any "No" answer in Step 4A answer "No" to Criteria 4 Result, and submit an "Infiltration Feasibility Condition Letter" that meets the requirements in Appendix C.1.1. The geologic/geotechnical analyses listed in Appendix C.2.1 do not apply to the DMA because one of the following setbacks cannot be avoided and therefore result in the DMA being in a no infiltration condition. The setbacks must be the closest horizontal radial distance from the surface edge (at the overflow elevation) of the BMP.		
4A-1	Can the proposed partial infiltration BMP(s) avoid areas with existing fill materials greater than 5 feet thick?	☐ Yes	☐ No
4A-2	Can the proposed partial infiltration BMP(s) avoid placement within 10 feet of existing underground utilities, structures, or retaining walls?	☐ Yes	☐ No
4A-3	Can the proposed partial infiltration BMP(s) avoid placement within 50 feet of a natural slope (>25%) or within a distance of 1.5H from fill slopes where H is the height of the fill slope?	☐ Yes	☐ No
4B	When full infiltration is determined to be feasible, a geotechnical investigation report must be prepared that considers the relevant factors identified in Appendix C.2.1 If all questions in Step 4B are answered "Yes," then answer "Yes" to Criteria 4 Result. If there are any "No" answers continue to Step 4C.		
4B-1	**Hydroconsolidation.** Analyze hydroconsolidation potential per approved ASTM standard due to a proposed full infiltration BMP. Can partial infiltration BMPs be proposed within the DMA without increasing hydroconsolidation risks?	☐ Yes	☐ No
4B-2	**Expansive Soils.** Identify expansive soils (soils with an expansion index greater than 20) and the extent of such soils due to proposed full infiltration BMPs. Can partial infiltration BMPs be proposed within the DMA without increasing expansive soil risks?	☐ Yes	☐ No
4B-3	**Liquefaction**. If applicable, identify mapped liquefaction areas. Evaluate liquefaction hazards in accordance with Section 6.4.2 of the City of San Diego's Guidelines for Geotechnical Reports (2011). Liquefaction hazard assessment shall take into account any increase in groundwater elevation or groundwater mounding that could occur as a result of proposed infiltration or percolation facilities. Can partial infiltration BMPs be proposed within the DMA without increasing liquefaction risks?	☐ Yes	☐ No

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A[3]	
4B-4	**Slope Stability**. If applicable, perform a slope stability analysis in accordance with the ASCE and Southern California Earthquake Center (2002) Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Landslide Hazards in California to determine minimum slope setbacks for full infiltration BMPs. See the City of San Diego's Guidelines for Geotechnical Reports (2011) to determine which type of slope stability analysis is required. Can partial infiltration BMPs be proposed within the DMA without increasing slope stability risks?	☐ Yes	☐ No
4B-5	**Other Geotechnical Hazards.** Identify site-specific geotechnical hazards not already mentioned (refer to Appendix C.2.1). Can partial infiltration BMPs be proposed within the DMA without increasing risk of geologic or geotechnical hazards not already mentioned?	☐ Yes	☐ No
4B-6	**Setbacks.** Establish setbacks from underground utilities, structures, and/or retaining walls. Reference applicable ASTM or other recognized standard in the geotechnical report. Can partial infiltration BMPs be proposed within the DMA using recommended setbacks from underground utilities, structures, and/or retaining walls?	☐ Yes	☐ No
4C	**Mitigation Measures.** Propose mitigation measures for each geologic/geotechnical hazard identified in Step 4B. Provide a discussion on geologic/geotechnical hazards that would prevent partial infiltration BMPs that cannot be reasonably mitigated in the geotechnical report. See Appendix C.2.1.8 for a list of typically reasonable and typically unreasonable mitigation measures. Can mitigation measures be proposed to allow for partial infiltration BMPs? If the question in Step 4C is answered "Yes," then answer "Yes" to Criteria 4 Result. If the question in Step 4C is answered "No," then answer "No" to Criteria 4 Result.	☐ Yes	☐ No
Criteria 4 Result	Can infiltration of greater than or equal to 0.05 inches/hour and less than or equal to 0.5 inches/hour be allowed without increasing the risk of geologic or geotechnical hazards that cannot be reasonably mitigated to an acceptable level?	☐ Yes	☐ No

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions	Worksheet C.4-1: Form I-8A [3]
Summarize findings and basis; provide references to related reports or exhibits	

Part 2 – Partial Infiltration Geotechnical Screening Result [6]	Result
If answers to both Criteria 3 and Criteria 4 are "Yes", a partial infiltration design is potentially feasible based on geotechnical conditions only. If answers to either Criteria 3 or Criteria 4 is "No", then infiltration of any volume is considered to be infeasible within the site.	☐ Partial Infiltration Condition ■ No Infiltration Condition

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

Worksheet C.4-2: Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions[7]

Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions		Worksheet C.4-2: Form I-8B[8]
Part 1 - Full Infiltration Feasibility Screening Criteria		
DMA(s) Being Analyzed:		**Project Phase:**
Criteria 1: Groundwater Screening		
1A	**Groundwater Depth.** Is the depth to seasonally high groundwater tables (normal high depth during the wet season) beneath the base of any full infiltration BMP greater than 10 feet? ☐ Yes; continue to Step 1B. ☐ No; The depth to groundwater is less than or equal to 10 feet, but site layout changes or reasonable mitigation measures can be proposed to support full infiltration BMPs. Continue to step 1B. ☐ No; The depth to groundwater is less than or equal to 10 feet and site layout changes or reasonable mitigation measures cannot be proposed to support full infiltration BMPs. Answer "No" for Criteria 1 Result.	
1B	**Contaminated Soil/Groundwater.** Are proposed full infiltration BMPs at least 250 feet away from contaminated soil or groundwater sites? This can be confirmed using GeoTracker (geotracker.waterboards.ca.gov) to identify open contaminated sites. The setbacks must be the closest horizontal radial distance from the surface edge (at the overflow elevation) of the BMP. ☐ Yes; continue to Step 1C. ☐ No; However, site layout changes or reasonable mitigation measures can be proposed to support full infiltration BMPs. Continue to Step 1C. ☐ No; Site layout changes or reasonable mitigation measures cannot be proposed to support full infiltration BMPs. Answer "No" to Criteria 1 Result.	

[7] Note that it is not required to investigate each and every criterion in the worksheet, a single "no" answer in Part 1, Part 2, part 3, or Part 4 determines a full, partial, or no infiltration condition.
[8] This form must be completed each time there is a change to the site layout that would affect the infiltration feasibility condition. Previously completed forms shall be retained to document the evolution of the site storm water design.

Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions	Worksheet C.4-2: Form I-8B[8]
1C	**Inadequate Soil Treatment Capacity.** Are full infiltration BMPs proposed in DMA soils that have adequate soil treatment capacity? The DMA has adequate soil treatment capacity if **ALL** of the following criteria (detailed in C.2.2.1) for all soil layers beneath the infiltrating surface are met: • USDA texture class is sandy loam or loam or silt loam or silt or sandy clay loam or clay loam or silty clay loam or sandy clay or silty clay or clay; and • Cation Exchange Capacity (CEC) greater than 5 milliequivalents/100g; and • Soil organic matter is greater than 1%; and • Groundwater table is equal to or greater than 10 feet beneath the base of the full infiltration BMP. ☐ Yes; continue to Step 1D. ☐ No; However, site layout changes or reasonable mitigation measures can be proposed to support full infiltration BMPs. Continue to Step 1D. ☐ No; Site layout changes or reasonable mitigation measures cannot be proposed to support full infiltration BMPs. Answer "No" to Criteria 1 Result.
1D	**Other Groundwater Contamination Hazards.** Are there site-specific groundwater contamination hazards not already mentioned (refer to Appendix C.2.2) that can be reasonably mitigated to support full infiltration BMPs? ☐ Yes; there are other contamination hazards identified that can be mitigated. Answer "Yes" to Criteria 1 Result. ☐ No; there are other contamination hazards identified that cannot be mitigated. Answer "No" to Criteria 1 Result. ☐ N/A; no contamination hazards are identified. Answer "Yes" to Criteria 1 Result.
Criteria 1 Result	Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination that cannot be reasonably mitigated to an acceptable level? See Appendix C.2.2.8 for a list of typically reasonable and typically unreasonable mitigation measures. ☐ Yes; Continue to Part 1, Criteria 2. ☐ No; Continue to Part 1 Result.

Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions	Worksheet C.4-2: Form I-8B[8]
Summarize groundwater quality and any mitigation measures proposed. Documentation should focus on groundwater table, mapped soil types and contaminated site locations.	

Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions	Worksheet C.4-2: Form I-8B[8]
Criteria 2: Water Balance Screening	
2A	**Ephemeral Stream Setback.** Does the proposed full infiltration BMP meet both the following? • The full infiltration BMP is located at least 250 feet away from an ephemeral stream; **AND** • The bottom surface of the full infiltration BMP is at a depth 20 feet or greater from seasonally high groundwater tables. ☐ Yes; Answer "Yes" to Criteria 2 Result. ☐ No; Continue to Step 2B.
2B	**Mitigation Measures.** Can site layout changes be proposed to support full infiltration BMPs? ☐ Yes; the site can be reconfigured to mitigate potential water balance issues. Answer "Yes" to Criteria 2 Result. ☐ No; the site cannot be reconfigured to mitigate potential water balance issues. Continue to Step 2C and provide discussion.
2C	**Additional studies.** Do additional studies support full infiltration BMPs? In the event that water balance effects are used to reject full infiltration (anticipated to be rare), additional analysis shall be completed and documented by a qualified professional indicating the site-specific information evaluated and the technical basis for this finding. ☐ Yes; Answer "Yes" to Criteria 2 Result. ☐ No; Answer "No" to Criteria 2 Result.
Criteria 2 Result	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? ☐ Yes; Continue to Part 1 Result. ☐ No; Continue to Part 1 Result.

Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions	Worksheet C.4-2: Form I-8B[8]
Summarize potential water balance effects. Documentation should focus on mapping and soil data regarding proximity to ephemeral streams and groundwater depth.	

Part 1 – Full Infiltration Groundwater and Water Balance Screening Result[9]	Result
If answers to Criteria 1 and 2 are "Yes", a full infiltration design is potentially feasible. The feasibility screening category is Full Infiltration based on groundwater conditions. If answer to Criteria 1 or Criteria 2 is "No", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design based on groundwater conditions. Proceed to Part 2.	☐ Full Infiltration ☐ Complete Part 2

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

Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions	Worksheet C.4-2: Form I-8B[8]
Part 2 – Partial vs. No Infiltration Feasibility Screening Criteria	
DMA(s) Being Analyzed:	**Project Phase:**
Criteria 3: Groundwater Screening	
Contaminated Soil/Groundwater. Are partial infiltration BMPs proposed at least 100 feet away from contaminated soil or groundwater sites? This can be confirmed using GeoTracker (geotracker.waterboards.ca.gov) to identify open contaminated sites. This criterion is intentionally a smaller radius than full infiltration, as the potential quantity of infiltration from partial infiltration BMPs is smaller. ☐ Yes; Answer "Yes" to Criteria 3 Result. ☐ No; However, site layout changes can be proposed to avoid contaminated soils or soils that lack adequate treatment capacity. Select "Yes" to Criteria 3 Result. It is a requirement for the SWQMP preparer to identify potential mitigation measures. ☐ No; Contaminated soils or soils that lack adequate treatment capacity cannot be avoided and partial infiltration BMPs are not feasible. Select "No" to Criteria 3 Result.	
Criteria 3 Result: Can infiltration of greater than or equal to 0.05 inches/hour and less than or equal to 0.5 inches/hour be allowed without increasing risk of groundwater contamination that cannot be reasonably mitigated to an acceptable level? Yes; Continue to Part 2, Criteria 4. ☐ No; Skip to Part 2 Result.	
Summarize findings and basis. Documentation should focus on mapped soil types and contaminated site locations.	

Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions	Worksheet C.4-2: Form I-8B[8]
Criteria 4: Water Balance Screening	
Additional studies. In the event that water balance effects are used to reject partial infiltration (anticipated to be rare), a qualified professional must provide an analysis of the incremental effects of partial infiltration BMPs on the water balance compared to incidental infiltration under a no infiltration scenario (e.g. precipitation, irrigation, etc.).	
Criteria 4 Result: Can infiltration of greater than or equal to 0.05 inches/hour and less than or equal to 0.5 inches/hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams? ☐ Yes: Continue to Part 2 Result. ☐ No: Continue to Part 2 Result.	
Summarize potential water balance effects. Documentation should focus on mapping and soil data regarding proximity to ephemeral streams and groundwater depth	

Part 2 – Partial Infiltration Groundwater and Water Balance Screening Result[10]	Result
If answers to Criteria 3 and Criteria 4 are "Yes", a partial infiltration design is potentially feasible. The feasibility screening category is Partial Infiltration based on groundwater and water balance conditions. If answer to Criteria 3 or Criteria 4 is "No", then infiltration of any volume is considered to be infeasible within the site. The feasibility screening category is No Infiltration based on groundwater or water balance condition.	☐ Partial Infiltration Condition ☐ No Infiltration Condition

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

ATTACHMENT 1c

Factor of Safety and Design Infiltration Rate Worksheet				Form I-9	
Factor Category		**Factor Description**	**Assigned Weight (w)**	**Factor Value (v)**	**Product (p) p = w x v**
A	Suitability Assessment	Soil assessment methods	0.25		
		Predominant soil texture	0.25		
		Site soil variability	0.25		
		Depth to groundwater or impervious layer	0.25		
		Suitability Assessment Safety Factor, $S_A = \Sigma p$			
B	Design	Level of pretreatment/ expected sediment loads	0.5		
		Redundancy/resiliency	0.25		
		Compaction during construction	0.25		
		Design Safety Factor, $S_B = \Sigma p$			
Combined Safety Factor, $S_{total} = S_A \times S_B$					
Observed Infiltration Rate, inch/hr, $K_{observed}$ (corrected for test-specific bias)					
Design Infiltration Rate, in/hr, $K_{design} = K_{observed} / S_{total}$					
Supporting Data					
Briefly describe infiltration test and provide reference to test forms:					

Factor of Safety and Design Infiltration Rate Worksheet	Form I-9

The Geotechnical Engineer certifies they completed Form I-9 (see Appendix C.4.3).

Professional Geotechnical Engineer's Printed Name:

_____

Professional Geotechnical Engineer's Signed Name:

_____

Date: _____

[SEAL]

ATTACHMENT 1d

LEGEND

- DMA BOUNDARY
- SHEET FLOW DRAINAGE ARROWS
- BIOFILTRATION BASIN
- POINT OF COMPLIANCE (POC)

HYDROLOGICAL SOIL GROUP

THE HYDROLOGICAL SOIL GROUP FOR THIS SITE VARIES. BOTH TYPE A & C SOILS ARE PRESENT THROUGHOUT THE SITE.

NOTE:
NO GROUNDWATER ENCOUNTERED

BMP NOTES:

1. THESE BMPS ARE MANDATORY TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS OR THESE PLANS.
2. NO CHANGES TO THE PROPOSED BMPS ON THIS SHEET WITHOUT PRIOR APPROVAL FROM THE CITY ENGINEER.
3. NO SUBSTITUTIONS TO THE MATERIAL OR TYPES OR PLANTING TYPES WITHOUT PRIOR APPROVAL FROM THE CITY ENGINEER.
4. NO OCCUPANCY WILL BE GRANTED UNTIL THE CITY INSPECTION STAFF HAS INSPECTED THIS PROJECT FOR APPROPRIATE BMP CONSTRUCTION AND INSTALLATION.
5. REFER TO MAINTENANCE AGREEMENT DOCUMENT.
6. SEE PROJECT SWMP FOR ADDITIONAL INFORMATION.

WATER QUALITY BASIN INSTALLATION NOTES:

1. AN UNDERDRAIN CLEANOUT WITH A MINIMUM 6-INCH DIAMETER AND LOCKABLE CAP IS PLACED EVERY 250 TO 300FEET AS REQUIRED BASED ON UNDERDRAIN LENGTH.
2. VEGETATION USED SHOULD BE SUITABLE FOR THE CLIMATE PER LANDSCAPE PLANS
3. FILTER COARSE IS A MINIMUM OF 6 INCHES PROVIDED IN TWO SEPARATE 3 INCH LAYERS. THE TOP LAYER SHALL BE MADE OF ASTM C33 CHOKER SAND AND THE BOTTOM LAYER BE OF ASTM NO. 8 AGGREGATE. MARKERS STAKES SHALL BE USED TO ENSURE UNIFORM LIFT THICKNESS.
4. AASHTO NO. 57 STONE OR CLASS 2 PERMEABLE PER CAL TRANS SPECIFICATION 68-2.02F(3) IS RECOMMENDED FOR THE AGGREGATE STORAGE LAYER. WASHED, OPEN-GRADED CRUSHED ROCK MAY BE USED, HOWEVER, A 4 INCH MINIMUM WASHED PEA GRAVEL FILTER COURSE LAYER AT THE TOP OF THE CRUSHED ROCK IS REQUIRED.
5. IMPERMEABLE LINER SHALL BE INSTALLED WHEN THE BIOFILTRATION BASIN IS WITHIN 10 FEET OF RETAINING WALLS OR BUILDING FOUNDATIONS, OR AS RECOMMENDED BY THE SOILS ENGINEER, OR REQUIRED BY THESE PLANS. IMPERMEABLE LINER SHALL BE 30 MIL THICK (PER COUNTY OF SAN DIEGO GREEN STREETS DESIGN STANDARD DRAWING GS-3.00 AND COUNTY GREEN STREETS SUPPLEMENT TO CAL TRANS SPECIFICATIONS 20-11.08B) CONFIGURED TO ENTIRELY ENCOMPASS THE SIDES OF THE WATER QUALITY BASIN.
6. IMPERMEABLE LINER BE CONSTRUCTED IN COMPLIANCE WITH THE COUNTY OF SAN DIEGO GREEN STREETS SUPPLEMENT TO CAL TRANS SPECIFICATIONS 20-11.08B.
7. BIOFILTRATION SOIL MEDIA LAYER (BSM) SHALL CONSIST OF 60% TO 80% BY VOLUME SAND, UP TO 20% BY VOLUME TOPSOIL, AND UP 20% BY VOLUME COMPOST (PER CITY OF ESCONDIDO BMP DESIGN MANUAL OCTOBER 2022 APPENDIX F.3 SECTION 903-2 BLENDED BSM CRITERIA AND TESTING REQUIREMENTS) PLACED IN 6" LIFTS AND COMPACTED WITH WATER PRIOR TO THE NEXT LIFT. INITIAL PERMEABILITY SHALL BE 8" PER HOUR (WITH ASSUMED STABILIZED PERMEABILITY OF 5" PER HOUR).
8. THE AGGREGATE STORAGE LAYER SHALL BE COMPACTED IN ACCORDANCE WITH SOILS ENGINEER'S RECOMMENDATIONS.
9. OVERFLOW STRUCTURE TO HAVE A MINIMUM OF 12 INCHES OF FREEBOARD.
10. ALL LINER INSTALLATIONS, FIELD WELDING OF SEAMS, AND OBSERVATION OF SOIL MIX PLACEMENT SHALL REQUIRE SPECIAL INSPECTION BY THE PROJECT GEOTECHNICAL ENGINEER OR OTHER QUALIFIED PERSON. A LETTER CERTIFYING PROPER INSTALLATION SHALL BE PROVIDED TO THE ENGINEER OF RECORD TO ACCEPTANCE OF THE FACILITIES.
11. SPECIAL INSPECTION SHALL BE REQUIRED FOR CONSTRUCTION OF ALL BIOFILTRATION BASINS. INSPECTION SHALL BE PERFORMED BY A QUALIFIED INDIVIDUAL (SUCH AS: ENGINEER OF RECORD, QSD). INSPECTION SHALL INCLUDE:
    - VERIFICATION OF OVERALL DIMENSIONS PRIOR TO PLACEMENT OF MATERIALS;
    - PLACEMENT OF THE LINER, IF REQUIRED; AND SEAMS OR PENETRATIONS
    - PLACEMENT OF THE GRAVEL, FILTER MATERIALS, AND FILTER MEDIA;
    - ALL INLET AND OUTLET STRUCTURES INCLUDING UNDERDRAINS, IF REQUIRED.
    - CONTRACTOR SHALL TAKE PICTURES AT EACH STAGE OF INSTALLATION AND SUBMITTED TO ENGINEER FOR VERIFICATION OF INSTALL.

    INSPECTOR SHALL BE GIVEN A MINIMUM OF 48 HOURS PRIOR TO INSPECTION. UPON COMPLETION THE INSPECTOR SHALL PROVIDE A CERTIFICATION TO THE ENGINEER OF WORK.
12. PROPOSED MATERIALS, SUCH AS AGGREGATE, FILTER MATERIAL, AND FILTER MEDIA SHALL BE SUBMITTED TO THE ENGINEER OF WORK FOR APPROVAL.

SOURCE CONTROL BMPS

1. SC-1 PREVENTION OF ILLICIT DISCHARGES INTO THE MS4

   USE A SUITE OF HOUSEKEEPING BMPS WHICH COULD INCLUDE EFFECTIVE IRRIGATION, DISPERSION OF NON-STORM WATER DISCHARGES INTO LANDSCAPING FOR INFILTRATION. NO VEHICLE WASHING WILL BE ALLOWED ONSITE.

2. SC-2 STORM DRAIN STENCILING OR SIGNAGE

   STENCILING SHALL BE PROVIDED FOR ALL STORM WATER CONVEYANCE SYSTEM INLETS AND CATCH BASINS WITHIN THE PROJECT AREA. INLET STENCILING MAY INCLUDE CONCRETE STAMPING, CONCRETE PAINTING, PLACARDS, OR OTHER METHODS APPROVED BY THE CITY.

3. SC-6 ADDITIONAL BMPS BASED ON POTENTIAL SOURCES OF RUNOFF POLLUTANTS

   A. LANDSCAPE/OUTDOOR PESTICIDE USE

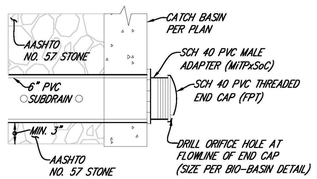
   - MAINTAIN LANDSCAPING USING MINIMUM OR NO PESTICIDES.
   - SEE APPLICABLE OPERATIONAL BMPS IN FACT SHEET SC-41, "BUILDING AND GROUNDS MAINTENANCE," IN THE CASQA STORMWATER QUALITY HANDBOOKS AT WWW.CABMPHANDBOOKS.COM.
   - PROVIDE IPM INFORMATION TO NEW OWNERS, LESSEES AND OPERATORS.

SITE DESIGN BMPS

1. SD-3 PARKING AND DRIVING AISLES WERE DESIGN TO THE MINIMUM REQUIRED TO MINIMIZE IMPERVIOUS AREAS
2. SD-6 RUNOFF COLLECTION WAS IMPLEMENTED TO MINIMIZE THE TRANSPORT OF RUNOFF AND POLLUTANTS TO THE MS4 AND RECEIVING WATERS.
3. SD-7 DROUGHT TOLERANT PLANTS SPECIES ARE SELECTED FOR LANDSCAPING

POTENTIAL POLLUTANT SOURCE AREAS

1. ON SITE STORM DRAINS
2. LANDSCAPE/ OUTDOOR PESTICIDE USE
3. PLAZAS, SIDEWALKS, AND PARKING LOTS



ORIFICE DETAIL
NOT TO SCALE



6" PVC PIPE PERFORATION LAYOUT DETAIL
NOT TO SCALE



DETAIL
"NO DUMPING" AT CATCH BASINS

NOTE: ALL CATCH BASINS WITH GRATES SHALL BE STENCILED WITH CITY REQUIRED ITEM PER ABOVE DETAIL:

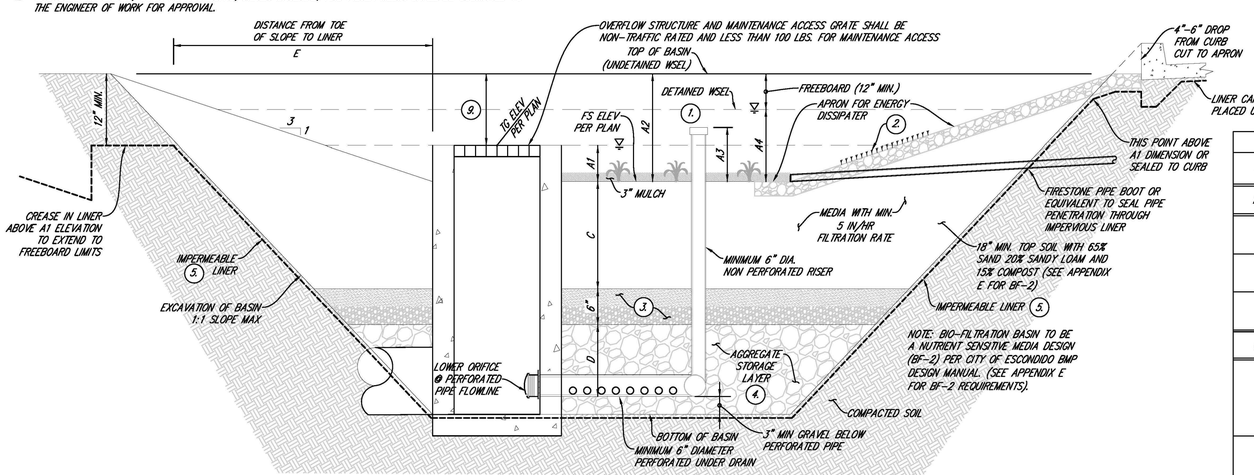
(DAS MANUFACTURING #SDO OR EQUIVALENT)

PERMANENT WATER QUALITY TREATMENT FACILITY

KEEPING OUR WATER WAYS CLEAN
MAINTAIN WITH CARE - NO MODIFICATIONS WITHOUT AGENCY APPROVAL

DETAIL
WATER QUALITY SIGN- PLACED AT EACH BIOFILTRATION BASIN

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



BIOFILTRATION BASIN DETAIL
NOT TO SCALE



BMP TABLE

BMP #	BMP TYPE	SYMBOL	CASQA NO.	QUANTITY	DRAWING #	SHEET NO.(S)	INSPECTION FREQUENCY	MAINTENANCE FREQUENCY
HYDROMODIFICATION & TREATMENT CONTROL								
1	BIOFILTRATION AREA		TC-32	11,148 SF		5	30 DAYS PRIOR TO OCT. 1ST EACH YEAR AND WEEKLY DURING RAIN SEASON.	BI-MONTHLY (SEE ATTACHMENT 3 OF PROJECT SWQMP)
2	BIOFILTRATION AREA		TC-32	1,960 SF		5	30 DAYS PRIOR TO OCT. 1ST EACH YEAR AND WEEKLY DURING RAIN SEASON.	BI-MONTHLY (SEE ATTACHMENT 3 OF PROJECT SWQMP)
3	TREE WELLS			251 SF EACH X 15 TREES		5	30 DAYS PRIOR TO OCT. 1ST EACH YEAR AND WEEKLY DURING RAIN SEASON.	BI-MONTHLY (SEE ATTACHMENT 3 OF PROJECT SWQMP)
SOURCE CONTROL								
2	INLET STENCILING	NO DUMPING DRAINS TO OCEAN	SD-13	2 EA.		5	SEMI ANNUALLY VISUAL INSPECTION	SEMI ANNUALLY, REPAIR DONE 30 DAYS PRIOR TO OCTOBER 1ST EACH YEAR AND FREQUENCY WILL VARY ACCORDING TO USAGE AND VISUAL INSPECTION
4	SWEEPING	N/A	SC-43	TYP.		5	30 DAYS PRIOR TO OCT. 1ST EACH YEAR. INSPECTION AND FREQUENCY WILL VARY ACCORDING TO USAGE AND VISUAL INSPECTION.	30 DAYS PRIOR TO OCT. 1ST EACH YEAR. INSPECTION AND FREQUENCY WILL VARY ACCORDING TO USAGE AND VISUAL INSPECTION.

DMA SUMMARY TABLE

DMA ID	DMA TYPE:	TOTAL SQFT	TOTAL ACRE:
DMA-1	BMP-A (BIOFILTRATION)	400,438	9.19
DMA-2	BMP-B (BIOFILTRATION)	31,689	0.73
DMA-3	BMP-C (TREE WELLS)	42,677	0.98
DMA-4	BMP-D (TREE WELLS)	7,809	0.18
DMA-5	DE MINIMIS	224	0.005

11.08 TOTAL ACRES

STRUCTURAL BMP SUMMARY TABLE

DMA ID	BMP ID:	TYPE OF BMP	EFFECTIVE AREA (SQFT)	A1 (INCH) RISER/ PONDING	A2 (INCH) TOP OF BASIN	A3 (INCH) CLEAN OUT	A4 (INCH) MAX WSEL	C (INCH) MEDIA	D (INCH) GRAVEL	E FEET	BOX RISER / OVERFLOW STRUCTURE SIZE (INCHES)	LOWER ORIFICE DIAMETER (INCH)	IMPERMEABLE LINER?
DMA-1	BMP-A	BIOFILTRATION	11,148	12	30	15	18	18	12	3	48X48	2.00	NO
DMA-2	BMP-B	BIOFILTRATION	1,960	12	30	15	18	18	12	3	36X36	0.75	YES

SITE BMP SUMMARY TABLE

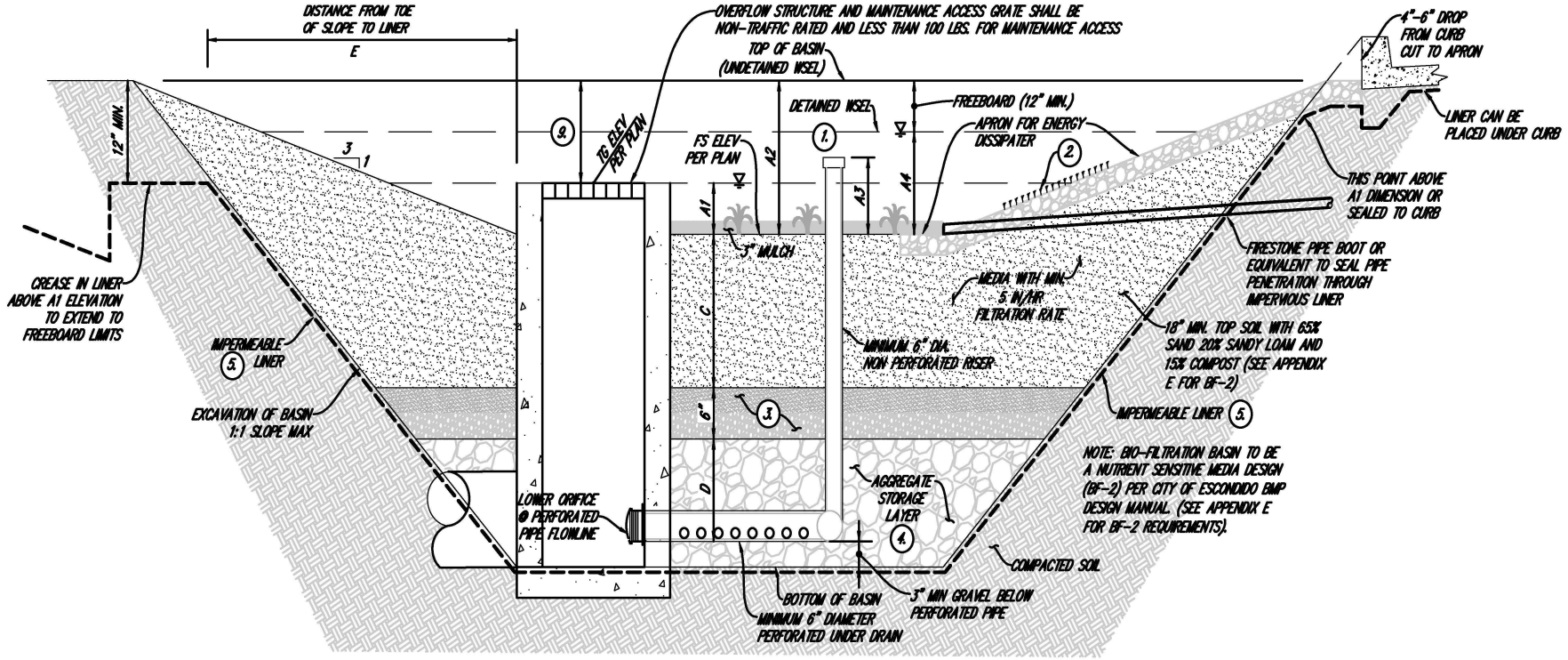
DMA ID	BMP ID:	TYPE OF BMP	EFFECTIVE AREA (SQFT)	PONDING (IN)	MEDIA (IN)	SAND FILTER (IN)	NUMBER OF TREES	DIAMETER OF TREE (FT)	IMPERMEABLE LINER?
DMA-3	BMP-C	TREE WELL	251 (EA)	6	30	6	12	20	SIDEWALLS ONLY
DMA-4	BMP-D	TREE WELL	251 (EA)	6	30	6	3	20	SIDEWALLS ONLY

SCALE 1":60'
0 60 120

DMA EXHIBIT
POST-DEVELOPMENT
CONWAY DRIVE

ATTACHMENT 1e

STRUCTURAL BMP SUMMARY TABLE													
DMA ID	BMP ID:	TYPE OF BMP	EFFECTIVE AREA (SQFT)	A1 (INCH) RISER/ PONDING	A2 (INCH) TOP OF BASIN	A3 (INCH) CLEAN OUT	A4 (INCH) MAX WSEL	C (INCH) MEDIA	D (INCH) GRAVEL	E FEET	BOX RISER / OVERFLOW STRUCTURE SIZE (INCHES)	LOWER ORIFICE DIAMETER (INCH)	IMPERMEABLE LINER?
DMA-1	BMP-A	BIOFILTRATION	11,148	12	30	15	18	18	12	3	48X48	2.00	NO
DMA-2	BMP-B	BIOFILTRATION	1,960	12	30	15	18	18	12	3	36X36	0.75	YES



BIOFILTRATION BASIN DETAIL

NOT TO SCALE

WATER QUALITY BASIN INSTALLATION NOTES:

1. AN UNDERDRAIN CLEANOUT WITH A MINIMUM 6-INCH DIAMETER AND LOCKABLE CAP IS PLACED EVERY 250 TO 300FEET AS REQUIRED BASED ON UNDERDRAIN LENGTH.

2. VEGETATION USED SHOULD BE SUITABLE FOR THE CLIMATE PER LANDSCAPE PLANS

3. FILTER COARSE IS A MINIMUM OF 6 INCHES PROVIDED IN TWO SEPARATE 3 INCH LAYERS. THE TOP LAYER SHALL BE MADE OF ASTM C33 CHOKER SAND AND THE BOTTOM LAYER BE OF ASTM NO. 8 AGGREGATE. MARKERS STAKES SHALL BE USED TO ENSURE UNIFORM LIFT THICKNESS.

4. AASHTO NO. 57 STONE OR CLASS 2 PERMEABLE PER CAL TRANS SPECIFICATION 68-2.02F(3) IS RECOMMENDED FOR THE AGGREGATE STORAGE LAYER. WASHED, OPEN-GRADED CRUSHED ROCK MAY BE USED, HOWEVER, A 4 INCH MINIMUM WASHED PEA GRAVEL FILTER COURSE LAYER AT THE TOP OF THE CRUSHED ROCK IS REQUIRED.

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6. IMPERMEABLE LINER BE CONSTRUCTED IN COMPLIANCE WITH THE COUNTY OF SAN DIEGO GREEN STREETS SUPPLEMENT TO CAL TRANS SPECIFICATIONS 20-11.08B.

7. BIOFILTRATION SOIL MEDIA LAYER (BSM) SHALL CONSIST OF 60% TO 80% BY VOLUME SAND, UP TO 20% BY VOLUME TOPSOIL, AND UP 20% BY VOLUME COMPOST (PER CITY OF ESCONDIDO BMP DESIGN MANUAL OCTOBER 2022 APPENDIX F.3 SECTION 803-2 BLENDED BSM CRITERIA AND TESTING REQUIREMENTS) PLACED IN 6" LIFTS AND COMPACTED WITH WATER PRIOR TO THE NEXT LIFT. INITIAL PERMEABILITY SHALL BE 8" PER HOUR (WITH ASSUMED STABILIZED PERMEABILITY OF 5" PER HOUR).

8. THE AGGREGATE STORAGE LAYER SHALL BE COMPACTED IN ACCORDANCE WITH SOILS ENGINEER'S RECOMMENDATIONS.

9. OVERFLOW STRUCTURE TO HAVE A MINIMUM OF 12 INCHES OF FREEBOARD.

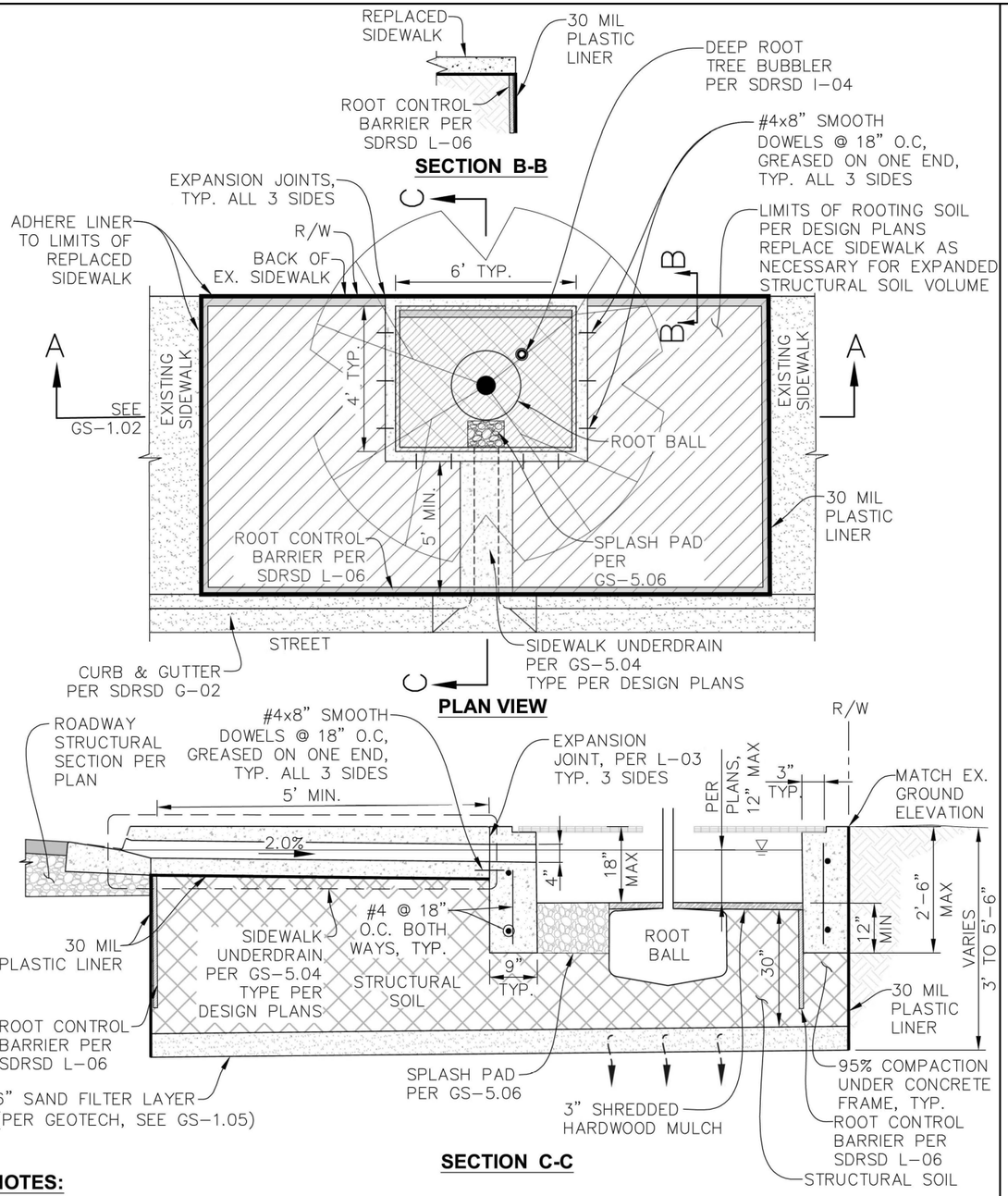
10. ALL LINER INSTALLATIONS, FIELD WELDING OF SEAMS, AND OBSERVATION OF SOIL MIX PLACEMENT SHALL REQUIRE SPECIAL INSPECTION BY THE PROJECT GEOTECHNICAL ENGINEER OR OTHER QUALIFIED PERSON. A LETTER CERTIFYING PROPER INSTALLATION SHALL BE PROVIDED TO THE ENGINEER OF RECORD TO ACCEPTANCE OF THE FACILITIES.

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    - PLACEMENT OF THE LINER, IF REQUIRED; AND SEAMS OR PENETRATIONS
    - PLACEMENT OF THE GRAVEL, FILTER MATERIALS, AND FILTER MEDIA;
    - ALL INLET AND OUTLET STRUCTURES INCLUDING UNDERDRAINS, IF REQUIRED.
    - CONTRACTOR SHALL TAKE PICTURES AT EACH STAGE OF INSTALLATION AND SUBMITTED TO ENGINEER FOR VERIFICATION OF INSTALL.

    INSPECTOR SHALL BE GIVEN A MINIMUM OF 48 HOURS PRIOR TO INSPECTION. UPON COMPLETION THE INSPECTOR SHALL PROVIDE A CERTIFICATION TO THE ENGINEER OF WORK.

12. PROPOSED MATERIALS, SUCH AS AGGREGATE, FILTER MATERIAL, AND FILTER MEDIA SHALL BE SUBMITTED TO THE ENGINEER OF WORK FOR APPROVAL.



NOTES:

1. REFER TO GS-1.00 FOR ALL DETAILS NOT SHOWN HERE.
2. TREE SIZE & TYPE PER DESIGN PLANS.

DRAWING NOT TO SCALE

DRAWN BY: NWB	CHECKED BY: KBK
RECOMMENDED BY: CHARLES MOHRLOCK, P.E.	
APPROVED BY COUNTY ENGINEER	
WP Morgan DATE: 3/15/21	
WILLIAM P. MORGAN, P.E. R.C.E. NO. 49452, EXP 9/30/2022	

SAN DIEGO COUNTY DESIGN STANDARD

TREE WELL ADJACENT TO RIGHT-OF-WAY

REVISIONS	APPROVED	DATE
ORIGINAL		10-01-2019
REVISED		03-08-2021

DRAWING NUMBER **GS-1.03**

SITE BMP SUMMARY TABLE

DMA ID	BMP ID:	TYPE OF BMP	EFFECTIVE AREA (SQFT)	PONDING (IN)	MEDIA (IN)	SAND FILTER (IN)	NUMBER OF TREES	DIAMETER OF TREE (FT)	IMPERMEABLE LINER?
DMA-3	BMP-C	TREE WELL	251 (EA)	6	30	6	12	20	SIDEWALLS ONLY
DMA-4	BMP-D	TREE WELL	251 (EA)	6	30	6	3	20	SIDEWALLS ONLY



SCALE: 1"=80'

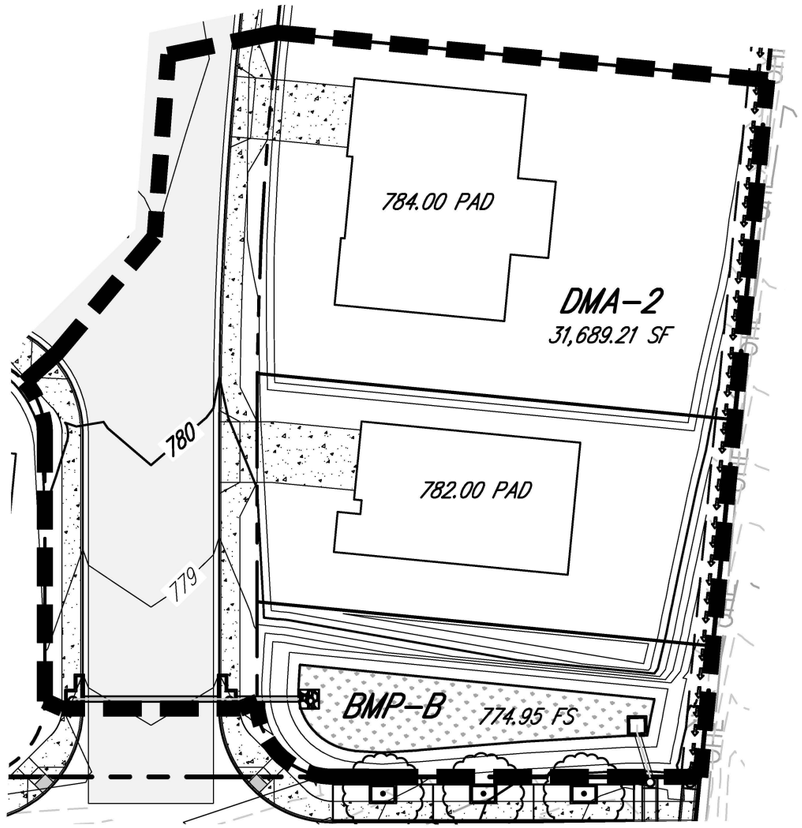
0 80 160 240 320

EXCEL ENGINEERING

LAND PLANNING • ENGINEERING • SURVEYING

440 STATE PLACE, ESCONDIDO, CA 92029

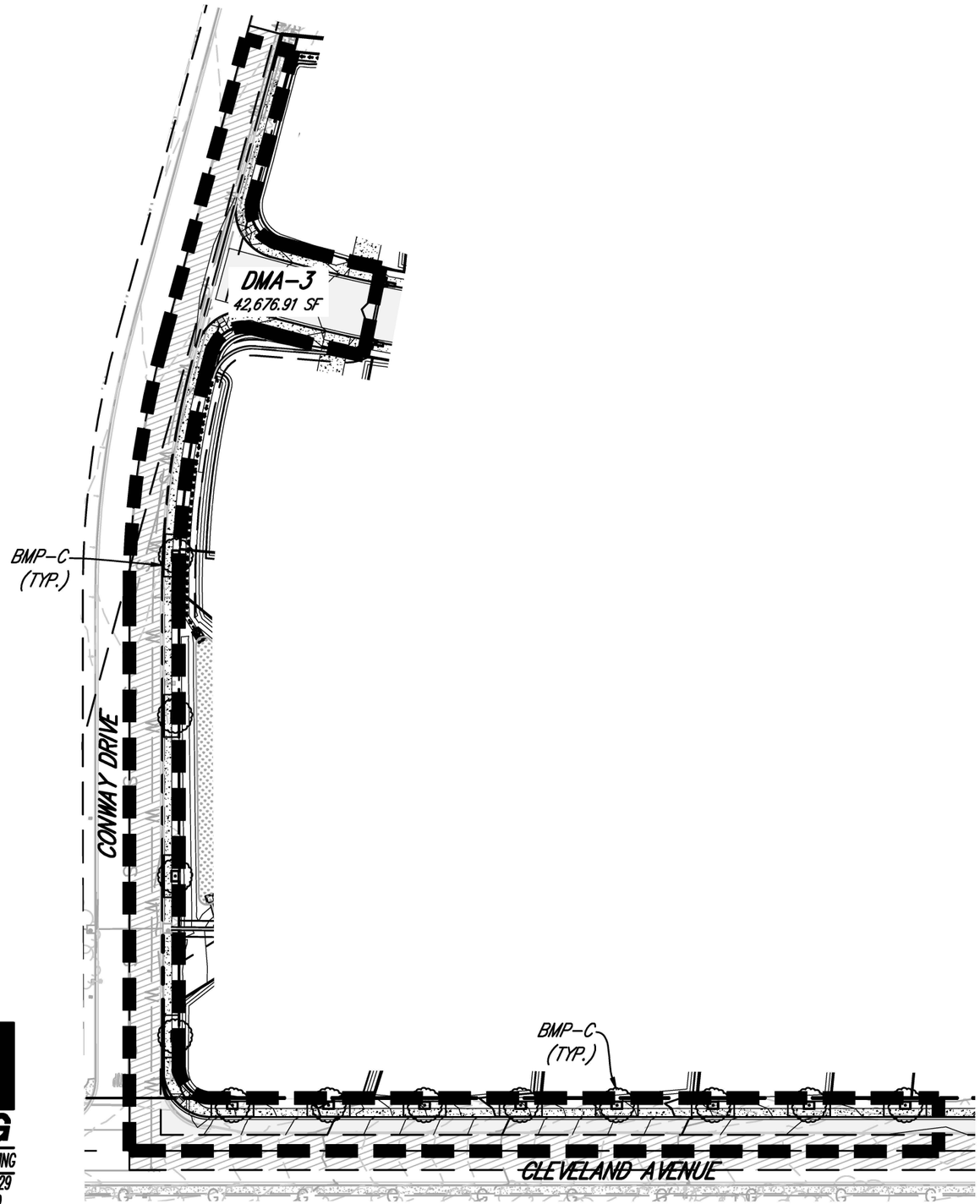
PH (760)745-8118 FX (760)745-1890



SCALE: 1"=40'

0 40 80 120 160

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LAND PLANNING • ENGINEERING • SURVEYING
440 STATE PLACE, ESCONDIDO, CA 92029
PH (760)745-8118 FX (760)745-1890

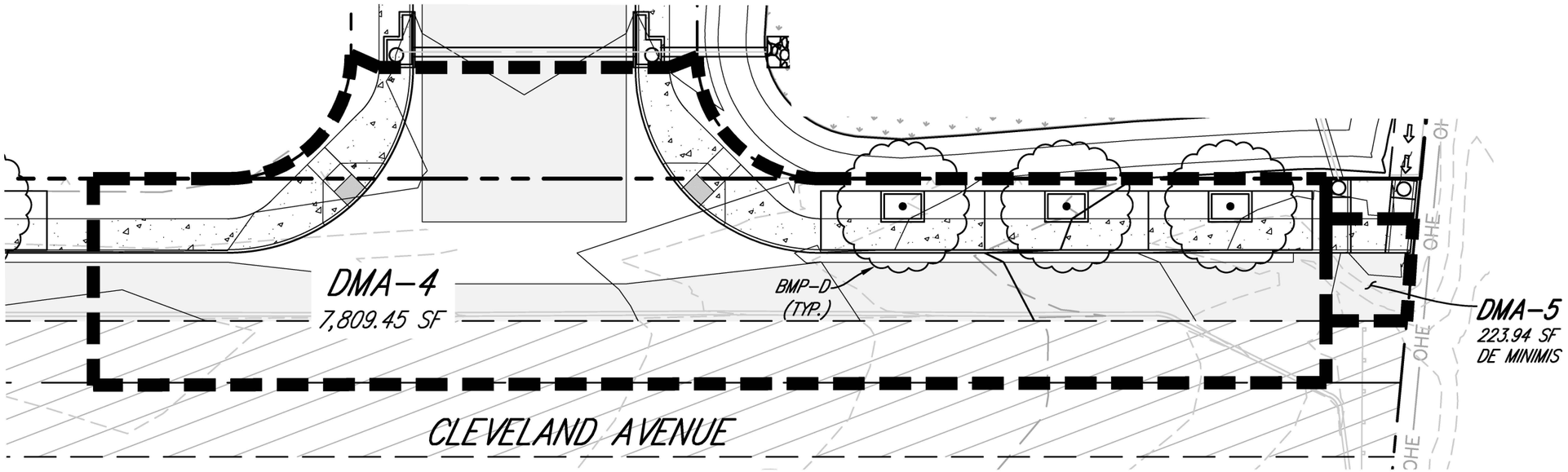


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ENGINEERING
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440 STATE PLACE, ESCONDIDO, CA 92029
PH (760)745-8118 FX (760)745-1890

SCALE: 1"=80'

0 80 160 240 320

SHEET 6 OF 7
CONWAY DRIVE
BMP DMA MAPBOOK



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ENGINEERING
LAND PLANNING • ENGINEERING • SURVEYING
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PH (760)745-8118 FX (760)745-1890

SCALE: 1"=20'

0 20 40 60 80

SHEET 7 OF 7
CONWAY DRIVE
BMP DMA MAPBOOK

ATTACHMENT 2

BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES

This is the cover sheet for Attachment 2.

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

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 2a	Flow Control Facility Design, including Structural BMP Drawdown Calculations and Overflow Design Summary (Required) See Chapter 6 and Appendix G of the Storm Water Design Manual	▣Included ☐Submitted as separate stand-alone document
Attachment 2b	Hydromodification Management Exhibit (Required)	▣Included See Hydromodification Management Exhibit Checklist on the back of this Attachment cover sheet.
Attachment 2c	Management of Critical Coarse Sediment Yield Areas See Section 6.2 and Appendix H of the Storm Water Design Manual.	▣Exhibit depicting onsite and/or upstream sources of critical coarse sediment as mapped in the WMAA AND, ☐Demonstration that the project effectively avoids and bypasses sources of mapped critical coarse sediment OR, ☐Demonstration that the downstream system is not sensitive to preservation of Coarse Sediment Supply (Form I-11). ☐Demonstration that project does not generate a net impact on the receiving water.
Attachment 2d	Geomorphic Assessment of Receiving Channels (Optional) See Section 6.3.4 of the Storm Water Design Manual.	▣Not performed ☐Included ☐Submitted as separate stand-alone document
Attachment 2e	Vector Control Plan (Required when structural BMPs will not drain in 96 hours)	☐Included ▣Not required because BMPs will drain in less than 96 hours

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

The Hydromodification Management Exhibit must identify:

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

ATTACHMENT 2a

BMP Sizing Spreadsheet V3.1

Project Name:	Cleveland Avenue Escondido
Project Applicant:	
Jurisdiction:	City of Escondido
Parcel (APN):	224-151-51-00
Hydrologic Unit:	Carlsbad
Rain Gauge:	Oceanside
Total Project Area (sf):	482,837
Channel Susceptibility:	High

BMP Sizing Spreadsheet V3.1			
Project Name:	Cleveland Avenue Escondido	Hydrologic Unit:	Carlsbad
Project Applicant:	0	Rain Gauge:	Oceanside
Jurisdiction:	City of Escondido	Total Project Area:	482,837
Parcel (APN):	224-151-51-00	Low Flow Threshold:	0.1Q2
BMP Name:	BMP-A	BMP Type:	Biofiltration
BMP Native Soil Type:	A	BMP Infiltration Rate (in/hr):	0.5

Areas Draining to BMP						HMP Sizing Factors	Minimum BMP Size
DMA Name	Area (sf)	Pre Project Soil Type	Pre-Project Slope	Post Project Surface Type	Area Weighted Runoff Factor (Table G.2-1)[1]	Surface Area	Surface Area (SF)
DMA-1 Imp. A Soil	98,836	A	Moderate	Concrete	1.0	0.06	5930
DMA-1 Imp. C Soil	76,363	C	Moderate	Concrete	1.0	0.05	3818
DMA-1 Perv. A Soil	124,267	A	Moderate	Landscape	0.1	0.06	746
DMA-1 Perv. C Soil	100,972	C	Moderate	Landscape	0.1	0.05	505
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
BMP Tributary Area	400,438					Minimum BMP Size	10999
						Proposed BMP Size*	11148

* Assumes standard configuration

Surface Ponding Depth	12.00	in
Bioretention Soil Media Depth	18.00	in
Filter Coarse	6.00	in
Gravel Storage Layer Depth	12	in
Underdrain Offset	3.0	in

Notes:

1. Runoff factors which are used for hydromodification management flow control (Table G.2-1) are different from the runoff factors used for pollutant control BMP sizing (Table B.1-1). Table references are taken from the San Diego Region Model BMP Design Manual, May 201

Describe the BMP's in sufficient detail in your PDP SWQMP to demonstrate the area, volume, and other criteria can be met within the constraints of the site.

BMP's must be adapted and applied to the conditions specific to the development project such as unstable slopes or the lack of available head.
Designated Staff have final review and approval authority over the project design.

This BMP Sizing Spreadsheet has been updated in conformance with the San Diego Region Model BMP Design Manual, May 2018. For questions or concerns please contact the jurisdiction in which your project is located.

BMP Sizing Spreadsheet V3.1			
Project Name:	Cleveland Avenue Escondido	Hydrologic Unit:	Carlsbad
Project Applicant:	0	Rain Gauge:	Oceanside
Jurisdiction:	City of Escondido	Total Project Area:	482,837
Parcel (APN):	224-151-51-00	Low Flow Threshold:	0.1Q2
BMP Name	BMP-A	BMP Type:	Biofiltration

DMA Name	Rain Gauge	Pre-developed Condition		Unit Runoff Ratio (cfs/ac)	DMA Area (ac)	Orifice Flow - $\%Q_2$ (cfs)	Orifice Area (in^2)
		Soil Type	Slope				
DMA-1 Imp. A Soil	Oceanside	A	Moderate	0.277	2.269	0.063	**0.90**
DMA-1 Imp. C Soil	Oceanside	C	Moderate	0.497	1.753	0.087	**1.24**
DMA-1 Perv. A Soil	Oceanside	A	Moderate	0.277	2.853	0.079	**1.13**
DMA-1 Perv. C Soil	Oceanside	C	Moderate	0.497	2.318	0.115	**1.64**

3.75	**0.344**	**4.91**	**2.50**
Max Orifice Head (feet)	**Max Tot. Allowable Orifice Flow (cfs)**	**Max Tot. Allowable Orifice Area (in^2)**	**Max Orifice Diameter (in)**

0.205	**0.220**	**3.14**	**2.000**
Average outflow during surface drawdown (cfs)	Max Orifice Outflow (cfs)	Actual Orifice Area (in^2)	Selected Orifice Diameter (in)

Drawdown (Hrs)	15.1

BMP Sizing Spreadsheet V3.1			
Project Name:	Cleveland Avenue Escondido	Hydrologic Unit:	Carlsbad
Project Applicant:	0	Rain Gauge:	Oceanside
Jurisdiction:	City of Escondido	Total Project Area:	482,837
Parcel (APN):	224-151-51-00	Low Flow Threshold:	0.1Q2
BMP Name:	BMP-B	BMP Type:	Biofiltration
BMP Native Soil Type:	N/A - Impervious Liner	BMP Infiltration Rate (in/hr):	N/A

Areas Draining to BMP						HMP Sizing Factors	Minimum BMP Size
DMA Name	Area (sf)	Pre Project Soil Type	Pre-Project Slope	Post Project Surface Type	Area Weighted Runoff Factor (Table G.2-1)[1]	Surface Area	Surface Area (SF)
DMA-2 Impervious	12,415	C	Moderate	Concrete	1.0	0.075	931
DMA-2 Pervious	19,274	C	Moderate	Landscape	0.1	0.075	145
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
BMP Tributary Area	31,689					Minimum BMP Size	1076
						Proposed BMP Size*	1960

* Assumes standard configuration

Surface Ponding Depth	12.00	in
Bioretention Soil Media Depth	18.00	in
Filter Coarse	6.00	in
Gravel Storage Layer Depth	12	in
Underdrain Offset	3.0	in

Notes:

1. Runoff factors which are used for hydromodification management flow control (Table G.2-1) are different from the runoff factors used for pollutant control BMP sizing (Table B.1-1). Table references are taken from the San Diego Region Model BMP Design Manu

Describe the BMP's in sufficient detail in your PDP SWQMP to demonstrate the area, volume, and other criteria can be met within the constraints of the site.

BMP's must be adapted and applied to the conditions specific to the development project such as unstable slopes or the lack of available head.
Designated Staff have final review and approval authority over the project design.

This BMP Sizing Spreadsheet has been updated in conformance with the San Diego Region Model BMP Design Manual, May 2018. For questions or concerns please contact the jurisdiction in which your project is located.

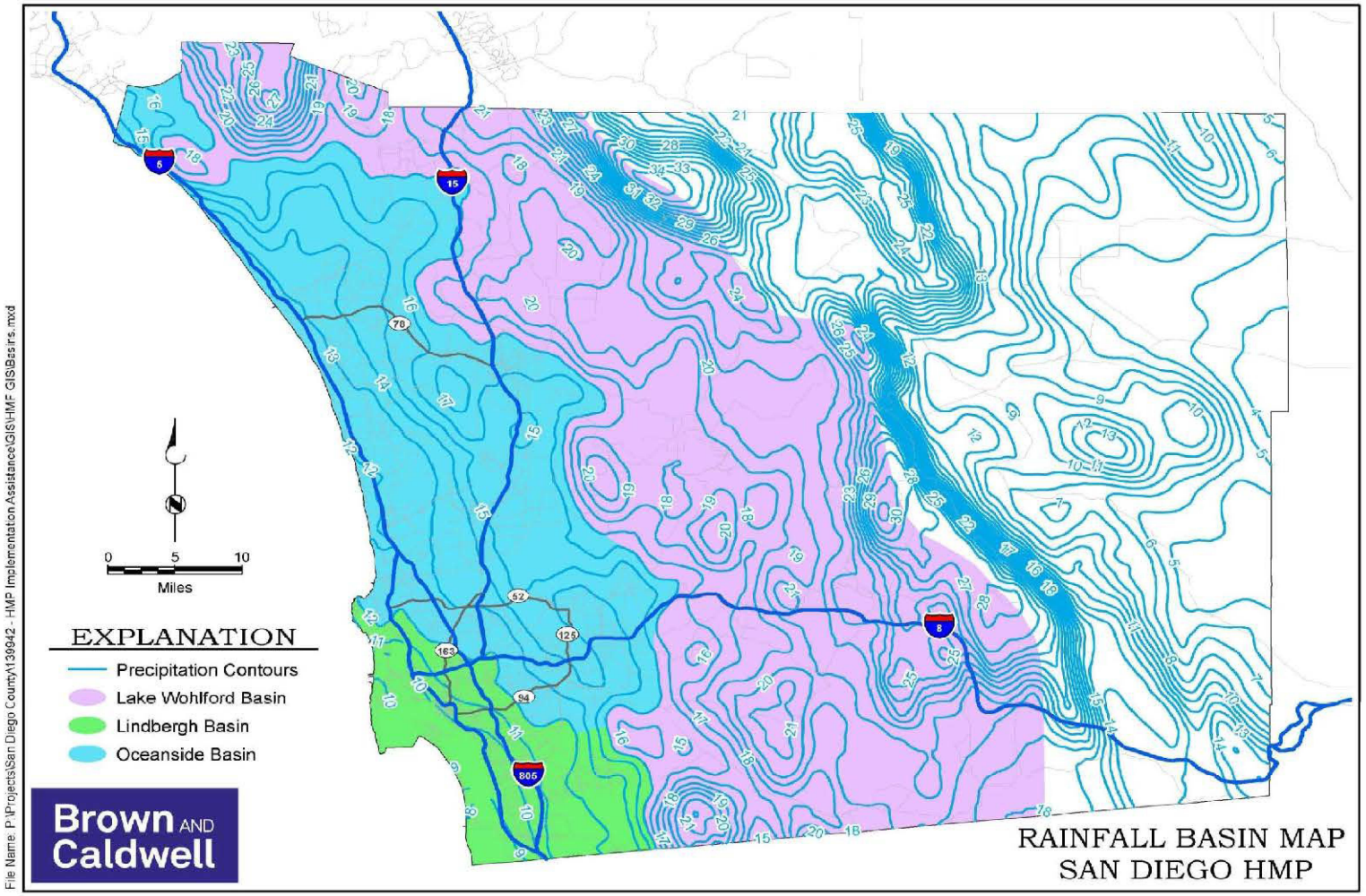
BMP Sizing Spreadsheet V3.1			
Project Name:	Cleveland Avenue Escondido	Hydrologic Unit:	Carlsbad
Project Applicant:	0	Rain Gauge:	Oceanside
Jurisdiction:	City of Escondido	Total Project Area:	482,837
Parcel (APN):	224-151-51-00	Low Flow Threshold:	0.1Q2
BMP Name	BMP-B	BMP Type:	Biofiltration

DMA Name	Rain Gauge	Pre-developed Condition		Unit Runoff Ratio (cfs/ac)	DMA Area (ac)	Orifice Flow - $\%Q_2$ (cfs)	Orifice Area (in^2)
		Soil Type	Slope				
DMA-2 Impervious	Oceanside	C	Moderate	0.497	0.285	0.014	**0.20**
DMA-2 Pervious	Oceanside	C	Moderate	0.497	0.442	0.022	**0.31**

3.75	**0.036**	**0.52**	**0.81**
Max Orifice Head (feet)	**Max Tot. Allowable Orifice Flow (cfs)**	**Max Tot. Allowable Orifice Area (in^2)**	**Max Orifice Diameter (in)**

0.029	**0.031**	**0.44**	**0.750**
Average outflow during surface drawdown (cfs)	Max Orifice Outflow (cfs)	Actual Orifice Area (in^2)	Selected Orifice Diameter (in)

Drawdown (Hrs)	18.9


0
5
10
Miles
EXPLANATION
Precipitation Contours
Lake Wohlford Basin
Lindbergh Basin
Oceanside Basin
Brown AND Caldwell
RAINFALL BASIN MAP
SAN DIEGO HMP
File Name: P:\Projects\San Diego County\139942 - HMP Implementation Assistance\GIS\HMF GIS\Basins.mxd

ATTACHMENT 2b

HYDROMODIFICATION DMA SUMMARY TABLE		
DMA ID	TOTAL SQFT	TOTAL ACRE:
DMA-1	402,991	9.25
DMA-2	35,527	0.82

10.07 TOTAL ACRES

DMA-1
402,991.24 SF

DMA-2
35,527.02 SF

POC-1

POC-2

CONWAY DRIVE

CLEVELAND AVENUE

SCALE 1"=40'
0 40 80

HYDROMOD EXHIBIT
PRE-DEVELOPMENT
CONWAY DRIVE

LEGEND

- DMA BOUNDARY
- SHEET FLOW DRAINAGE ARROWS
- BIOFILTRATION BASIN
- POINT OF COMPLIANCE (POC)

HYDROLOGICAL SOIL GROUP

THE HYDROLOGICAL SOIL GROUP FOR THIS SITE VARIES. BOTH TYPE A & C SOILS ARE PRESENT THROUGHOUT THE SITE.

NOTE:
NO GROUNDWATER ENCOUNTERED

BMP NOTES:

1. THESE BMPS ARE MANDATORY TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS OR THESE PLANS.
2. NO CHANGES TO THE PROPOSED BMPS ON THIS SHEET WITHOUT PRIOR APPROVAL FROM THE CITY ENGINEER.
3. NO SUBSTITUTIONS TO THE MATERIAL OR TYPES OR PLANTING TYPES WITHOUT PRIOR APPROVAL FROM THE CITY ENGINEER.
4. NO OCCUPANCY WILL BE GRANTED UNTIL THE CITY INSPECTION STAFF HAS INSPECTED THIS PROJECT FOR APPROPRIATE BMP CONSTRUCTION AND INSTALLATION.
5. REFER TO MAINTENANCE AGREEMENT DOCUMENT.
6. SEE PROJECT SWMP FOR ADDITIONAL INFORMATION.

WATER QUALITY BASIN INSTALLATION NOTES:

1. AN UNDERDRAIN CLEANOUT WITH A MINIMUM 6-INCH DIAMETER AND LOCKABLE CAP IS PLACED EVERY 250 TO 300FEET AS REQUIRED BASED ON UNDERDRAIN LENGTH.
2. VEGETATION USED SHOULD BE SUITABLE FOR THE CLIMATE PER LANDSCAPE PLANS
3. FILTER COARSE IS A MINIMUM OF 6 INCHES PROVIDED IN TWO SEPARATE 3 INCH LAYERS. THE TOP LAYER SHALL BE MADE OF ASTM C33 CHOKER SAND AND THE BOTTOM LAYER BE OF ASTM NO. 8 AGGREGATE. MARKERS STAKES SHALL BE USED TO ENSURE UNIFORM LIFT THICKNESS.
4. AASHTO NO. 57 STONE OR CLASS 2 PERMEABLE PER CAL TRANS SPECIFICATION 68-2.02F(3) IS RECOMMENDED FOR THE AGGREGATE STORAGE LAYER. WASHED, OPEN-GRADED CRUSHED ROCK MAY BE USED, HOWEVER, A 4 INCH MINIMUM WASHED PEA GRAVEL FILTER COURSE LAYER AT THE TOP OF THE CRUSHED ROCK IS REQUIRED.
5. IMPERMEABLE LINER SHALL BE INSTALLED WHEN THE BIOFILTRATION BASIN IS WITHIN 10 FEET OF RETAINING WALLS OR BUILDING FOUNDATIONS, OR AS RECOMMENDED BY THE SOILS ENGINEER, OR REQUIRED BY THESE PLANS. IMPERMEABLE LINER SHALL BE 30 MIL THICK (PER COUNTY OF SAN DIEGO GREEN STREETS DESIGN STANDARD DRAWING GS-3.00 AND COUNTY GREEN STREETS SUPPLEMENT TO CAL TRANS SPECIFICATIONS 20-11.08B) CONFIGURED TO ENTIRELY ENCOMPASS THE SIDES OF THE WATER QUALITY BASIN.
6. IMPERMEABLE LINER BE CONSTRUCTED IN COMPLIANCE WITH THE COUNTY OF SAN DIEGO GREEN STREETS SUPPLEMENT TO CAL TRANS SPECIFICATIONS 20-11.08B.
7. BIOFILTRATION SOIL MEDIA LAYER (BSM) SHALL CONSIST OF 60% TO 80% BY VOLUME SAND, UP TO 20% BY VOLUME TOPSOIL, AND UP 20% BY VOLUME COMPOST (PER CITY OF ESCONDIDO BMP DESIGN MANUAL OCTOBER 2022 APPENDIX F.3 SECTION 903-2 BLENDED BSM CRITERIA AND TESTING REQUIREMENTS) PLACED IN 6" LIFTS AND COMPACTED WITH WATER PRIOR TO THE NEXT LIFT. INITIAL PERMEABILITY SHALL BE 8" PER HOUR (WITH ASSUMED STABILIZED PERMEABILITY OF 5" PER HOUR).
8. THE AGGREGATE STORAGE LAYER SHALL BE COMPACTED IN ACCORDANCE WITH SOILS ENGINEER'S RECOMMENDATIONS.
9. OVERFLOW STRUCTURE TO HAVE A MINIMUM OF 12 INCHES OF FREEBOARD.
10. ALL LINER INSTALLATIONS, FIELD WELDING OF SEAMS, AND OBSERVATION OF SOIL MIX PLACEMENT SHALL REQUIRE SPECIAL INSPECTION BY THE PROJECT GEOTECHNICAL ENGINEER OR OTHER QUALIFIED PERSON. A LETTER CERTIFYING PROPER INSTALLATION SHALL BE PROVIDED TO THE ENGINEER OF RECORD TO ACCEPTANCE OF THE FACILITIES.
11. SPECIAL INSPECTION SHALL BE REQUIRED FOR CONSTRUCTION OF ALL BIOFILTRATION BASINS. INSPECTION SHALL BE PERFORMED BY A QUALIFIED INDIVIDUAL (SUCH AS: ENGINEER OF RECORD, QSD). INSPECTION SHALL INCLUDE:
    - VERIFICATION OF OVERALL DIMENSIONS PRIOR TO PLACEMENT OF MATERIALS;
    - PLACEMENT OF THE LINER, IF REQUIRED; AND SEAMS OR PENETRATIONS
    - PLACEMENT OF THE GRAVEL, FILTER MATERIALS, AND FILTER MEDIA;
    - ALL INLET AND OUTLET STRUCTURES INCLUDING UNDERDRAINS, IF REQUIRED.
    - CONTRACTOR SHALL TAKE PICTURES AT EACH STAGE OF INSTALLATION AND SUBMITTED TO ENGINEER FOR VERIFICATION OF INSTALL.

    INSPECTOR SHALL BE GIVEN A MINIMUM OF 48 HOURS PRIOR TO INSPECTION. UPON COMPLETION THE INSPECTOR SHALL PROVIDE A CERTIFICATION TO THE ENGINEER OF WORK.
12. PROPOSED MATERIALS, SUCH AS AGGREGATE, FILTER MATERIAL, AND FILTER MEDIA SHALL BE SUBMITTED TO THE ENGINEER OF WORK FOR APPROVAL.

SOURCE CONTROL BMPS

1. SC-1 PREVENTION OF ILLICIT DISCHARGES INTO THE MS4

   USE A SUITE OF HOUSEKEEPING BMPS WHICH COULD INCLUDE EFFECTIVE IRRIGATION, DISPERSION OF NON-STORM WATER DISCHARGES INTO LANDSCAPING FOR INFILTRATION. NO VEHICLE WASHING WILL BE ALLOWED ONSITE.

2. SC-2 STORM DRAIN STENCILING OR SIGNAGE

   STENCILING SHALL BE PROVIDED FOR ALL STORM WATER CONVEYANCE SYSTEM INLETS AND CATCH BASINS WITHIN THE PROJECT AREA. INLET STENCILING MAY INCLUDE CONCRETE STAMPING, CONCRETE PAINTING, PLACARDS, OR OTHER METHODS APPROVED BY THE CITY.

3. SC-6 ADDITIONAL BMPS BASED ON POTENTIAL SOURCES OF RUNOFF POLLUTANTS

   A. LANDSCAPE/OUTDOOR PESTICIDE USE

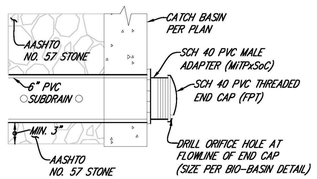
   - MAINTAIN LANDSCAPING USING MINIMUM OR NO PESTICIDES.
   - SEE APPLICABLE OPERATIONAL BMPS IN FACT SHEET SC-41, "BUILDING AND GROUNDS MAINTENANCE," IN THE CASQA STORMWATER QUALITY HANDBOOKS AT WWW.CABMPHANDBOOKS.COM.
   - PROVIDE IPM INFORMATION TO NEW OWNERS, LESSEES AND OPERATORS.

SITE DESIGN BMPS

1. SD-3 PARKING AND DRIVING AISLES WERE DESIGN TO THE MINIMUM REQUIRED TO MINIMIZE IMPERVIOUS AREAS
2. SD-6 RUNOFF COLLECTION WAS IMPLEMENTED TO MINIMIZE THE TRANSPORT OF RUNOFF AND POLLUTANTS TO THE MS4 AND RECEIVING WATERS.
3. SD-7 DROUGHT TOLERANT PLANTS SPECIES ARE SELECTED FOR LANDSCAPING

POTENTIAL POLLUTANT SOURCE AREAS

1. ON SITE STORM DRAINS
2. LANDSCAPE/ OUTDOOR PESTICIDE USE
3. PLAZAS, SIDEWALKS, AND PARKING LOTS



ORIFICE DETAIL
NOT TO SCALE



6" PVC PIPE PERFORATION LAYOUT DETAIL
NOT TO SCALE



DETAIL
"NO DUMPING" AT CATCH BASINS

NOTE: ALL CATCH BASINS WITH GRATES SHALL BE STENCILED WITH CITY REQUIRED ITEM PER ABOVE DETAIL:

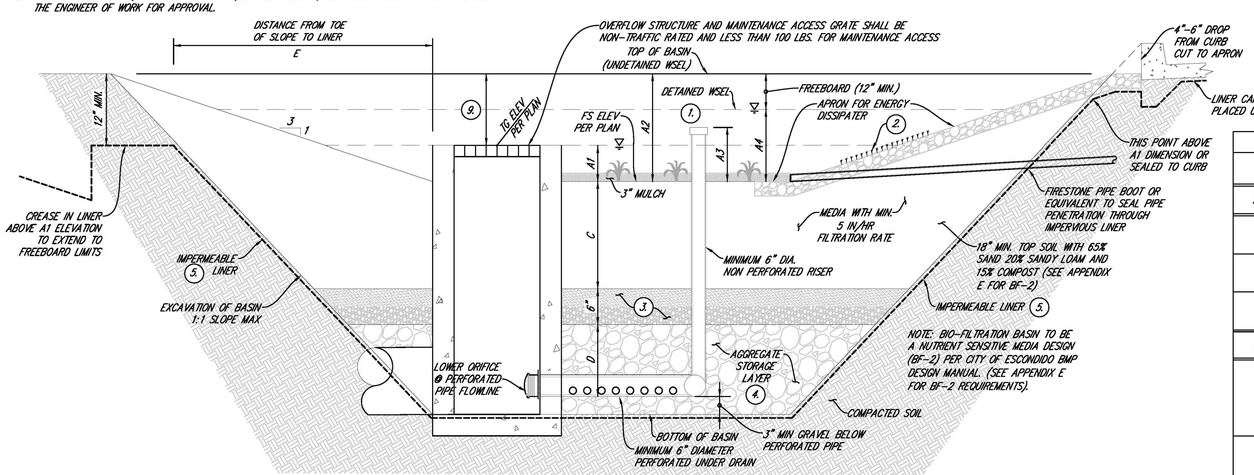
(DAS MANUFACTURING #SDO OR EQUIVALENT)

PERMANENT WATER QUALITY TREATMENT FACILITY

KEEPING OUR WATER WAYS CLEAN
MAINTAIN WITH CARE - NO MODIFICATIONS WITHOUT AGENCY APPROVAL

DETAIL
WATER QUALITY SIGN- PLACED AT EACH BIOFILTRATION BASIN

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



BIOFILTRATION BASIN DETAIL
NOT TO SCALE



BMP TABLE

BMP #	BMP TYPE	SYMBOL	CASQA NO.	QUANTITY	DRAWING #	SHEET NO.(S)	INSPECTION FREQUENCY	MAINTENANCE FREQUENCY
HYDROMODIFICATION & TREATMENT CONTROL								
1	BIOFILTRATION AREA		TC-32	11,148 SF		5	30 DAYS PRIOR TO OCT. 1ST EACH YEAR AND WEEKLY DURING RAIN SEASON.	BI-MONTHLY (SEE ATTACHMENT 3 OF PROJECT SWQMP)
2	BIOFILTRATION AREA		TC-32	1,960 SF		5	30 DAYS PRIOR TO OCT. 1ST EACH YEAR AND WEEKLY DURING RAIN SEASON.	BI-MONTHLY (SEE ATTACHMENT 3 OF PROJECT SWQMP)
3	TREE WELLS			251 SF EACH X 15 TREES		5	30 DAYS PRIOR TO OCT. 1ST EACH YEAR AND WEEKLY DURING RAIN SEASON.	BI-MONTHLY (SEE ATTACHMENT 3 OF PROJECT SWQMP)
SOURCE CONTROL								
2	INLET STENCILING	NO DUMPING DRAINS TO OCEAN	SD-13	2 EA.		5	SEMI ANNUALLY VISUAL INSPECTION	SEMI ANNUALLY, REPAIR DONE 30 DAYS PRIOR TO OCTOBER 1ST EACH YEAR AND FREQUENCY WILL VARY ACCORDING TO USAGE AND VISUAL INSPECTION
4	SWEEPING	N/A	SC-43	TYP.		5	30 DAYS PRIOR TO OCT. 1ST EACH YEAR. INSPECTION AND FREQUENCY WILL VARY ACCORDING TO USAGE AND VISUAL INSPECTION.	30 DAYS PRIOR TO OCT. 1ST EACH YEAR. INSPECTION AND FREQUENCY WILL VARY ACCORDING TO USAGE AND VISUAL INSPECTION.

DMA SUMMARY TABLE

DMA ID	DMA TYPE:	TOTAL SQFT	TOTAL ACRE:
DMA-1	BMP-A (BIOFILTRATION)	400,438	9.19
DMA-2	BMP-B (BIOFILTRATION)	31,689	0.73
DMA-3	BMP-C (TREE WELLS)	42,677	0.98
DMA-4	BMP-D (TREE WELLS)	7,809	0.18
DMA-5	DE MINIMIS	224	0.005

11.08 TOTAL ACRES

STRUCTURAL BMP SUMMARY TABLE

DMA ID	BMP ID:	TYPE OF BMP	EFFECTIVE AREA (SQFT)	A1 (INCH) RISER/ PONDING	A2 (INCH) TOP OF BASIN	A3 (INCH) CLEAN OUT	A4 (INCH) MAX WSEL	C (INCH) MEDIA	D (INCH) GRAVEL	E FEET	BOX RISER / OVERFLOW STRUCTURE SIZE (INCHES)	LOWER ORIFICE DIAMETER (INCH)	IMPERMEABLE LINER?
DMA-1	BMP-A	BIOFILTRATION	11,148	12	30	15	18	18	12	3	48X48	2.00	NO
DMA-2	BMP-B	BIOFILTRATION	1,960	12	30	15	18	18	12	3	36X36	0.75	YES

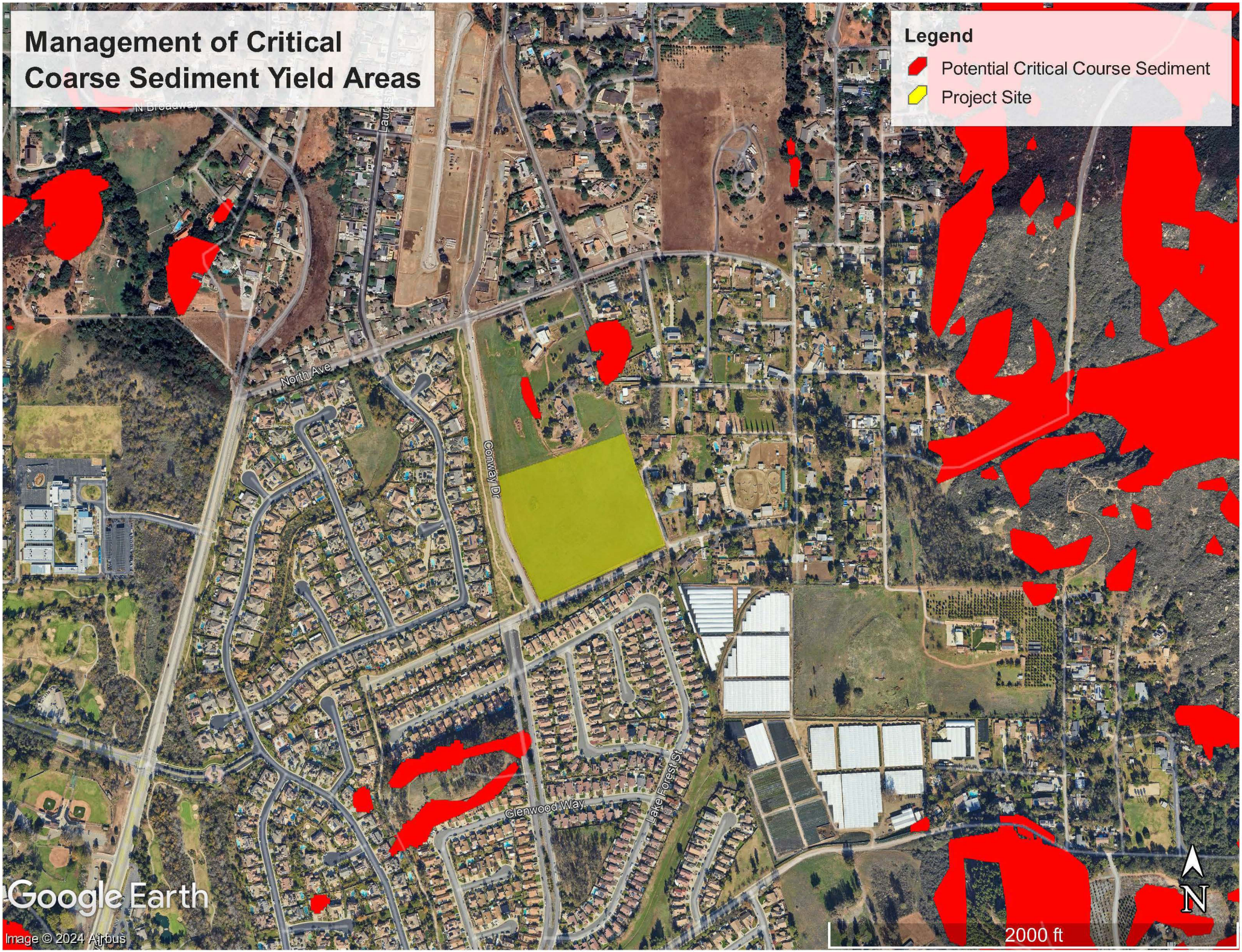
SITE BMP SUMMARY TABLE

DMA ID	BMP ID:	TYPE OF BMP	EFFECTIVE AREA (SQFT)	PONDING (IN)	MEDIA (IN)	SAND FILTER (IN)	NUMBER OF TREES	DIAMETER OF TREE (FT)	IMPERMEABLE LINER?
DMA-3	BMP-C	TREE WELL	251 (EA)	6	30	6	12	20	SIDEWALLS ONLY
DMA-4	BMP-D	TREE WELL	251 (EA)	6	30	6	3	20	SIDEWALLS ONLY

SCALE 1":60'
0 60 120

DMA EXHIBIT
POST-DEVELOPMENT
CONWAY DRIVE

ATTACHMENT 2c


Management of Critical Coarse Sediment Yield Areas
Legend
Potential Critical Course Sediment
Project Site
North Ave
Conway Dr
Glenwood Way
Lake Forest St
Google Earth
Image © 2024 Airbus
2000 ft
N

ATTACHMENT 3

Structural BMP Maintenance Information

This is the cover sheet for Attachment 3.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 3a	Structural BMP Maintenance Plan (Required)	▣Included See Structural BMP Maintenance Information Checklist on the back of this Attachment cover sheet.
Attachment 3b	Draft Storm Water Control Facilities Maintenance Agreement (SWCFMA) (when applicable)	▣Included ☐Not Applicable

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

Attachment 3a must identify:

- ☒ Specific maintenance indicators and actions for proposed structural BMP(s). This must be based on Section 7.7 and Appendix E of the Storm Water 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 all Structural BMPs, Attachment 3b must include a draft maintenance agreement in the City's standard format (PDP applicant to contact City staff to obtain the current maintenance agreement forms or download from City's website).

ATTACHMENT 3a

OPERATION & MAINTENANCE (O&M) PLAN

Contents

1. PROJECT DESCRIPTION 1

2. OPERATION & MAINTENANCE PLAN 1

3. Operation & Maintenance of BMP'S 1

A. Training 2
B. Landscaping 2
C. Irrigation System 5
D. Roof Drains 5
E. Trash Storage Areas 5
F. Storm Water Conveyance System Stenciling and Signing 5
G. Biofiltration 6
H. Outlet Structures 8
I. Vector Management Control Requirements 8

ATTACHMENTS

A. O&M Exhibit
A1. Inspection & Maintenance Schedule
B1. Cost Estimate
C1. BMP Training Log
D1. Inspection & Maintenance Log

1. PROJECT DESCRIPTION

The project includes the construction of 29 single family residential homes on an existing 10.38 acre parcel of undisturbed land. As part of the new construction, associated improvements will include walkways, grass and landscaped areas, and all necessary utilities (storm, sewer, water, dry, etc.).

Normal uses of such a development will generate storm water runoff with the potential to carry pollutants to off-site tributaries. Biofiltration ponds are planned to be incorporated throughout the site to treat and detain runoff from impervious and landscaped areas.

2. OPERATION & MAINTENANCE PLAN

The Operation and Maintenance Plan (O&M) needs to address construction and post-construction concerns as shown in the Storm Water Mitigation Plan. Refer to Precise Grading and Improvement Plans for Conway Drive Residential for additional information on BMPs.

3. Operation & Maintenance of BMP'S

It shall be the responsibility of the owner to train all employees for the maintenance and operation of all BMPs, to achieve the maximum pollutant reduction, as addressed in the approved Project's SWQMP. The following schedule of (O&M's) must be followed to satisfy the Conditions of Concern and the Pollutants of Concern as addressed in the approved Project's SWQMP and the City's Storm Water Design Manual. This schedule shall include periodic inspections of all Source Control and Treatment Control BMP's. All maintenance records for training, inspection and maintenance shall be retained and provided to the city upon request.

All BMPs shall be inspected 30 days prior to October 1st each year and certified to the City Engineering Department as to their readiness to receive runoff from the annual rainfall season.

The owner will also provide to the City, as part of the maintenance and operation agreement, an executed maintenance and access easement that shall be binding on the land throughout the life of the project.

Responsible Party for O&M and For Training- Property Owner

A. Training

Training of Operation and Maintenance personnel is of primary importance to provide knowledge of the operation and maintenance of BMPs. Proper training shall provide information that will enable employees to have in place an effective preventive maintenance program as described in this O & M manual. The responsible party mentioned above should take the course provided by the "BUILDING INDUSTRIES ASSOCIATION of SAN DIEGO COUNTY" to be trained in the purpose and use of BMPs and the maintenance thereof. Proper preventive maintenance will prevent environmental incidents that may be a health and safety hazard.

New employees should be trained as to the purpose and proper maintenance within the first week of their employment.

Employee training shall include receiving a copy of this O & M manual; a discussion on the location and purpose of site specific BMPs, such as Source Control and Treatment Control BMPs; training on how to inspect and report maintenance problems and to whom they report to; They shall be trained in site specific Pollutants of Concern so that they can evaluate the functioning of all on-site BMPs.

These Pollutants are identified in section 2 of this report.

A log of all training and reported inspections and maintenance problems along with what was done to correct the problem shall be keep on the premises at all times.

Employees shall be periodically trained, at a minimum of once a year, to refresh their abilities to Operate and Maintain all on-site BMPs.

B. Landscaping

Operational and maintenance needs include:

- Vegetation management to maintain adequate hydraulic functioning and to limit habitat for disease-carrying animals.
- Animal and vector control.
- Periodic sediment removal to optimize performance.
- Trash, debris, grass trimmings, tree pruning, dead vegetation collection and removal.
- Removal of standing water, which may contribute to the development of aquatic plant communities or mosquito breeding areas.
- Erosion and structural maintenance to prevent the loss of soil and maintain the performance of all landscaping.

Inspection Frequency

The facility will be inspected and inspection visits will be completely documented:

- Once a month at a minimum.

- After every large storm (after every storm monitored or these storms with more than 0.50 inch of precipitation.)
- On a weekly basis during extended periods of wet weather.

Inspect for proper irrigation and fertilizer use, and ensure that all landscaped areas have minimum of 80% coverage.

Aesthetic Maintenance

The following activities will be included in the aesthetic maintenance program:

Grass Trimming: Trimming of grass will be done on all landscaped areas, around fences, at the inlet and outlet structures, and sampling structures.
Weed Control. Weeds will be removed through mechanical means. Herbicide will not be used because these chemicals may impact the water quality monitoring.

Functional Maintenance

Functional maintenance has two components:
- Preventive maintenance
- Corrective maintenance

Preventive Maintenance

Preventive maintenance activities to be instituted for landscaped areas are:
- Grass Mowing: Vegetation seed, mix within the landscaped areas, are to be designed to be kept short to maintain adequate hydraulic functioning and to limit the development of faunal habitats.
- Trash and Debris: During each inspection and maintenance visit to the site, debris and trash removal will be conducted to reduce the potential for inlet and outlet structures and other components from becoming clogged and inoperable during storm events.
- Sediment Removal: Sediment accumulation, as part of the operation and maintenance program at of landscaped areas, will be monitored once a month during the dry season, after every large storm (0.50 inch), and monthly during the wet season. Specifically, if sediment reaches a level at or near plant height, or could interfere with flow or operation, the sediment shall be removed. If accumulation of debris or sediment is determined to be the cause of decline in design performance, prompt action (i.e., within ten working days) will be taken to restore the landscaped areas to design performance standards. Actions will include using additional vegetation and/or removing accumulated sediment to correct channeling or ponding. Characterization and Appropriate disposal of sediment will comply with applicable local, county, state, or federal requirements.
- Landscaped areas will be re-graded, if the flow gradient has been altered. This should be a sign that the BMP is failing, and the soil matrix may need to be replaced.

- Removal of Standing Water: Standing water must be removed if it contributes to the development of aquatic plant communities or mosquito breeding areas.
- Fertilization and Irrigation: fertilization and irrigation is to be keep at a minimum.

- Elimination of Mosquito Breeding Habitats. The most effective mosquito control program is one that eliminates standing water over a period less than 96 hours.

Corrective Maintenance

Corrective maintenance is required on an emergency or non-routine basis to correct problems and to restore the intended operation and safe function of all landscaped areas.

Corrective maintenance activities include:

- Removal of Debris and Sediment: Sediment, debris, and trash, which impede the hydraulic functioning of landscaping and prevent vegetative growth, will be removed and properly disposed. Temporary arrangements will be made for handling the sediments until a permanent arrangement is made. Vegetation will be re-established after sediment removal.
- Structural Repairs: Once deemed necessary, repairs to structural components of landscaping will be done within l0 working days. Qualified individuals (i.e., the designers or contractors) will conduct repairs where structural damage has occurred.
- Embankment and Slope Repairs: Once deemed necessary, damage to the embankments and slopes of landscaped areas will be repaired within l0 working days.
- Erosion Repair: Where a reseeding program has been ineffective, or where other factors have created erosive conditions (i.e., pedestrian traffic, concentrated flow, etc.), corrective steps will be taken to prevent loss of soil and any subsequent danger to the performance and use of landscaped areas as BMPs. There are a number of corrective actions than can be taken.
- These include erosion control blankets, riprap, or reducing flow velocity.
- Consult with an engineer and contractor to address frequently occurring erosion problems.
- Elimination of Animal Burrows: animal burrows will be filled and steps taken to remove the animals if burrowing problems continue to occur (filling and compacting). If the problem persists, vector control specialists will be consulted regarding removal steps. This consulting is necessary as the threat of rabies in some areas may necessitate the animals being destroyed rather than relocated. If the BMP performance is affected, abatement will begin. Otherwise, abatement will be performed annually in September.
- General Facility Maintenance: In addition to the above elements of corrective maintenance, general corrective maintenance will address the overall facility and its associated components. If corrective maintenance is being done to one component, other components will be inspected to see if maintenance is needed.

Maintenance Frequency

The maintenance indicators for selected BMPs are included in Attachment Al.

Debris and Sediment Disposal

Waste generated onsite is ultimately the responsibility of the Owner. Disposal of sediments, debris, and trash will comply with applicable local, county, state, and federal waste control programs.

Hazardous Waste

Suspected hazardous wastes will be analyzed to determine disposal options. Hazardous wastes generated onsite will be handled and disposed of according to applicable local, state, and federal regulations. A solid or liquid waste is considered a hazardous waste if it exceeds the criteria listed in the CCR, Title 22, Article 1l.

C. Irrigation System

Inspection Frequency and Procedure

The Irrigation system shall be checked each week as a minimum. The following items shall be checked to insure that they are functioning properly:

- Shut-off devices.
- All piping and sprinkler heads to insure there are no leaks and that proper water spread is maintained.
- All flow reducers.
- Check for overspray/runoff

D. Roof Drains

All roof drains shall be inspected 30 days prior to October lst of each year to insure that they are clean and free from trash and in good repair. They shall be flushed and any leaks or damages piping shall be either replaced or repaired. Where roof drains flow onto grass areas splash structures and or rock rip- rap shall be maintained so the flow from the roof drains do not cause erosion or damage to the grass area. During the rain season roof drains shall be inspected weekly and after each rain storm to insure that there is no trash and or silt build up that will restrict the run-off flow from the roof. All trash and/or silt build up shall be removed immediately.

E. Trash Storage Areas

- All trash storage areas shall be inspected daily to insure that they are clean from trash. Also the following shall be inspected annually 30 days prior to October lst of each year.
- Pavement is in good repair.
- Drainage will not run-off onto adjacent areas.
- That they remain screened or walled to prevent off-site transport of trash.
- That all lids are closed and/or awnings are in good repair to minimize direct precipitation.

F. Storm Water Conveyance System Stenciling and Signing

- Signage/stenciling are to be inspected for legibility and visual obstruction and shall be Repaired and cleared of any obstruction within 5 working day of inspection.
- Inspection Frequency: Semi-annually, 30 days prior to October lst each year, and monthly during rainy season.

G. Biofiltration

Operational and maintenance needs include:

- Vegetation management to maintain adequate hydraulic functioning and to limit habitat for disease-carrying animals.
- Animal and vector control.
- Periodic sediment removal to optimize performance.
- Trash, debris, grass trimmings, tree pruning, dead vegetation collection and removal.
- Removal of standing water, which may contribute to the development of aquatic plant communities or mosquito breeding areas.
- Erosion and structural maintenance to prevent the loss of soil and maintain the performance of all landscaping.
- Outlet maintenance: maintain trash free; remove silt; clear clogged outlets and standing Water after 96 hours.

Aesthetic Maintenance

The following activities will be included in the aesthetic maintenance program:

- Weed Control. Weeds will be removed through mechanical means. Herbicide shall not be used since the chemicals may impact water quality.

Functional Maintenance

Functional maintenance has two components:

- Preventive maintenance
- Corrective maintenance

Preventive Maintenance

- Trash and Debris: During each inspection and maintenance visit to the site, debris and trash removal will be conducted to reduce the potential for inlet and outlet structures and other components from becoming clogged and inoperable during storm events.
- Sediment Removal: Sediment accumulation, as part of the operation and maintenance program at of landscaped areas, will be monitored once a month during the dry season, after every large storm (0.50 inch), and monthly during the wet season. Specifically, if sediment reaches a level at or near plant height, or could interfere with flow or operation, the sediment shall be removed. If accumulation of debris or sediment is determined to be the cause of decline in design performance, prompt action (i.e., within ten working days) will be taken to restore the landscaped areas to design performance standards. Actions will include using additional vegetation and/or removing accumulated sediment to correct channeling or ponding. Characterization and Appropriate disposal of sediment will comply with applicable local, county, state, or federal requirements. Landscaped areas will be re-graded, if the flow gradient has been altered. This should be a sign that the BMP is failing, and the soil matrix may need to be replaced.
- Removal of Standing Water: Standing water must be removed if it contributes to the development of aquatic plant communities or mosquito breeding areas.
- Fertilization and Irrigation: fertilization and irrigation is to be keep at a minimum.

- Elimination of Mosquito Breeding Habitats. The most effective mosquito control program is one that eliminates standing water over a period less than 96 hours.
- Erosion: Damages from erosion shall be repaired to the original condition.

Corrective Maintenance

Corrective maintenance is required on an emergency or non-routine basis to correct problems and to restore the intended operation and safe function of all landscaped areas.

Corrective maintenance activities include:

- Removal of Debris and Sediment: Sediment, debris, and trash, which impede the hydraulic functioning of landscaping and prevent vegetative growth, will be removed and properly disposed. Temporary arrangements will be made for handling the sediments until a permanent arrangement is made. Vegetation will be re-established after sediment removal.
- Structural Repairs: Once deemed necessary, repairs to structural components of landscaping will be done within l0 working days. Qualified individuals (i.e., the designers or contractors) will conduct repairs where structural damage has occurred.
- Embankment and Slope Repairs: Once deemed necessary, damage to the embankments and slopes of landscaped areas will be repaired within l0 working days.
- Erosion Repair: Where a reseeding program has been ineffective, or where other factors have created erosive conditions (i.e., pedestrian traffic, concentrated flow, etc.), corrective steps will be taken to prevent loss of soil and any subsequent danger to the performance and use of landscaped areas as BMPs. There are a number of corrective actions than can be taken.
- These include erosion control blankets, riprap, or reducing flow velocity.
- Consult with an engineer and contractor to address frequently occurring erosion problems.
- Elimination of Animal Burrows: Animal burrows will be filled and steps taken to remove the animals if burrowing problems continue to occur (filling and compacting). If the problem persists, vector control specialists will be consulted regarding removal steps. This consulting is necessary as the threat of rabies in some areas may necessitate the animals being destroyed rather than relocated. If the BMP performance is affected, abatement will begin. Otherwise, abatement will be performed annually in September.

- General Facility Maintenance: In addition to the above elements of corrective maintenance, general corrective maintenance will address the overall facility and its associated components. If corrective maintenance is being done to one component, other components will be inspected to see if maintenance is needed.

H. Outlet Structures

All outlet structures shall be kept functional at all times. Routine inspection and corrective maintenance shall include removal of trash sediment and debris and repair of any structural damage or clogging of orifice outlets. The minimum maintenance frequency shall be 30 days prior to October lst each year, weekly during rainy season or within 24 hours prior to rain forecasts.

I. Vector Management Control Requirements

Due to Clean Water Act requirements and mandates imposed by the Water Quality Control Board, large quantities of stormwater will be detained onsite in above ground and underground storage facilities for treatment and storage. These storage facilities are required to dewater or discharge at a very small flow rate in order to comply with these requirements. The outlet structure for the underground storage and bioretention facility had to be sized to a fraction of an inch in order to maintain the maximum allowed discharge flow. The facility was designed to dewater in less than 96 hours. However, due to its small size and if not properly maintained regularly, it is anticipated that the outlet might have a tendency to clog frequently. Consequently, the facility may not drain within 96 hours and possibly take substantially longer time. This creates an increased risk for onsite Vector Issues and bringing their potential for severe harm to human health.

In order to implement vector controls including minimizing the risk for mosquito-borne disease transmission, **It is the responsibility of the Owner to regularly maintain the outlet structures and monitor the site after every storm event to ensure that the system (comprising of above and/or below ground storage facilities) is dewatered in less than 96 hours**. Otherwise the owner will be required to implement a vector control plan in accordance with California Department of Public Health.

ATTACHMENT "A1" INSPECTION & MAINTENANCE SCHEDULE

PREVENTATIVE MAINTENANCE AND ROUTINE INSPECTION					
TYPE BMP	Routine Action	Maintenance Indicator	Maintenance Frequency	MAINTENANCE ACTIVITY	SITE-SPECIFIC REQUIREMENTS
Landscaping & irrigation	Proper irrigation & Fertilizer.	Less than 80% coverage	30 days prior to October 1st each year and Monthly	Re-seed or Re- plant. Repair Irrigation system with-in 5-days.	All slopes and landscaped areas are to have a minimum coverage of 80%
Trash storage areas	Trash free and removal of silt	Visual Inspection	Daily inspection	Remove trash and silt Daily.	All trash storage areas to be free from trash and silt at all times
Roof drain	Trash free and removal of silt, sedimentation & Debris	Silt build up of more than 1" no trash	30 days prior to October 1st each year and weekly during rain season.	Remove all trash and silt and repair any damage to roof drains,	All Roof to be free from trash and silt and in good repair
Bioretention	Trash free and removal of silt. Clear Clogged outlets and Standing Water.	Silt build up of more than 2" no trash, Exposed soils, dead vegetation, ponded water, and excessive vegetation (see TC-32)	30 days prior to October 1st each year, monthly during rainy season, and after Storm Event	Remove trash and silt – repair and reseed exposed areas, maintain grass height so as not be shorter than 2" or higher than 5" remove all ponded water weekly inspections, (See TC-32)	All bio-filters to be free from trash and silt at all times, grass area to be free from exposed soil and maintained to proper height, ponding of water for more than 72 hours maintenance will be required
Storm Water Conveyance system Stenciling & Signing	Must be legible at all times and have a clear view.	Fading of paint or illegible letters or	Semi-annually, 30 days prior to October 1st each year & monthly during rainy season	Repaint stenciling and/or replace signs 30 days prior to October 1st.	Applicable to all stenciling and signs
Outlet Structures	Must be kept functional at all times. Clear Clogged outlets and Standing Water.	Silt, debris, trash accumulation, Ponding Water	30 days prior to October 1st each year and weekly during rainy season or within 24 hours prior to rain forecasts.	Silt, debris, trash accumulation and repair any structural damage to the outlet structures.	All outlet structures shall be kept functional at all times.

ATTACMENT "B1"

Annual Estimate to Maintain all BMPs	Annual	10-Year
Landscaping & Bioretention Maintenance of landscaping and bio-filters is already included in the property management responsibilities. Additional cost:	$200	$2,000
Irrigation System: Inspection and maintenance of the irrigation system is already included in the property management responsibilities, Additional cost:	$100	$1,000
Roof Drains: Roof drain inspection and maintenance is already included in the property management responsibilities.		
Training: Once a year & training of new employees within their first week of employment.	$100	$1,000
Stormdrain Signage (As needed or every 2 years)	$100	$1,000
Trash Storage Areas: Inspection of trash storage area & maintenance to those areas is already included in the property management responsibilities. Additional cost:	$50	$500
Total Estimated Annual Cost to Maintain BMPs	$550	$5,500

ATTACHMENT "C1"

BMP TRAINING LOG			
Date Mo/Day/Yr	**Type of Training**	**Personnel Trained**	**Trainer**

ATTACHMENT "D1"

INSPECTION AND MAINTENANCE LOG				
BMP TYP & LOCATION	DATE M/D/Y	Name of Person Inspecting	Description of BMP Condition/ Description repair required if any	Date Repair made and Description made and by who

ATTACHMENT 3 STRUCTURAL BMP MAINTENANCE INFORMATION

ATTACHMENT E1. MAINTENANCE INDICATORS

TABLE 7-2. Maintenance Indicators and Actions for Vegetated BMPs

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 (e.g. a vegetated swale may require a minimum vegetation height).
Erosion due to concentrated irrigation flow	Repair/re-seed/re-plant eroded areas and adjust the irrigation system.
Typical Maintenance Indicator(s) for Vegetated BMPs	**Maintenance Actions**
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 vegetated swales	Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, loosening or replacing top soil to allow for better infiltration, or minor re-grading for proper drainage. 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 bioretention, biofiltration with partial retention, or biofiltration areas, or flow-through planter boxes 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.

TABLE 7-3. Maintenance Indicators and Actions for Non-Vegetated Infiltration BMPs

Typical Maintenance Indicator(s) for Non-Vegetated Infiltration BMPs	Maintenance Actions
Accumulation of sediment, litter, or debris in infiltration basin, pretreatment device, or on permeable pavement surface	Remove and properly dispose accumulated materials.
Standing water in infiltration basin without subsurface infiltration gallery for longer than 96 hours following a storm event	Remove and replace clogged surface soils.
Standing water in subsurface infiltration gallery for longer than 96 hours following a storm event	This condition requires investigation of why infiltration is not occurring. If feasible, corrective action shall be taken to restore infiltration (e.g. flush fine sediment or remove and replace clogged soils). BMP may require retrofit if infiltration cannot be restored. If retrofit is necessary, the [City Engineer] shall be contacted prior to any repairs or reconstruction.
Standing water in permeable paving area	Flush fine sediment from paving and subsurface gravel. Provide routine vacuuming of permeable paving areas to prevent clogging.
Note: When inspection or maintenance indicates sediment is accumulating in an infiltration BMP, the DMA draining to the infiltration BMP should be examined to determine the source of the sediment, and corrective measures should be made as applicable to minimize the sediment supply.	

TABLE 7-4. Maintenance Indicators and Actions for Filtration BMPs

Typical Maintenance Indicator(s) for Filtration BMPs	Maintenance Actions
Accumulation of sediment, litter, or debris	Remove and properly dispose accumulated materials.
Obstructed inlet or outlet structure	Clear obstructions.
Clogged filter media	Remove and properly dispose filter media, and replace with fresh media.
Damage to components of the filtration system	Repair or replace as applicable.
Note: For proprietary media filters, refer to the manufacturer's maintenance guide.	

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

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

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

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

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

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

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

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

If These Sources Will Be on the Project Site …	… Then Your SWQMP must consider These Source Control BMPs		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on Drawings**	3 **Permanent Controls—List in Table and Narrative**	4 **Operational BMPs—Include in Table and Narrative**
☐ **L.** Fuel Dispensing Areas ☑ Not Applicable	☐ Fueling areas[16] must have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are (1) graded at the minimum slope necessary to prevent ponding; and (2) separated from the rest of the site by a grade break that prevents run-on of storm water to the MEP. ☐ Fueling areas must be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area1.] ☐ The canopy [or cover] must not drain onto the fueling area.		☐ The property owner must dry sweep the fueling area routinely. See the Business Guide Sheet, "Automotive Service—Service Stations" in the CASQA Storm Water Quality Handbooks at https://www.casqa.org/resources/bmp-handbooks.

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

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

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

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

ATTACHMENT 3b

EXEMPT FROM FEES pursuant to Gov't Code §§ 6103, 27383, and 27388.1 (filing requested/executed by municipality)

RECORDING REQUESTED BY, AND WHEN RECORDED RETURN TO:

City Engineer
City of Escondido
201 North Broadway
Escondido, CA 92025-2798

This Space for Recorder's Use Only

STORM WATER CONTROL FACILITY MAINTENANCE AGREEMENT
APN NO. 224-151-51-00

This STORM WATER CONTROL FACILITY MAINTENANCE AGREEMENT ("Agreement") is entered into between the City of Escondido, a California municipal corporation ("City") and [Entity Name, Entity Type] ("Owner"), and in accordance with City of Escondido Grading Plan No. [GPXX-XXXX] ("Grading Plan"). (The City and Owner may each be referred to herein as a "Party" and collectively as the "Parties.")

WHEREAS, installation and maintenance of Storm Water Control Facilities ("SWCF") is required pursuant to the Escondido Municipal Code, by the California Regional Water Quality Control Board ("RWQCB"), and by the City as a condition of approval of property development; and

WHEREAS, Owner is the owner of certain real property identified as Assessor's Parcel Number (APN) 224-151-51-00; located at Conway Drive, Escondido, CA 92026; and more particularly described in Exhibit A, attached hereto and incorporated herein by this reference ("Property"); and

WHEREAS, Owner has proposed development of the Property that provides benefit to the general public and the City and meets the requirements of RWQCB Order R9-2013-0001, as amended by Order Nos. R9-2015-0001 and R9-2015-0100 (National Pollution Discharge Elimination System No. CAS0109266); and

WHEREAS, the current and future subdivision Owner shall use the SWCF as installed per the Grading Plan and the provisions of the Storm Water Quality Management Plan prepared by the Owner and approved by the CITY on [Approval Date] ("Storm Water Plan"); and

WHEREAS, it is the mutual desire of the Parties to establish a method for the maintenance and repair of the SWCF, and that the SWCF be maintained in a safe and usable condition by the Owner; and

WHEREAS, the City shall have the right but not the obligation to enforce full compliance with the terms and conditions of this Agreement; and

WHEREAS, it is the mutual intention of the Parties that this Agreement constitute a covenant running with the land, binding upon each successive person having or acquiring any right, title, or interest in all or any portion of the Property.

NOW, THEREFORE, in consideration of the above premises, the mutual covenants and promises below, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. The Property is benefited by this Agreement, and the Owner is expressly bound hereby for the benefit of the land. In the event any of the herein described parcels of land are subdivided further, the Owner, or its heirs, assigns, and successors in interest of each such newly created parcel, shall be liable under this Agreement for its then pro rata share of expenses and such pro rata shares of expenses shall be computed to reflect such newly created parcels.

2. The cost and expense of maintaining the SWCF shall be the responsibility of, and paid by, the Owner. The SWCF shall be constructed and maintained by the Owner in accordance with the Grading Plan and Storm Water Plan.

3. Repair and maintenance responsibilities for all structural SWCF and required Best Management Practices ("BMPs") are set forth in the Storm Water Plan. Owner shall, as changes occur, provide the City with the name, title, and phone number of the persons or entities responsible for maintenance and reporting activities; funding, schedules, and procedures for inspection and maintenance of the SWCF; implementation of worker training requirements; and any other activities necessary to ensure compliance with BMPs. The Storm Water Plan shall provide for the servicing of all SWCF as needed, and at least once during August or September of each year, and for the retention of inspection and maintenance records for at least three years. Owner shall submit annual certification to the City's Department of Engineering Services between September 1 and October 1 of each year. The certification shall document all maintenance performed and compliance with applicable permits.

4. The City shall have the right to inspect the SWCF and related records as needed to ensure the SWCF is being properly maintained.

5. If any individual Owner fails to pay its share of costs and expenses as required to use, maintain, or repair the SWCF, then the City shall be entitled without further notice to institute legal action for the collection of funds advanced on behalf of the individual Owner that did not pay its share of costs and expenses and shall be entitled to recover in such action, in addition to the funds advanced, interest thereon at the current prime rate of interest, until paid; all costs and disbursements of such action, including such sum or sums as the court may fix; and reasonable attorney's fees.

6. Any liability of the Owner to any worker employed to make repairs or provide maintenance under this Agreement, or to third persons, as well as any liability of the Owner for damage to the property of any such worker, or any third persons, as a result of or arising out of repairs and maintenance under this Agreement, shall be borne solely by the Owner (and if jointly owned,

then in the same percentage as each individual Owner bears the costs and expenses of such repairs and maintenance). In the case of more than one Owner, each individual Owner shall be responsible for and maintain its own insurance. By this Agreement, the Parties do not intend to provide for the sharing of liability with respect to personal injury or property damage other than that attributable to the repairs and maintenance undertaken under this Agreement. Each Owner agrees to indemnify any other Owner from any and all liability for injury to an individual Owner or damage to its property when such injury or damage results from, arises out of, or is attributable to any maintenance or repairs undertaken pursuant to this Agreement.

7. Indemnification, Duty to Defend, Hold Harmless.

7.1 To the fullest extent permitted by law, Owner shall jointly and severally indemnify, defend with legal counsel reasonably satisfactory to the City, and hold harmless the City and the City's officers, officials, directors, employees, agents, volunteers, and Councilmembers (collectively, "Indemnitees") from and against any and all claims, demands, actions, causes of action, proceedings (including but not limited to legal and administrative proceedings of any kind), suits, fines, penalties, sanctions, judgments, levies, liens, orders (including without limitation any RWQCB Orders), assessments, costs, expenses, liabilities, losses, damages, or injuries, in law or equity, including without limitation the payment of all consequential damages and attorney's fees and other related litigation costs and expenses, of every nature caused by, arising out of, or in connection with Owner's obligations under this Agreement or Owner's obligations for implementation of storm water management in accordance with RWQCB Order R9-2013-0001 and subsequent amendments (collectively, "Claims"), including any reasonable attorney's fees, costs, and expenses incurred by the Indemnitees in responding to or defending any Claims, except where caused by the active negligence, sole negligence, or willful misconduct of the Indemnitees.

7.2 Owner's duty to defend the Indemnitees is separate, independent, and free-standing from Owner's duty to indemnify and hold harmless the Indemnitees. Owner's defense obligation shall arise immediately upon receipt by the City or Owner of any written notice of any alleged Claims, or a written Notice of Violation or equivalent notice of intent from the RWQCB or other enforcement agency to levy any fines, penalties, or sanctions against Indemnitees, and shall continue until the entry of any final and non-appealable judgment or order, including without limitation any final and non-appealable RWQCB Order or other agency enforcement order.

7.3 The indemnity protections provided by this Agreement are not intended to exceed the indemnity available under applicable law. If the indemnity protections are found by a court to be unlawful in any way, the protection shall be curtailed or adjusted, but only to the minimum extent required to conform to applicable law.

7.4 All terms and provisions within this Section 7 shall survive termination of this Agreement.

8. If, in the City's sole judgment, the SWCF is not being maintained to the standards required by this Agreement, the City may thereupon provide written notice to the Owner to initiate repairs or construction within 90 days. Upon the Owner's failure to demonstrate good faith to make repairs or construction within 90 days, the City may make all necessary repairs to the SWCF or construct the SWCF in a manner to meet the standards set forth in this Agreement and to then assess

costs to the Owner.

9. If the City elects to make necessary maintenance or repairs in accordance with this Agreement, such maintenance and repairs shall be accepted "as is" by the Owner without any warranty of workmanship and be guaranteed and indemnified by Owner in accordance with this Agreement.

10. The obligations and benefits provided for in this Agreement shall run with the land obligated and benefited, respectively, and shall be binding on all persons having or acquiring any right, title, or interest in the Property or any part thereof. As such, it is the intent of the Parties that this Agreement and the promises, covenants, rights, and obligations set forth herein (i) shall be and are covenants running with the Property, encumbering the Property for the term of this Agreement, and binding upon Owner's successors in title and all subsequent owners and operators of the Property; (ii) are not merely personal covenants of the Owner; and (iii) shall bind Owner and its respective heirs, executors, administrators, successors, and assigns.

11. Amendments. This Agreement may not be amended, modified, waived, or supplemented except by an agreement in writing signed by all of the Parties, and then only in the specific instance and for the specific purpose given.

12. Governing Law. This Agreement shall be governed by the laws of the State of California. In the event any provision of this Agreement is held to be unenforceable or invalid by any court of competent jurisdiction, the validity and enforceability of the remaining provisions shall not be affected thereby.

13. Entire Agreement. This Agreement, together with its attachments or other documents, if any, described or incorporated herein, contains the entire agreement and understanding concerning the subject of this Agreement and supersedes and replaces all prior negotiations, understandings, or proposed agreements, written or oral, except as otherwise provided herein. Each of the Parties hereto acknowledges that no other Party, nor the agents nor the attorneys for any Party, has made any promise, representation, or warranty whatsoever, express or implied, not contained herein, to induce the execution of this Agreement and acknowledges that this Agreement has not been executed in reliance upon any promise, representation, or warranty not contained herein.

14. Severability. This Agreement shall be performed and shall be enforceable to the full extent allowed by applicable law, and the illegality, invalidity, waiver, or unenforceability of any provision of this Agreement shall not affect the legality, validity, applicability, or enforceability of the remaining provisions of this Agreement.

15. Capacity. Each individual signing this Agreement represents and warrants that he or she has been authorized to do so by proper action of the Party on whose behalf he or she has signed.

16 Advice of Counsel. The Parties hereby acknowledge that they have executed this Agreement after having the opportunity to consult with, and receive the advice of, their own counsel.

17. Attorney's Fees. In any action to enforce the terms of this Agreement, the Parties agree that the prevailing party shall be entitled to its actual attorney's fees and all costs, fees, and expenses, including the fees of expert witnesses and consultants, whether or not such costs, fees, and

expenses are recoverable or allowed as costs under section l033.5 of the California Code of Civil Procedure. Such fees and costs shall be proven and awarded by the court after the conclusion of the trial on all other issues by way of a cost bill and motion. In addition to the foregoing award of attorney's fees and costs, the prevailing party shall be entitled to its attorney's fees and costs incurred in any post-judgment proceeding to collect or enforce any judgment. This provision is separate and shall survive the merger of this provision into any judgment on this Agreement.

l8. Counterparts. This Agreement may be executed on separate counterparts that, upon completion, may be assembled into and shall be construed as one document.

l9. Recitals. The Recitals set forth in this Agreement are included herein by reference as part of this Agreement and the Parties agree that said Recitals are essential facts to this Agreement.

20. Effective Date. Unless a different date is provided in this Agreement, the effective date of this Agreement shall be the latest date of execution set forth by the names of the signators below.

IN WITNESS WHEREOF, this Agreement is executed by the Parties or their duly authorized representatives as of the Effective Date:

CITY OF ESCONDIDO

Date: _____

_____
Julie Procopio, Director of Engineering Services

[OWNER]

Date: _____

_____
Signature

_____
Name/Title (please print)

(ALL ABOVE SIGNATURES MUST BE NOTARIZED)

Approved as to Form:

OFFICE OF THE CITY ATTORNEY
Michael R. McGuinness, City Attorney

BY: _____

EXHIBIT A

Legal Description of Property

REAL PROPERTY IN THE CITY OF ESCONDIDO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

"REMAINDER PARCEL" AS SHOWN ON PARCEL MAP NO. 19229, IN THE CITY OF ESCONDIDO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, MAY 13, 2003 AS FILE NO. 2003-0558981 OF OFFICIAL RECORDS.

ATTACHMENT 4

City of Escondido PDP Structural BMP Verification for Permitted Land Development Projects

This is the cover sheet for Attachment 4.

City of Escondido Storm Water Structural BMP Verification Form Page 1 of 3	
Project Summary Information	
Project Name	Cleveland Residential
Permit Number (e.g., grading/improvement plan number)	PL25-0030
Project Address	Cleveland Avenue Escondido, California 92026
Assessor's Parcel Number(s) (APN(s))	224-151-51-00
Project Watershed (Complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	
Maintenance Notification / Agreement No.	
Responsible Party for Construction Phase	
Developer's Name	The True Life Companies
Address	4350 Von Karman, Suite 200 Newport Beach, CA 92660
Email Address	
Phone Number	
Engineer of Work	Robert D. Dentino
Engineer's Phone Number	760-745-8118
Responsible Party for Ongoing Maintenance	
Owner's Name(s)*	The True Life Companies
Address	4350 Von Karman, Suite 200 Newport Beach, CA 92660
Email Address	
Phone Number	
*Note: If a corporation or LLC, provide information for principal partner or Agent for Service of Process. If an HOA, provide information for the Board or property manager at time of project closeout.	

City of Escondido Storm Water Structural BMP Verification Form Page 2 of 3				
Stormwater Structural Pollutant Control & Hydromodification Control BMPs* (List all from SWQMP)				
Description/Type of Structural BMP	**Plan Sheet #**	**Structural BMP ID#**	**Maintenance Agreement Recorded Doc #**	**Revisions**
BIOFILTRATION		BMP-A		
BIOFILTRATION		BMP-B		
TREE WELLS		BMP-C		
TREE WELLS		BMP-D		
*All Priority Development Projects (PDPs) require a Structural BMP				

Note: If this is a partial verification of Structural BMPs, provide a list and map denoting Structural BMPs that have already been submitted, those for this submission, and those anticipated in future submissions.

City of Escondido Storm Structural BMP Verification Form Page 3 of 3

Checklist for Engineer of Work (EOW) to submit to Field Engineering:

- ☐ Copy of the final accepted SWQMP and any accepted addendum.
- ☐ Copy of the most current plan showing the Storm Water Structural BMP Table, plans/cross-section sheets of the Structural BMPs and the location of each verified as-built Structural BMP.
- ☐ Photograph of each Structural BMP.
- ☐ Photograph(s) of each Structural BMP during the construction process to illustrate proper construction.
- ☐ Copy of the approved Structural BMP maintenance agreement and associated security

By signing below, I certify that the Structural BMP(s) for this project have been constructed and all BMPs are in substantial conformance with the approved plans and applicable regulations. I understand the City reserves the right to inspect the above BMPs to verify compliance with the approved plans and Storm Water Ordinance. Should it be determined that the BMPs were not constructed to plan or code, corrective actions may be necessary before permits can be closed.

Please sign your name and seal.

[SEAL]

Professional Engineer's Printed Name:

Robert D. Dentino

Professional Engineer's Signed Name:

Date: _____

ATTACHMENT 5

Copy of Plan Sheets Showing Permanent Storm Water BMPs, Source Control, and Site Design BMPs

This is the cover sheet for Attachment 5.

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 Step 5 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 City staff
- ☒ 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 must be provided. Photocopies of general brochures are not acceptable.
- ☒ Include all source control and site design measures described in Steps 3 and 4 of the SWQMP. Can be included as a separate exhibit as necessary.

***Note: Plan sheets included in this attachment can be full size or half size.**

SINGLE SHEET BMP PLAN

CLEVELAND RESIDENTIAL

WATER QUALITY BASIN INSTALLATION NOTES:

1. AN UNDERDRAIN CLEANOUT WITH A MINIMUM 6-INCH DIAMETER AND LOCKABLE CAP IS PLACED EVERY 250 TO 300FEET AS REQUIRED BASED ON UNDERDRAIN LENGTH.
2. VEGETATION USED SHOULD BE SUITABLE FOR THE CLIMATE PER LANDSCAPE PLANS
3. FILTER COARSE IS A MINIMUM OF 6 INCHES PROVIDED IN TWO SEPARATE 3 INCH LAYERS. THE TOP LAYER SHALL BE MADE OF ASTM C.33 CHOKER SAND AND THE BOTTOM LAYER BE OF ASTM NO. 8 AGGREGATE. MARKERS STAKES SHALL BE USED TO ENSURE UNIFORM LIFT THICKNESS.
4. AASHTO NO. 57 STONE OR CLASS 2 PERMEABLE PER CAL TRANS SPECIFICATION 68-2.02F(3) IS RECOMMENDED FOR THE AGGREGATE STORAGE LAYER. WASHED, OPEN-GRADED CRUSHED ROCK MAY BE USED, HOWEVER, A 4 INCH MINIMUM WASHED PEA GRAVEL FILTER COURSE LAYER AT THE TOP OF THE CRUSHED ROCK IS REQUIRED.
5. IMPERMEABLE LINER SHALL BE INSTALLED WHEN THE BIOFILTRATION BASIN IS WITHIN 10 FEET OF RETAINING WALLS OR BUILDING FOUNDATIONS, OR AS RECOMMENDED BY THE SOILS ENGINEER, OR REQUIRED BY THESE PLANS. IMPERMEABLE LINER SHALL BE 30 MIL THICK (PER COUNTY OF SAN DIEGO GREEN STREETS DESIGN STANDARD DRAWING GS-3.00 AND COUNTY GREEN STREETS SUPPLEMENT TO CAL TRANS SPECIFICATIONS 20-11.08B) CONFIGURED TO ENTIRELY ENCOMPASS THE SIDES OF THE WATER QUALITY BASIN.
6. IMPERMEABLE LINER BE CONSTRUCTED IN COMPLIANCE WITH THE COUNTY OF SAN DIEGO GREEN STREETS SUPPLEMENT TO CAL TRANS SPECIFICATIONS 20-11.08B.
7. BIOFILTRATION SOIL MEDIA LAYER (BSM) SHALL CONSIST OF 60% TO 80% BY VOLUME SAND, UP TO 20% BY VOLUME TOPSOIL, AND UP 20% BY VOLUME COMPOST (PER CITY OF ESCONDIDO BMP DESIGN MANUAL OCTOBER 2022 APPENDIX F.3 SECTION 803-2 BLENDED BSM CRITERIA AND TESTING REQUIREMENTS) PLACED IN 6" LIFTS AND COMPACTED WITH WATER PRIOR TO THE NEXT LIFT. INITIAL PERMEABILITY SHALL BE 8" PER HOUR (WITH ASSUMED STABILIZED PERMEABILITY OF 5" PER HOUR).
8. THE AGGREGATE STORAGE LAYER SHALL BE COMPACTED IN ACCORDANCE WITH SOILS ENGINEER'S RECOMMENDATIONS.
9. OVERFLOW STRUCTURE TO HAVE A MINIMUM OF 12 INCHES OF FREEBOARD.
10. ALL LINER INSTALLATIONS, FIELD WELDING OF SEAMS, AND OBSERVATION OF SOIL MIX PLACEMENT SHALL REQUIRE SPECIAL INSPECTION BY THE PROJECT GEOTECHNICAL ENGINEER OR OTHER QUALIFIED PERSON. A LETTER CERTIFYING PROPER INSTALLATION SHALL BE PROVIDED TO THE ENGINEER OF RECORD TO ACCEPTANCE OF THE FACILITIES.
11. SPECIAL INSPECTION SHALL BE REQUIRED FOR CONSTRUCTION OF ALL BIOFILTRATION BASINS. INSPECTION SHALL BE PERFORMED BY A QUALIFIED INDIVIDUAL (SUCH AS: ENGINEER OF RECORD, QSD). INSPECTION SHALL INCLUDE:
    - VERIFICATION OF OVERALL DIMENSIONS PRIOR TO PLACEMENT OF MATERIALS;
    - PLACEMENT OF THE LINER, IF REQUIRED; AND SEAMS OR PENETRATIONS
    - PLACEMENT OF THE GRAVEL, FILTER MATERIALS, AND FILTER MEDIA;
    - ALL INLET AND OUTLET STRUCTURES INCLUDING UNDERDRAINS, IF REQUIRED.
    - CONTRACTOR SHALL TAKE PICTURES AT EACH STAGE OF INSTALLATION AND SUBMITTED TO ENGINEER FOR VERIFICATION OF INSTALL.

    INSPECTOR SHALL BE GIVEN A MINIMUM OF 48 HOURS PRIOR TO INSPECTION. UPON COMPLETION THE INSPECTOR SHALL PROVIDE A CERTIFICATION TO THE ENGINEER OF WORK.
12. PROPOSED MATERIALS, SUCH AS AGGREGATE, FILTER MATERIAL, AND FILTER MEDIA SHALL BE SUBMITTED TO THE ENGINEER OF WORK FOR APPROVAL.

BMP NOTES:

1. THESE BMPS ARE MANDATORY TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS OR THESE PLANS.
2. NO CHANGES TO THE PROPOSED BMPS ON THIS SHEET WITHOUT PRIOR APPROVAL FROM THE CITY ENGINEER.
3. NO SUBSTITUTIONS TO THE MATERIAL OR TYPES OR PLANTING TYPES WITHOUT PRIOR APPROVAL FROM THE CITY ENGINEER.
4. NO OCCUPANCY WILL BE GRANTED UNTIL THE CITY INSPECTION STAFF HAS INSPECTED THIS PROJECT FOR APPROPRIATE BMP CONSTRUCTION AND INSTALLATION.
5. REFER TO MAINTENANCE AGREEMENT DOCUMENT.
6. SEE PROJECT SWMP FOR ADDITIONAL INFORMATION.

HYDROLOGICAL SOIL GROUP

THE HYDROLOGICAL SOIL GROUP FOR THIS SITE VARIES. BOTH TYPE A & C SOILS ARE PRESENT THROUGHOUT THE SITE.

NOTE:
NO GROUNDWATER ENCOUNTERED

SOURCE CONTROL BMPS

(1) SC-1 PREVENTION OF ILLIQIT DISCHARGES INTO THE MS4

USE A SUITE OF HOUSEKEEPING BMPS WHICH COULD INCLUDE EFFECTIVE IRRIGATION, DISPERSION OF NON-STORM WATER DISCHARGES INTO LANDSCAPING FOR INFILTRATION. NO VEHICLE WASHING WILL BE ALLOWED ONSITE.

(2) SC-2 STORM DRAIN STENCILING OR SIGNAGE

STENCILING SHALL BE PROVIDED FOR ALL STORM WATER CONVEYANCE SYSTEM INLETS AND CATCH BASINS WITHIN THE PROJECT AREA. INLET STENCILING MAY INCLUDE CONCRETE STAMPING, CONCRETE PAINTING, PLACARDS, OR OTHER METHODS APPROVED BY THE CITY.

(3) SC-6 ADDITIONAL BMPS BASED ON POTENTIAL SOURCES OF RUNOFF POLLUTANTS

A. LANDSCAPE/OUTDOOR PESTICIDE USE

- MAINTAIN LANDSCAPING USING MINIMUM OR NO PESTICIDES.
- SEE APPLICABLE OPERATIONAL BMPS IN FACT SHEET SC-41, "BUILDING AND GROUNDS MAINTENANCE," IN THE CASQA STORMWATER QUALITY HANDBOOKS AT WWW.CABMPHANDBOOKS.COM.
- PROVIDE IPM INFORMATION TO NEW OWNERS, LESSEES AND OPERATORS.

SITE DESIGN BMPS

(1) SD-3 PARKING AND DRIVING AISLES WERE DESIGN TO THE MINIMUM REQUIRED TO MINIMIZE IMPERVIOUS AREAS

(2) SD-6 RUNOFF COLLECTION WAS IMPLEMENTED TO MINIMIZE THE TRANSPORT OF RUNOFF AND POLLUTANTS TO THE MS4 AND RECEIVING WATERS.

(3) SD-7 DROUGHT TOLERANT PLANTS SPECIES ARE SELECTED FOR LANDSCAPING

POTENTIAL POLLUTANT SOURCE AREAS

(1) ON SITE STORM DRAINS

(2) LANDSCAPE/ OUTDOOR PESTICIDE USE

(3) PLAZAS, SIDEWALKS, AND PARKING LOTS

LEGEND

- PROPERTY LINE
- DRIVE AISLE/PARKING
- BIOFILTRATION BASIN
- POINT OF COMPLIANCE (POC)

PARTY RESPONSIBLE FOR MAINTENANCE:

NAME: THE TRUE LIFE COMPANIES
CONTACT: _____
ADDRESS: _____
_____

PLAN PREPARED BY:

NAME: ROBERT DENTINO
COMPANY: EXCEL ENGINEERING
ADDRESS: 440 STATE PL
ESCONDIDO, CA 92029
PHONE NO. 706.745.8188
CERTIFICATION: R.C.E. 45629

STRUCTURAL BMP SUMMARY TABLE

DMA ID	BMP ID:	TYPE OF BMP	EFFECTIVE AREA (SQFT)	A1 (INCH) RISER/ PONDING	A2 (INCH) TOP OF BASIN	A3 (INCH) CLEAN OUT	A4 (INCH) MAX WSEL	C (INCH) MEDIA	D (INCH) GRAVEL	E FEET	BOX RISER / OVERFLOW STRUCTURE SIZE (INCHES)	LOWER ORIFICE DIAMETER (INCH)	IMPERMEABLE LINER?
DMA-1	BMP-A	BIOFILTRATION	11,148	12	30	15	18	18	12	3	48X48	2.00	NO
DMA-2	BMP-B	BIOFILTRATION	1,960	12	30	15	18	18	12	3	36X36	0.75	YES

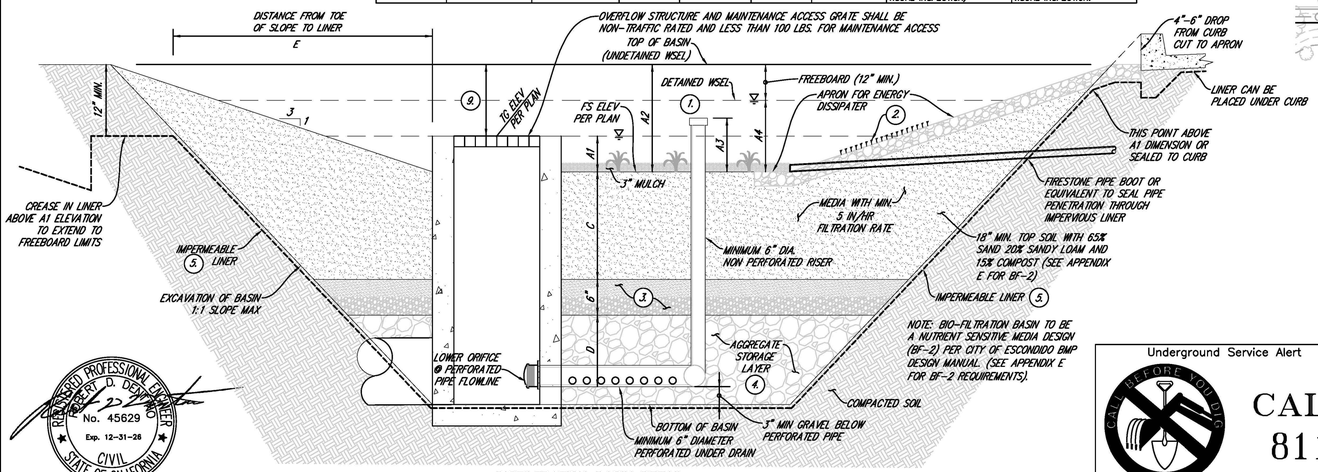
SITE BMP SUMMARY TABLE

DMA ID	BMP ID:	TYPE OF BMP	EFFECTIVE AREA (SQFT)	PONDING (IN)	MEDIA (IN)	SAND FILTER (IN)	NUMBER OF TREES	DIAMETER OF TREE (FT)	IMPERMEABLE LINER?
DMA-3	BMP-C	TREE WELL	251 (EA)	6	30	6	12	20	SIDEWALLS ONLY
DMA-4	BMP-D	TREE WELL	251 (EA)	6	30	6	3	20	SIDEWALLS ONLY

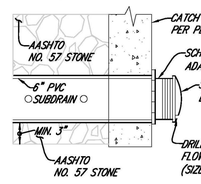
BMP TABLE

BMP #	BMP TYPE	SYMBOL	CASQA NO.	QUANTITY	DRAWING #	SHEET NO.(S)	INSPECTION FREQUENCY	MAINTENANCE FREQUENCY
HYDROMODIFICATION & TREATMENT CONTROL								
(1)	BIOFILTRATION AREA		TC-32	11,148 SF		5	30 DAYS PRIOR TO OCT. 1ST EACH YEAR AND WEEKLY DURING RAIN SEASON.	BI-MONTHLY (SEE ATTACHMENT 3 OF PROJECT SWQMP)
(2)	BIOFILTRATION AREA		TC-32	1,960 SF		5	30 DAYS PRIOR TO OCT. 1ST EACH YEAR AND WEEKLY DURING RAIN SEASON.	BI-MONTHLY (SEE ATTACHMENT 3 OF PROJECT SWQMP)
(3)	TREE WELLS			251 SF EACH X 15 TREES		5	30 DAYS PRIOR TO OCT. 1ST EACH YEAR AND WEEKLY DURING RAIN SEASON.	BI-MONTHLY (SEE ATTACHMENT 3 OF PROJECT SWQMP)
SOURCE CONTROL								
(2)	INLET STENCILING	NO DUMPING DRAINS TO OCEAN	SD-13	2 EA.		5	SEMI ANNUALLY VISUAL INSPECTION	SEMI ANNUALLY, REPAIR DONE 30 DAYS PRIOR TO OCTOBER 1ST EACH YEAR AND FREQUENCY WILL VARY ACCORDING TO USAGE AND VISUAL INSPECTION
(4)	SWEEPING	N/A	SC-43	TYP.		5	30 DAYS PRIOR TO OCT. 1ST EACH YEAR. INSPECTION AND FREQUENCY WILL VARY ACCORDING TO USAGE AND VISUAL INSPECTION.	30 DAYS PRIOR TO OCT. 1ST EACH YEAR. INSPECTION AND FREQUENCY WILL VARY ACCORDING TO USAGE AND VISUAL INSPECTION.





BIOFILTRATION BASIN DETAIL
NOT TO SCALE



ORIFICE DETAIL
NOT TO SCALE



6" PVC PIPE PERFORATION LAYOUT DETAIL
NOT TO SCALE

NO DUMPING! (NO CONTAINING) DRAINS TO WATERWAYS

DETAIL
"NO DUMPING" AT CATCH BASINS

NOTE: ALL CATCH BASINS WITH GRATES SHALL BE STENCILED WITH CITY REQUIRED ITEM PER ABOVE DETAIL:

(DAS MANUFACTURING #SDO OR EQUIVALENT)

PERMANENT WATER QUALITY TREATMENT FACILITY

KEEPING OUR WATER WAYS CLEAN
MAINTAIN WITH CARE – NO MODIFICATIONS WITHOUT AGENCY APPROVAL

DETAIL
WATER QUALITY SIGN- PLACED AT EACH BIOFILTRATION BASIN

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

REGISTERED PROFESSIONAL ENGINEER
ROBERT D. DENTINO
No. 45629
Exp. 12-31-26
CIVIL
STATE OF CALIFORNIA

Underground Service Alert
CALL BEFORE YOU DIG
CALL 811
TWO WORKING DAYS BEFORE YOU DIG

EXCEL ENGINEERING
LAND PLANNING • ENGINEERING • SURVEYING
440 STATE PLACE, ESCONDIDO, CA 92029
PH (760)745-8118 FX (760)745-1890

ESCONDIDO City of Choice

SCALE	Designed By	Drawn By	Checked By
Horizontal			KW
Vertical	Plans Prepared Under Supervision Of: ROBERT D. DENTINO	Date: Nov 19, 2025	R.C.E. No. 45629

CLEVELAND AVE RESIDENTIAL SUBDIVISION

WQMP BMP SHEET:
CLEVELAND AVE APN: 224-151-51-00

Drawing No.

Sheet 8 of 8