

City of Escondido

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

STONEPOINTE DR. - VACANT LOT
[INSERT PROJECT ID/GRADING PERMIT NUMBER(S)]

STONEPOINTE DR. - VACANT LOT
ESCONDIDO, CA 92025

ASSESSOR'S PARCEL NUMBER(S):
272-690-06

ENGINEER OF WORK:

JOHN A. VAN RYN C80667

PREPARED FOR:
DAVID HENSEL

21492 Harmony Village Dr.
Escondido, CA 92029

PDP SWQMP PREPARED BY:
Van Ryn Engineering
16766 Bernardo Center Drive
San Diego, CA 92128

DATE OF SWQMP:
06/30/2025

PLANS PREPARED BY:

Van Ryn Engineering
16766 Bernardo Center Drive
San Diego, CA 92128

SWQMP APPROVED BY:
[FOR CITY STAFF ONLY]

APPROVAL DATE:
[APPROVAL DATE]



PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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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
 - Attachment 2a: Flow Control Facility Design
 - Attachment 2b: Hydromodification Management Exhibit
 - 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

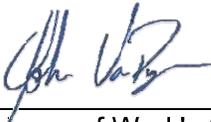
Project Name: STONEPOINTE DR. - VACANT LOT

Permit Number: _____

PREPARER'S CERTIFICATION

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



C80667, EXP: 03-31-27

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

JOHN VAN RYN

Print Name

VAN RYN ENGINEERING

Company

06/30/2025

Date

Engineer's Seal:

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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		Initial Submittal
2		
3		
4		

Final Design

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

Plan Changes

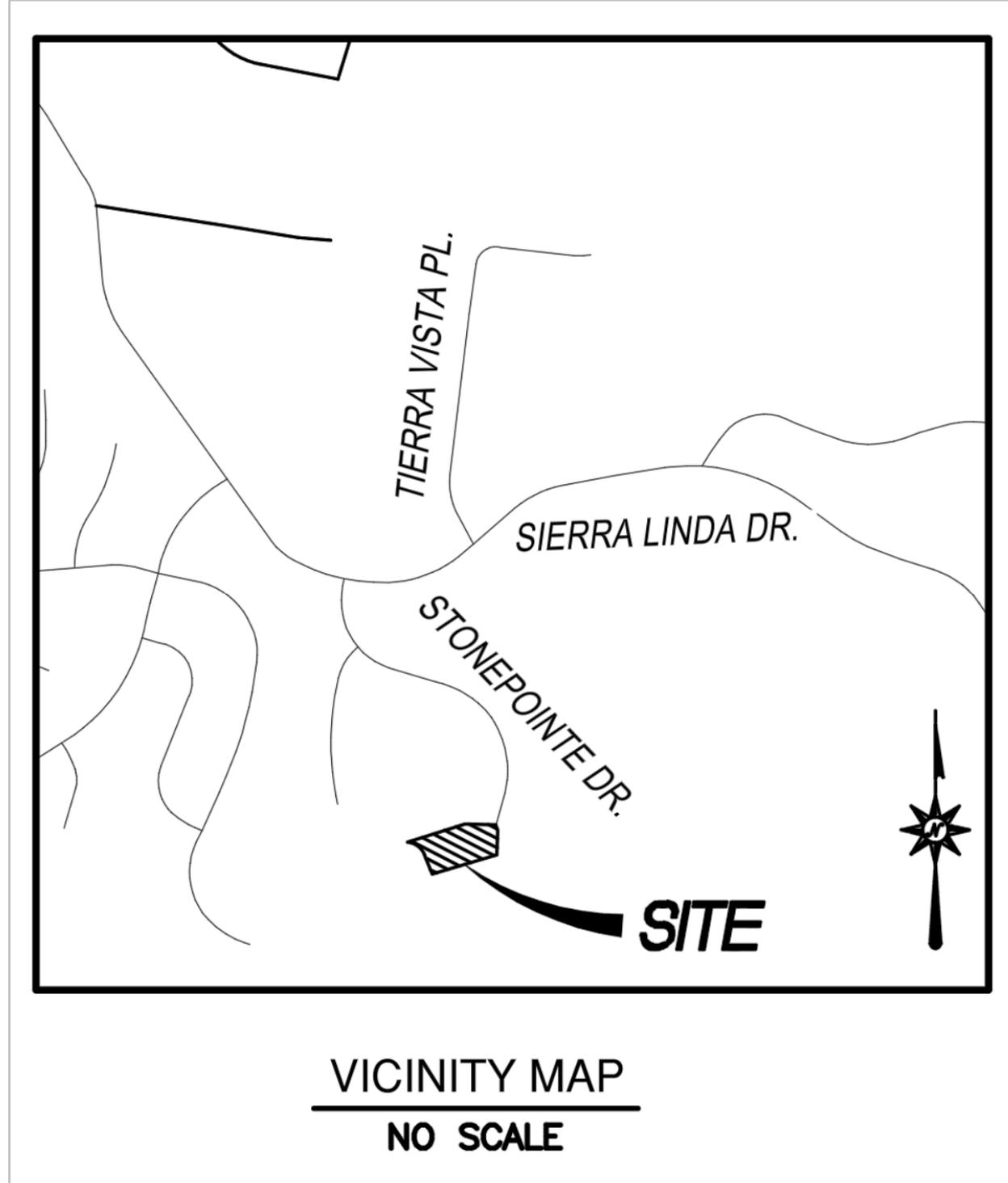
Submittal Number	Date	Summary of Changes
1		Initial Submittal
2		
3		
4		

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

PROJECT VICINITY MAP

Project Name: STONEPOINTE DR. - VACANT LOT

Permit Number: _____



PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 1: Project type determination

Site Information Checklist for PDPs		Form I-2a
Project Summary Information		
Project Name	STONEPOINTE DR. - VACANT LOT	
Project Address	(Vacant Lot) Stonepointe Dr., Escondido, CA 92025	
Assessor's Parcel Number(s)	272-690-06	
Permit Number		
Project Watershed (Hydrologic Unit)	Select One: <input type="checkbox"/> Carlsbad 904 <input checked="" type="checkbox"/> San Dieguito 905	
Parcel Area (total area of Assessor's Parcel(s) associated with the project)	1.516 Acres (66,029 Square Feet)	
Area to be disturbed by the project (Project Area)	0.628 Acres (27,377 Square Feet)	
Project Proposed Impervious Area (subset of Project Area)	0.20 Acres (8,556 Square Feet)	
Project Proposed Pervious Area (subset of Project Area)	0.43 Acres (18,821 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 <i>in its entirety</i> .	<input type="checkbox"/> Standard Project	<u>Standard Project</u> requirements apply. Complete Form I-1.
	<input checked="" type="checkbox"/> PDP	<u>Standard and PDP</u> requirements apply, including <u>PDP SWQMP</u> . SWQMP Required.
	<input type="checkbox"/> PDP with ACP	If participating in offsite alternative compliance, complete Step 5.1 (Offsite Alternative Compliance Participation Form) and an ACP SWQMP.
	<input type="checkbox"/> PDP Exemption	Go to Step 1.2 below.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 1.2: Exemption to PDP definitions

Site Information Checklist for PDPs		Form I-2a
<p>Is the project exempt from PDP definitions based on either of the following:</p> <p><input type="checkbox"/> Projects that are only new or retrofit paved sidewalks, bicycle lanes, or trails that meet the following criteria:</p> <ul style="list-style-type: none"> (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; 	<p>If so:</p> <p><u>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.</u></p>	
<p><input type="checkbox"/> 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;</p>	<p>PDP Exempt.</p>	
<p>Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:</p>		
<p> </p>		

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 1.3: Confirmation of PDP Determination

Site Information Checklist for PDPs		Form I-2a
The project is (select one): <input checked="" type="checkbox"/> New Development <input type="checkbox"/> Redevelopment ¹		
The total proposed newly created or replaced impervious area is: <u>8556</u> _____ ft ²		
The project meets the following categories, (a) through (f): [select all that apply]		
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	(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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>	(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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	(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). <i>Information and an SIC search function are available at www.osha.gov/pls/imis/sicsearch.html.</i> (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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>	(d) New or redevelopment projects that create and/or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharging directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands). <i>Note: ESAs are areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Board and San Diego Water Board; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and San Diego Water Board; and any</i>

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.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Site Information Checklist for PDPs			Form I-2a
			<p><i>other equivalent environmentally sensitive areas which have been identified by the Copermittees.</i></p> <p><i>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.</i></p>
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	(e)	<p>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:</p> <p>(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. <i>Information and an SIC search function are available at www.osha.gov/pls/imis/sicsearch.html.</i></p> <p>(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.</p>
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	(f)	<p>New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction.</p> <p>Note: See Storm Water Design Manual Section 1.4.2 for additional guidance.</p>
The following is for redevelopment PDPs only:			
The area of existing (pre-project) impervious area at the project site is:		A	<u>845</u> ft ²
The total proposed newly created or replaced impervious area is:		B	<u>8556</u> ft ²
Percent impervious surface created or replaced:		(B/A)*100	<u>1012</u> %
<p>The percent impervious surface created or replaced is (select one based on the above calculation):</p> <p><input type="checkbox"/> less than or equal to fifty percent (50%) – only newly created or replaced impervious areas are considered a PDP and subject to stormwater requirements</p> <p>OR</p> <p><input checked="" type="checkbox"/> greater than fifty percent (50%) – the entire project site is considered a PDP and subject to stormwater requirements</p>			

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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
<p>Current Status of the Site (select all that apply):</p> <p><input type="checkbox"/> Existing development</p> <p><input checked="" type="checkbox"/> Previously graded but not built out</p> <p><input type="checkbox"/> Demolition completed without new construction</p> <p><input type="checkbox"/> Agricultural or other non-impervious use</p> <p><input type="checkbox"/> Vacant, undeveloped/natural</p> <p>Description / Additional Information:</p>	
<p>Existing Land Cover Includes (select all that apply and provide each area on site):</p> <p><input checked="" type="checkbox"/> Vegetative Cover <u>1.50</u> Acres (<u>65,184</u> Square Feet)</p> <p><input type="checkbox"/> Non-Vegetated Pervious Areas <u>0</u> Acres (<u>0</u> Square Feet)</p> <p><input checked="" type="checkbox"/> Impervious Areas <u>0.019</u> Acres (<u>845</u> Square Feet)</p> <p>Description / Additional Information:</p>	
<p>Underlying Soil belongs to Hydrologic Soil Group (select all that apply):</p> <p><input type="checkbox"/> NRCS Type A</p> <p><input type="checkbox"/> NRCS Type B</p> <p><input type="checkbox"/> NRCS Type C</p> <p><input checked="" type="checkbox"/> NRCS Type D</p>	
<p>Approximate Depth to Groundwater (GW) (or N/A for no infiltration BMPs):</p> <p><input type="checkbox"/> Groundwater Depth < 5 feet</p> <p><input type="checkbox"/> 5 feet < Groundwater Depth < 10 feet</p> <p><input type="checkbox"/> 10 feet < Groundwater Depth < 20 feet</p> <p><input checked="" type="checkbox"/> Groundwater Depth > 20 feet</p>	
<p>Existing Natural Hydrologic Features (select all that apply):</p> <p><input type="checkbox"/> Watercourses</p> <p><input type="checkbox"/> Seeps</p> <p><input type="checkbox"/> Springs</p> <p><input type="checkbox"/> Wetlands</p> <p><input checked="" type="checkbox"/> None</p> <p><input type="checkbox"/> Other</p> <p>Description / Additional Information:</p>	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 2.2: Description of Existing Site Drainage Patterns

Site Information Checklist for PDPs	Form I-2a
<p>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:</p>	
<p>The existing site has a high point centrally located on the northern end. Storm water runoff flows away from this high point both to the east and west. Runoff flowing east will travel through the existing PCC swale on to the curb and gutter of Stonepointe Drive, where it will be conveyed away from the site. Runoff to the west will follow natural landscape and travel south-west through existing natural drainage channels. No off-site storm water is conveyed through the site.</p>	

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Step 2.3: Description of Proposed Site Development

Site Information Checklist for PDPs		Form I-2a	
Project Description / Proposed Land Use and/or Activities:			
Grading for driveway and pad for new single family residence. Driveway is to be mainly concrete with a portion of previous pavers.			
List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):			
New single family residence, PCC portion of new driveway.			
List/describe proposed pervious features of the project (e.g., landscape areas):			
Pervious pavers located at the top of the new driveway, landscape area, bio-filtration basins.			
Does the project include grading and changes to site topography? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Description / Additional Information:			
Grading is proposed for the new driveway connecting the residence to stonepointe drive. Grading for the pad and yard area of new residence.			
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	65,184	54,338	17.7%
Pervious (non-vegetated)	0	2470	%
Impervious	845	9,221	991%
<i>total</i>	66029	66029	Sum Existing must equal Sum Proposed

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 2.4: Description of Proposed Site Drainage Patterns

Site Information Checklist for PDPs	Form I-2a
<p>Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If yes, provide details regarding the proposed project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels, and the method for conveying offsite flows through or around the proposed project site. Identify all discharge locations from the proposed project site along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide a summary of pre- and post-project drainage areas and design flows to each of the runoff discharge locations. Reference the drainage study for detailed calculations.</p> <p>Describe proposed site drainage patterns:</p>	
<p>The overall site drainage pattern is similar in the proposed condition with the same two main points where storm water leaves the site as the existing condition. The proposed condition differs because of the treatment of new impervious surfaces with two bio-filtration basins. Basin "BF-1" is located near the south-east corner of the proposed residence and is used to treat all of the runoff from the residence and yard area runoff which is collected through the PVC area drains around the building. Runoff generated from the proposed PCC driveway will be directed to basin "BF-2" which is located near Stonepointe Drive. See the Drainage Study for detailed storm water runoff calculations.</p>	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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):			
Storm water that leaves the site will make its way to the undeveloped hillside which directs the runoff directly into the San Dieguito River where it soon joins Lake Hodges.			
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	
Lake Hodges	Color	TMDL Required	
Lake Hodges	Manganese	TMDL Required	
Lake Hodges	Mercury	TMDL Required	
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	X		
Nutrients	X		
Heavy Metals	X		
Organic Compounds	X		
Trash & Debris	X		
Oxygen Demanding Substances	X		
Oil & Grease	X		
Bacteria & Viruses	X		
Pesticides	X		

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Step 2.7: Hydromodification Management Requirements

Site Information Checklist for PDPs	Form I-2a
<p>Do hydromodification management requirements apply (see Section 1.6 of the Storm Water Design Manual)?</p> <p><input type="checkbox"/> Yes, hydromodification management requirements for flow control and preservation of critical coarse sediment yield areas are applicable.</p> <p><input type="checkbox"/> 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.</p> <p><input checked="" type="checkbox"/> 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.</p> <p><input type="checkbox"/> 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.</p> <p><i>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.</i></p>	
<p>Description / Additional Information (to be provided if a 'No' answer has been selected above):</p>	
<p>All runoff from proposed impervious surfaces will be routed to the curb of Stonepointe Drive, where it is conveyed away from the site.</p>	
<p>HMP Exemption Exhibit</p>	
<p>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.</p> <p>Reference applicable drawing number(s).</p>	
Empty space for drawing numbers	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 2.7.1: Critical Coarse Sediment Yield Areas

Site Information Checklist for PDPs	Form I-2a
<input type="checkbox"/> N/A - This Section only required if hydromodification management requirements apply	
<p>Based on the maps provided within the WMAA, do potential critical coarse sediment yield areas exist within the project drainage boundaries?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input checked="" type="checkbox"/> No, no critical coarse sediment yield areas to be protected based on WMAA maps</p> <p>If yes, have any of the optional analyses presented in Appendix H of the manual been performed?</p> <p><input type="checkbox"/> H.6.1 Site-Specific GLU Analysis</p> <p><input type="checkbox"/> H.7 Downstream Systems Sensitivity to Coarse Sediment</p> <ul style="list-style-type: none"> <input type="checkbox"/> H.7.1 Depositional Analysis, <input type="checkbox"/> H.7.2 Threshold Channel Analysis, or <input type="checkbox"/> H.7.3 Course Sediment Source Area Verification Analysis <p><input checked="" type="checkbox"/> No optional analyses performed, the project will avoid critical coarse sediment yield areas identified based on WMAA maps</p> <p>If optional analyses were performed, what is the final result?</p> <p><input type="checkbox"/> No critical coarse sediment yield areas to be protected based on verification of GLUs onsite.</p> <p><input checked="" type="checkbox"/> Critical coarse sediment yield areas exist but additional analysis has determined that protection is not required. Documentation attached in Attachment 8 of the SWQMP.</p> <p><input type="checkbox"/> 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.</p>	
<p>Discussion / Additional Information:</p> <p>As seen on the CCSYA exhibit, there is a small Critical Course Sediment Yield Area that exists on the south-west portion of the site. This CCYSA exists outside of the drainage boundary containing the proposed disturbed areas. This means that no additional drainage will run through this CCYSA as a result of the proposed conditions. Therefore, no protection is required.</p>	

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Step 2.7.2: Flow Control for Post-Project Runoff

Site Information Checklist for PDPs	Form I-2a
<input type="checkbox"/> N/A - This Section only required if hydromodification management requirements apply	
<p>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.</p>	
<p>The site has two main points of compliance. "POC-1" is located on the eastern side of the site where runoff joins Stonepoint Drive. "POC-2" is located on the south-western side of the site where runoff flows down the existing vegetated surface, and leaves the site.</p>	
<p>Has a geomorphic assessment been performed for the receiving channel(s)?</p> <p><input checked="" type="checkbox"/> No, the low flow threshold is 0.1Q2 (default low flow threshold)</p> <p><input type="checkbox"/> Yes, the result is the low flow threshold is 0.1Q2</p> <p><input type="checkbox"/> Yes, the result is the low flow threshold is 0.3Q2</p> <p><input type="checkbox"/> Yes, the result is the low flow threshold is 0.5Q2</p> <p>If a geomorphic assessment has been performed, provide title, date, and preparer:</p>	
<p> </p>	
<p>Discussion / Additional Information: (optional)</p> <p> </p>	
<p>Select method used to determine low flow threshold:</p> <p><input type="checkbox"/> Sizing Factor Method</p> <p><input type="checkbox"/> US Geological Survey (USGS) Equation</p> <p><input checked="" type="checkbox"/> Continuous Simulation Modeling</p>	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 2.8: Other Site Requirements and Constraints

Site Information Checklist for PDPs	Form I-2a
<p>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.</p>	
Optional Additional Information or Continuation of Previous Sections As Needed	
<p>This space provided for additional information or continuation of information from previous sections as needed.</p>	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 3: Source Control BMP Checklist

Source Control BMP Checklist for PDPs		Form I-2b		
<p>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.</p> <p>Answer each category below pursuant to the following:</p> <ul style="list-style-type: none"> • "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		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if 4.2.1 not implemented:				
4.2.2 Storm Drain Stenciling or Signage		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> 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		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if 4.2.3 not implemented:				
4.2.4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if 4.2.4 not implemented:				
4.2.5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if 4.2.5 not implemented:				

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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):			
<input checked="" type="checkbox"/> Onsite storm drain inlets	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Interior floor drains and elevator shaft sump pumps	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Interior parking garages	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Need for future indoor & structural pest control	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input checked="" type="checkbox"/> Landscape/outdoor pesticide use	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Pools, spas, ponds, decorative fountains, and other water features	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Food service	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Refuse areas	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Industrial processes	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input checked="" type="checkbox"/> Outdoor storage of equipment or materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Vehicle and equipment cleaning	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Vehicle/equipment repair and maintenance	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Fuel dispensing areas	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Loading docks	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input checked="" type="checkbox"/> Fire sprinkler test water	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Miscellaneous drain or wash water	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Plazas, sidewalks, and parking lots	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> 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.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 4: Site Design BMP Checklist

Site Design BMP Checklist for PDPs		Form I-2c		
<p>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.</p> <p>Answer each category below pursuant to the following.</p> <ul style="list-style-type: none"> • "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		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> 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?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
1-2 Are trees implemented? If yes, are they shown on the site map?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
1-3 Implemented trees meet the design criteria in 4.3.1 Fact Sheet (e.g. soil volume, maximum credit, etc.)?		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
1-4 Is tree credit volume calculated using Appendix B.2.2.1 and SD-1 Fact Sheet in Appendix E?		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
4.3.2 Conserve Natural Areas, Soils, and Vegetation		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if 4.3.2 not implemented:				
4.3.3 Minimize Impervious Area		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if 4.3.3 not implemented:				
4.3.4 Minimize Soil Compaction		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if 4.3.4 not implemented:				

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Form I-2c Page 2 of 2			
Site Design Requirement	Applied?		
4.3.5 Impervious Area Dispersion	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if 4.3.5 not implemented:			
5-1 Is the pervious area receiving runoff from impervious area identified on the site map?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> 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.)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> 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?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
4.3.6 Runoff Collection	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if 4.3.6 not implemented:			
Runoff is being treated by the two proposed Bio-filtration basins.			
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?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> 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?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> 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?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> 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?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
4.3.7 Landscaping with Native or Drought Tolerant Species	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if 4.3.7 not implemented:			
4.3.8 Harvesting and Using Precipitation	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Discussion / justification if 4.3.8 not implemented:			
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?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> 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?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> 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.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 5: Summary of Structural BMPs

Summary of Structural BMPs	Form I-3
PDP Structural BMPs	
<p>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).</p>	
<p>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).</p>	
<p>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).</p>	
<p>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.</p>	
<p>The proposed condition differs because of the treatment of new impervious surfaces with two bio-filtration basins (structural BMPs). Basin "BF-1" is located near the south-east corner of the proposed residence and is used to treat all of the runoff from the residence and yard area runoff which is collected through the PVC area drains around the building. Runoff generated from the proposed PCC driveway will be directed to basin "BF-2" which is located near Stonepointe Drive. Pollutant control and flow control BMPs are integrated. See the Drainage Study for detailed storm water runoff calculations.</p> <p>(Continue on page 2 as necessary.)</p>	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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)

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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. BF-1	
Construction Plan Sheet No. 2	
Type of structural BMP: <input type="checkbox"/> Retention by harvest and use (HU-1) <input type="checkbox"/> Retention by infiltration basin (INF-1) <input type="checkbox"/> Retention by bioretention (INF-2) <input type="checkbox"/> Retention by permeable pavement (INF-3) <input type="checkbox"/> Retention by dry wells (INF-4) <input type="checkbox"/> Partial retention by biofiltration with partial retention (PR-1) <input checked="" type="checkbox"/> Biofiltration (BF-1) <input type="checkbox"/> Biofiltration with Nutrient Sensitive Media Design (BF-2) <input type="checkbox"/> Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F <input type="checkbox"/> Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) <input type="checkbox"/> 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) <input type="checkbox"/> Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) <input type="checkbox"/> Detention pond or vault for hydromodification management <input type="checkbox"/> Other (describe in discussion section below)	
Purpose: <input type="checkbox"/> Pollutant control only <input type="checkbox"/> Hydromodification control only <input checked="" type="checkbox"/> Combined pollutant control and hydromodification control <input type="checkbox"/> Pre-treatment/forebay for another structural BMP <input type="checkbox"/> 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)	John Van Ryn - john@vanryneng.com
Who will be the final owner of this BMP?	<input type="checkbox"/> HOA <input checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
Who will maintain this BMP into perpetuity?	<input type="checkbox"/> HOA <input type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
Discussion (as needed):	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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. BF-2	
Construction Plan Sheet No. 2	
Type of structural BMP: <input type="checkbox"/> Retention by harvest and use (HU-1) <input type="checkbox"/> Retention by infiltration basin (INF-1) <input type="checkbox"/> Retention by bioretention (INF-2) <input type="checkbox"/> Retention by permeable pavement (INF-3) <input type="checkbox"/> Retention by dry wells (INF-4) <input type="checkbox"/> Partial retention by biofiltration with partial retention (PR-1) <input checked="" type="checkbox"/> Biofiltration (BF-1) <input type="checkbox"/> Biofiltration with Nutrient Sensitive Media Design (BF-2) <input type="checkbox"/> Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F <input type="checkbox"/> Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) <input type="checkbox"/> 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) <input type="checkbox"/> Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) <input type="checkbox"/> Detention pond or vault for hydromodification management <input type="checkbox"/> Other (describe in discussion section below)	
Purpose: <input type="checkbox"/> Pollutant control only <input type="checkbox"/> Hydromodification control only <input checked="" type="checkbox"/> Combined pollutant control and hydromodification control <input type="checkbox"/> Pre-treatment/forebay for another structural BMP <input type="checkbox"/> 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)	John Van Ryn - john@vanryneng.com
Who will be the final owner of this BMP?	<input type="checkbox"/> HOA <input checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
Who will maintain this BMP into perpetuity?	<input type="checkbox"/> HOA <input type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
Discussion (as needed):	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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? <input type="checkbox"/> Yes <input type="checkbox"/> No	Will your ACP project be completed prior to the completion of the PDP? <input type="checkbox"/> Yes <input type="checkbox"/> No
Does your ACP account for all Deficits generated by the PDP? <input type="checkbox"/> Yes <input type="checkbox"/> 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) _____

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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	<p>Storm Water Pollutant Control Worksheet Calculations</p> <ul style="list-style-type: none"> -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) 	<ul style="list-style-type: none"> <input type="checkbox"/> Worksheet B.1 (Optional) <input checked="" type="checkbox"/> Worksheet B.2-1 (Required) <input checked="" type="checkbox"/> Worksheet B.3-1 (Required) <input type="checkbox"/> Worksheet B.4-1 (if applicable) <input type="checkbox"/> Worksheet B.5-1 (if applicable) <input type="checkbox"/> Worksheet B.5-2 (if applicable) <input type="checkbox"/> Worksheet B.5-3 (if applicable) <input type="checkbox"/> Worksheet B.5-4 (if applicable) <input type="checkbox"/> Worksheet B.5-5 (if applicable) <input type="checkbox"/> Worksheet B.5-6 (if applicable) <input type="checkbox"/> Worksheet B.5-7 (if applicable) <input type="checkbox"/> Worksheet B.6-1 (if applicable) <input type="checkbox"/> Form I-10 (if applicable) <input type="checkbox"/> Summary Worksheet (optional)
Attachment 1b	<p>-Worksheet C.4-1 (Form I-8A), Categorization of Infiltration Feasibility Condition Based on Geotechnical Conditions</p> <p>-Worksheet C.4-2 (Form I-8B), Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions</p> <p>(Required unless the project will use harvest and use BMPs, or an Infiltration Feasibility Condition Letter is submitted)</p> <p>Refer to Appendices C and D of the Storm Water Design Manual to complete Form I-8.</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Included <input type="checkbox"/> Not included because the entire project will use harvest and use BMPs <input type="checkbox"/> Not included because an Infiltration Feasibility Condition Letter is submitted
Attachment 1c	<p>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)</p> <p>Refer to Appendices C and D of the Storm Water Design Manual to complete Form I-9.</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Included <input type="checkbox"/> Not included because the entire project will use harvest and use BMPs <input type="checkbox"/> Not included because an Infiltration Feasibility Condition Letter is submitted
Attachment 1d	<p>DMA Exhibit (Required)</p> <p>See DMA Exhibit Checklist on the back of this Attachment cover sheet.</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Included
Attachment 1e	<p>Individual Structural BMP DMA Mapbook (Required)</p> <ul style="list-style-type: none"> -Place each map on 8.5"x11" paper. -Show at a minimum the DMA, Structural BMP, and any existing hydrologic features within the DMA. 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Included

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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

DMA-1 BMP SIZE

AREA NAME	AREA (SF)	POST-PROJECT SURFACE TYPE	SURFACE RUNOFF FACTOR	ADJUSTMENT FACTOR	AREA X ADJUSTED RUNOFF (SF)
A1-1	4,284	PROPOSED RESIDENCE	0.9	0.77	2,969
A1-2	7,749	LANDSCAPE/GRADING AREA	0.3	1.0	2,324
A1-3	202	BMP (BF-1)	0.3	1.0	61
TOTAL					5354

DMA-2 BMP SIZE

AREA NAME	AREA (SF)	POST-PROJECT SURFACE TYPE	SURFACE RUNOFF FACTOR	ADJUSTMENT FACTOR	AREA X ADJUSTED RUNOFF (SF)
A2-1	3,560	PCC-DRIVEWAY	0.9	0.77	2,467
A2-2	2,470	PERVIOUS PAVERS-DRIVEWAY	0.3	1.0	741
A2-3	1,018	GRADING/LANDSCAPE AREA	0.3	1.0	305
A2-4	285	BMP (BF-2)	0.3	1.0	86
TOTAL					3,599

DMA-1 DCV CALCULATIONS

TOTAL DMA SIZE = 12,235 SF
 ADJUSTED RUNOFF FACTOR = 0.54
 85TH % RAINFALL DEPTH = 0.75 INCHES
 DCV = 390 CU FT

DMA-2 DCV CALCULATIONS

TOTAL DMA SIZE = 7,333 SF
 ADJUSTED RUNOFF FACTOR = 0.62
 85TH % RAINFALL DEPTH = 0.75 INCHES
 DCV = 238 CU FT

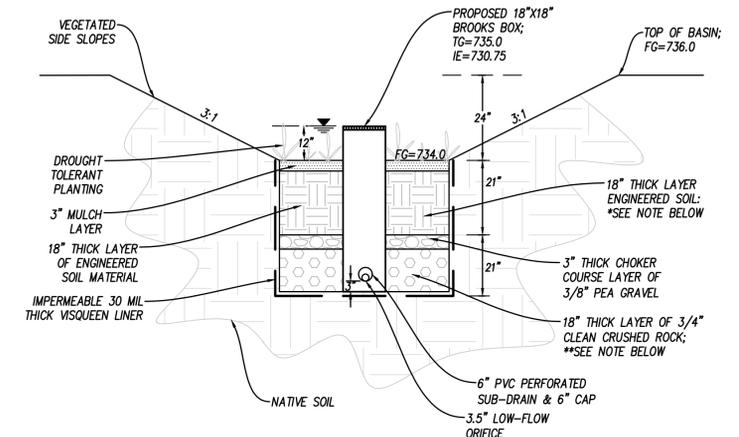
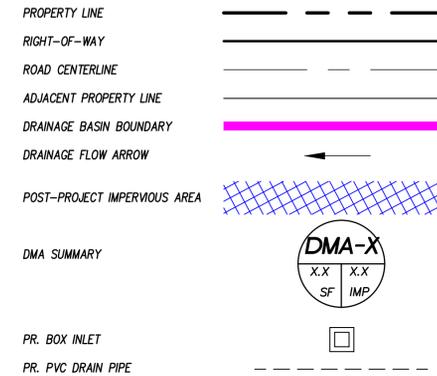
AREA CALCULATIONS

TOTAL AREA 65,103 S.F (1.49 AC)
 PERVIOUS AREA 56,547 S.F (1.29 AC)
 IMPERVIOUS AREA 8,556 S.F (0.20 AC)
 % IMP 13.14%

HYDROLOGIC SOIL GROUP

SOIL GROUP: D

LEGEND

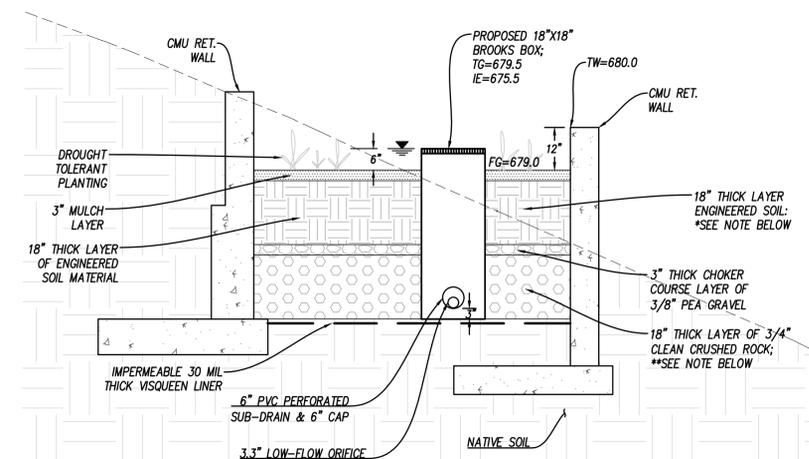


FINISHED GRADE OF BASIN SHALL BE LESS THAN OR EQUAL TO 2%

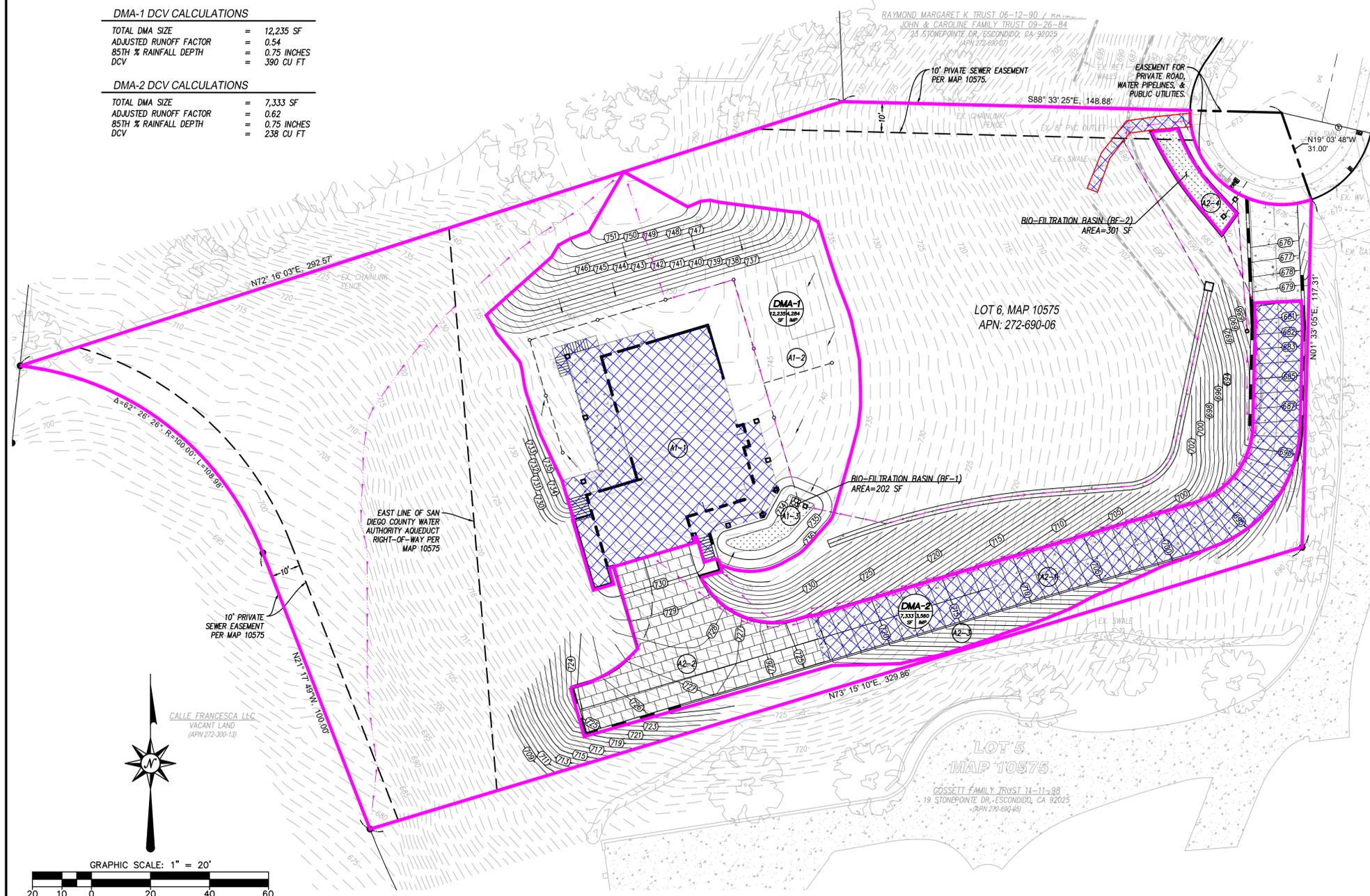
ENGINEERED SOIL LAYER SHALL BE MINIMUM 18" DEEP "SANDY LOAM" SOIL MIX WITH 20% SANDY LOAM (SAND, SILT, & CLAY) CONTENT. THE MIX SHALL CONTAIN 65% SAND, AND 15% COMPOST OR HARDWOOD MULCH. BSM SHOULD ACHIEVE LONG-TERM, IN-PLACE INFILTRATION RATE OF 5 INCHES PER HOUR, ACCORDING TO THE COUNTY OF SAN DIEGO 2012 STANDARD URBAN STORMWATER MITIGATION PLAN (SUSMP) REQUIREMENTS. POLLUTANT CONTROL TREATMENT PERFORMANCE STANDARDS IN SECTION F.1.1 FROM THE SAN DIEGO COUNTY LID HANDBOOK MUST BE MET

**3/4" CRUSHED ROCK LAYER SHALL BE A MINIMUM OF 12" BUT MAY BE DEEPENED TO INCREASE THE INFILTRATION AND STORAGE ABILITY OF THE DETAIL.

BIOFILTRATION BASIN (BF-1) - TYPICAL DETAIL
 NOT TO SCALE

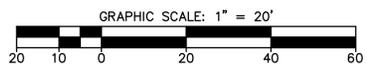


BIOFILTRATION BASIN (BF-2) - TYPICAL DETAIL
 NOT TO SCALE



SWQMP DMA & HYDROMODIFICATION MAP

STONEPOINTE DR. - VACANT LOT
 ESCONDIDO, CA 92025
 NUMBER: J-2454
 SCALE: 1" = 20'



PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Worksheet B.2-1. BMP Design Capture Volume

Design Capture Volume		Worksheet B-2.1		
1	85 th percentile 24-hr storm depth from Figure B.1-1	d=	0.75	inches
2	Area tributary to BMP (s)	A=	0.449	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.51	unitless
4	Tree well volume reduction	TCV=	NA	cubic-feet
5	Rain barrels volume reduction	RCV=	NA	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	628	cubic-feet

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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

Harvest and Use Feasibility Checklist		Worksheet B.3-1
<p>1. Is there a demand for harvested water (check all that apply) at the project site that is reliably present during the wet season?</p> <p><input type="checkbox"/> Toilet and urinal flushing</p> <p><input type="checkbox"/> Landscape irrigation</p> <p><input type="checkbox"/> Other: _____</p>		
<p>2. If there is a demand; estimate the anticipated average wet season demand over a period of 36 hours. Guidance for planning level demand calculations for toilet/urinal flushing and landscape irrigation is provided in Section B.3.2.</p>		
<p>3. Calculate the DCV using worksheet B-2.1.</p> <p>628 cubic-feet</p>		
<p>3a. Is the 36-hour demand greater than or equal to the DCV?</p> <p>Yes / No ⇒</p> <p>↓</p>	<p>3b. Is the 36-hour demand greater than 0.25DCV but less than the full DCV?</p> <p>Yes / No ⇒</p> <p>↓</p>	<p>3c. Is the 36-hour demand less than 0.25DCV?</p> <p>Yes</p> <p>↓</p>
<p>Harvest and use appears to be feasible. Conduct more detailed evaluation and sizing calculations to confirm that DCV can be used at an adequate rate to meet drawdown criteria.</p>	<p>Harvest and use may be feasible. Conduct more detailed evaluation and sizing calculations to determine feasibility. Harvest and use may only be able to be used for a portion of the site, or (optionally) the storage may need to be upsized to meet long term capture targets while draining in longer than 36 hours.</p>	<p>Harvest and use is considered to be infeasible.</p>

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.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Worksheet B.4-1: Simple Sizing Method for Infiltration BMPs

Simple Sizing Method for Infiltration BMPs		Worksheet B.4-1		
1	DCV (Worksheet B-2.1)	DCV=		cubic-feet
2	Estimated design infiltration rate	$K_{\text{design}}=$		in/hr
3	Available BMP surface area	$A_{\text{BMP}}=$		sq-ft
4	Average effective depth in the BMP footprint (DCV/A_{BMP})	$D_{\text{avg}}=$		feet
5	Drawdown time, T ($D_{\text{avg}} * 12/K_{\text{design}}$)	T=		hours
6	Provide alternative calculation of drawdown time, if needed.			
7	Provide calculations for effective depth provided in the BMP: Effective Depth = Surface ponding (below the overflow elevation) + gravel storage thickness x gravel porosity (0.4)			

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Worksheet B.5-1: Sizing Method for Pollutant Removal Criteria

Sizing Method for Pollutant Removal Criteria		Worksheet B.5-1	
1	Area draining to the BMP		sq. ft.
2	Adjusted runoff factor for drainage area (Refer to Appendix B.1 and B.2)		
3	85 th percentile 24-hour rainfall depth		inches
4	Design capture volume [Line 1 x Line 2 x (Line 3/12)]		cu. ft.
BMP Parameters			
5	Surface ponding [6 inch minimum, 12 inch maximum]		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		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		inches
8	Aggregate storage below underdrain invert (3 inches minimum) – use 0 inches if the aggregate is not over the entire bottom surface area		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.)		in/hr.
Baseline Calculations			
12	Allowable routing time for sizing	6	hours
13	Depth filtered during storm [Line 11 x Line 12]		inches
14	Depth of Detention Storage [Line 5 + (Line 6 x Line 9) + (Line 7 x Line 10) + (Line 8 x Line 10)]		inches
15	Total Depth Treated [Line 13 + Line 14]		inches
Option 1 – Biofilter 1.5 times the DCV			
16	Required biofiltered volume [1.5 x Line 4]		cu. ft.
17	Required Footprint [Line 16/ Line 15] x 12		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]		cu. ft.
19	Required Footprint [Line 18/ Line 14] x 12		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)		
21	Minimum BMP Footprint [Line 1 x Line 2 x Line 20]		sq. ft.
22	Footprint of the BMP = Maximum (Minimum (Line 17, Line 19), Line 21)		sq. ft.
23	Provided BMP Footprint		sq. ft.
24	Is Line 23 ≥ Line 22? If Yes, then footprint criterion is met. If No, increase the footprint of the BMP.	<input type="checkbox"/> Yes <input type="checkbox"/> No	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Worksheet B.5-2: Sizing Method for Volume Retention Criteria

Sizing Method for Volume Retention Criteria		Worksheet B.5-2	
1	Area draining to the BMP		sq. ft.
2	Adjusted runoff factor for drainage area (Refer to Appendix B.1 and B.2)		
3	85 th percentile 24-hour rainfall depth		inches
4	Design capture volume [Line 1 x Line 2 x (Line 3/12)]		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		in/hr.
6	Factor of safety	2	
7	Reliable infiltration rate, for biofiltration BMP sizing [Line 5/ Line 6]		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%		%
9	Fraction of DCV to be retained (Figure B.5-3) When Line 8 > 8% = $0.0000013 \times \text{Line } 8^3 - 0.000057 \times \text{Line } 8^2 + 0.0086 \times \text{Line } 8 - 0.014$ When Line 8 ≤ 8% = 0.023		
10	Target volume retention [Line 9 x Line 4]		cu. ft.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Worksheet B.5-3: Volume Retention from Biofiltration with Partial Retention BMPs

Volume Retention from Biofiltration with Partial Retention BMPs		Worksheet B.5-3	
1	Area draining to the BMP		sq. ft.
2	Adjusted runoff factor for drainage area (Refer to Appendix B.1 and B.2)		
3	85 th percentile 24-hour rainfall depth		inches
4	Design capture volume [Line 1 x Line 2 x (Line 3/12)]		cu. ft.
BMP Parameters			
5	Footprint of the BMP		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		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		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		in/hr.
11	Factor of safety	2	
12	Reliable infiltration rate, for biofiltration BMP sizing [Line 10/ Line 11]		in/hr.
Evapotranspiration: Average Annual Volume Retention			
13	Effective evapotranspiration depth [Line 6 x Line 7]		inches
14	Retained pore volume [(Line 13 x Line 5)/12]		cu. ft.
15	Fraction of DCV retained in pore spaces [Line 14/Line 4]		
16	Evapotranspiration average annual capture [use ET Nomographs in Figure B.5-5, Refer to Appendix B.5.4]		%
Infiltration: Average Annual Volume Retention			
17	Drawdown for infiltration storage [(Line 8 x Line 9)/Line 12]		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)		
19	Infiltration volume storage [(Line 5 x Line 8 x Line 9)/12]		cu. ft.
20	Infiltration storage: Fraction of DCV [Line 19 /Line 4]		
21	Total Equivalent Fraction of DCV [Line 18 + Line 20]		
22	Biofiltration BMP average annual capture [use Line 21 and 17 in Figure B.4-1]		%
23	Fraction of DCV retained (Figure B.5-3) $0.0000013 \times \text{Line } 22^3 - 0.000057 \times \text{Line } 22^2 + 0.0086 \times \text{Line } 22 - 0.014$		
24	Volume retention achieved by biofiltration BMP [Line 23 x Line 4]		cu. ft.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Worksheet B.5-4: Calculation of Alternative Minimum Footprint Sizing Factor for Non-Standard Biofiltration

Alternative Minimum Footprint Sizing Factor for Non-Standard Biofiltration		Worksheet B.5-4	
1	Area draining to the BMP		sq. ft.
2	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)		
3	Load to Clog (default value when using Appendix E fact sheets is 2.0)		lb/sq. ft.
4	Allowable Period to Accumulate Clogging Load (T _L) (default value is 10)		years
Volume Weighted EMC Calculation			
Land Use	Fraction of Total DCV	TSS EMC (mg/L)	Product
Single Family Residential		123	
Commercial		128	
Industrial		125	
Education (Municipal)		132	
Transportation		78	
Multi-family Residential		40	
Roof Runoff		14	
Low Traffic Areas		50	
Open Space		216	
Other, specify:			
Other, specify:			
Other, specify:			
5	Volume Weighted EMC (sum of all products)		mg/L
Sizing Factor for Clogging			
6	Adjustment for pretreatment measures Where: Line 6 = 0 if no pretreatment; Line 6 = 0.25 when pretreatment is included; Line 6 = 0.5 if the pretreatment has an active Washington State TAPE approval rating for "pre-treatment."		
7	Average Annual Precipitation [Provide documentation of the data source in the discussion box; SanGIS has a GIS layer for average annual precipitation]		inches
8	Calculate the Average Annual Runoff (Line 7/12) x Line 1 x Line 2		cu-ft/yr
9	Calculate the Average Annual TSS Load (Line 8 x 62.4 x Line 5 x (1 - Line 6))/10 ⁶		lb/yr
10	Calculate the BMP Footprint Needed (Line 9 x Line 4)/Line 3		sq. ft.
11	Calculate the Minimum Footprint Sizing Factor for Clogging [Line 10/ (Line 1 x Line 2)]		
Discussion:			

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Worksheet B.5-5: Optimized Biofiltration BMP Footprint when Downstream of a Storage Unit

Optimized Biofiltration BMP Footprint when Downstream of a Storage Unit		Worksheet B.5-5	
1	Area draining to the storage unit and biofiltration BMP		sq. ft.
2	Adjusted runoff factor for drainage area (Refer to Appendix B.1 and B.2)		
3	Effective impervious area draining to the storage unit and biofiltration BMP [Line 1 x Line 2]		sq. ft.
4	Remaining DCV after implementing retention BMPs		cu. ft.
5	Design infiltration rate (measured infiltration rate / 2)		ft./hr.
6	Media Thickness [1.5 feet minimum], also add mulch layer and washed ASTM 33 fine aggregate sand thickness to this line for sizing calculations		ft.
7	Media filtration rate to be used for sizing (0.42 ft/hr. with no outlet control; if the filtration rate is controlled by the outlet use the outlet controlled rate)		ft./hr.
8	Media retained pore space	0.05	in./in.
Storage Unit Requirement			
9	Drawdown time of the storage unit, minimum (from the elevation that bypasses the biofiltration BMP, overflow elevation)		hours
10	Storage required to achieve greater than 92 percent capture (see Table B.5-5)		fraction
11	Storage required in cubic feet (Line 4 x Line 10)		cu. ft.
12	Storage provided in the design, minimum (from the elevation that bypasses the biofiltration BMP, overflow elevation)		cu. ft.
13	Is Line 12 \geq Line 11. If no increase storage provided until this criteria is met	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Criteria 1: BMP Footprint Biofiltration Capacity			
14	Peak flow from the storage unit to the biofiltration BMP (using the elevation used to evaluate the percent capture)		cfs
15	Required biofiltration footprint [(3,600 x Line 14)/Line 7]		sq. ft.
Criteria 2: Alternative Minimum Sizing Factor (Clogging)			
16	Alternative Minimum Footprint Sizing Factor [Line 11 of Worksheet B.5-4]		Fraction
17	Required biofiltration footprint [Line 3 x Line 16]		sq. ft.
Criteria 3: Retention requirement [Not applicable for No Infiltration Condition]			
18	Retention Target (Line 10 in Worksheet B.5-2)		cu. ft.
19	Average discharge rate from the storage unit to the biofiltration BMP		cfs
20	Depth retained in the optimized biofiltration BMP {Line 6 x Line 8} + {(Line 4)/(2400 x Line 19)} x Line 5}		ft.
21	Required optimized biofiltration footprint (Line 18/Line 20)		sq. ft.
Optimized Biofiltration Footprint			
22	Optimized biofiltration footprint, maximum (Line 15, Line 17, Line 21)		sq. ft.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Worksheet B.5-6: Volume Retention for No Infiltration Condition

Volume Retention for No Infiltration Condition				Worksheet B.5-6		
1	Area draining to the biofiltration BMP					sq. ft.
2	Adjusted runoff factor for drainage area (Refer to Appendix B.1 and B.2)					
3	Effective impervious area draining to the BMP [Line 1 x Line 2]					sq. ft.
4	Required area for Evapotranspiration [Line 3 x 0.03]					sq. ft.
5	Biofiltration BMP Footprint					sq. ft.
Landscape Area (must be identified on DS-3247)						
	Identification	A	B	C	D	E
6	Landscape area that meet the requirements in SD-B and SD-F Fact Sheet (sq. ft.)					
7	Impervious area draining to the landscape area (sq. ft.)					
8	Impervious to Pervious Area ratio [Line 7/Line 6]					
9	Effective Credit Area If Line 8 >1.5, use Line 6; if not use Line 7/1.5					
10	Sum of Landscape area [sum of Lines 9A-9E]					sq. ft.
11	Provided footprint for evapotranspiration [Line 5 + Line 10]					sq. ft.
Volume Retention Performance Standard						
12	Is Line 11 \geq Line 4? If yes, then volume retention performance standard for no infiltration condition is met. If no, proceed to Line 13				<input type="checkbox"/> Yes <input type="checkbox"/> No	
13	Fraction of the performance standard met through the BMP footprint and/or landscaping [Line 11/Line 4]					
14	Target Volume Retention [Line 10 from Worksheet B.5.2]					cu. ft.
15	Volume retention required from other site design BMPs [(1-Line 13) x Line 14]					cu. ft.
Site Design BMP						
	Identification	Site Design Type			Credit	
16	A					cu. ft.
	B					cu. ft.
	C					cu. ft.
	D					cu. ft.
	E					cu. ft.
	Sum of volume retention benefits from other site design BMPs (e.g. trees; rain barrels etc.). [sum of Lines 16A-16E] Provide documentation of how the site design credit is calculated in the PDP SWQMP.					cu. ft.
17	Is Line 16 \geq Line 15? If yes, then volume retention performance standard for no infiltration condition is met. If no, implement additional site design BMPs.				<input type="checkbox"/> Yes <input type="checkbox"/> No	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Worksheet B.5-7: Volume Retention from Amended Soils

Volume Retention From Amended Soils		Worksheet B.5-7	
1	Impervious area draining to the pervious area		sq. ft.
2	Pervious area (must meet the requirements in SD-B and SD-F Fact Sheets)		sq. ft.
3	Dispersion Ratio [Line 1/Line 2] Note: This worksheet is not applicable when Line 3 > 50 or Line 3 < 0.25		
4	Adjusted runoff factor [(Line 1 * 0.9 + Line 2 * 0.1) / (Line 1 + Line 2)]		
5	85 th percentile 24-hour rainfall depth		inches
6	Design capture volume [(Line 1 + Line 2) x Line 4 x (Line 5/12)]		cu. ft.
7	Amendment Depth (Choose from 3", 6", 9", 12", 15" and 18")		inches
8	Storage [(porosity – field capacity) + 0.5 * (field capacity – wilting point)]	0.25	in./in.
9	Pervious Storage [Line 2 * (Line 7/12) * Line 8]		cu. ft.
10	Fraction of DCV [Line 9 / Line 6]		
11	Measured Infiltration Rate 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		in/hr.
12	Factor of Safety	2	
13	Reliable Infiltration Rate [Line 11/Line 12]		in/hr.
14	Dispersion Credit (Based on Figures B.5.6 to B.5.11; Line 10 and Line 13)		
15	Volume retention due to amendment [Line 1 * (Line 5/12) * Line 14]		cu. ft.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Worksheet B.6-1: Flow-Thru Design Flows

Flow-thru Design Flows		Worksheet B.6-1		
1	DCV	DCV		cubic-feet
2	DCV retained	DCV _{retained}		cubic-feet
3	DCV biofiltered	DCV _{biofiltered}		cubic-feet
4	DCV requiring flow-thru (Line 1 – Line 2 – 0.67*Line 3)	DCV _{flow-thru}		cubic-feet
5	Adjustment factor (Line 4 / Line 1)*	AF=		unitless
6	Design rainfall intensity	i=	0.20	in/hr
7	Area tributary to BMP (s)	A=		acres
8	Area-weighted runoff factor (estimate using Appendix B.2)	C=		unitless
9	Calculate Flow Rate = AF x (C x i x A)	Q=		cfs
10	For Proprietary Biofiltration Only: $Q_{Bio}=1.5 \times Q$	$Q_{Bio}=$		cfs

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Form I-10: Compact (high rate) Biofiltration BMP Checklist

Compact (high rate) Biofiltration BMP Checklist		Form I-10
<p>Compact (high rate) biofiltration BMPs have a media filtration rate greater than 5 in/hr. and a media surface area smaller than 3% of contributing area times adjusted runoff factor. Compact biofiltration BMPs are typically proprietary BMPs that may qualify as biofiltration.</p> <p>A compact biofiltration BMP may satisfy the pollutant control requirements for a DMA onsite in some cases. This depends on the characteristics of the DMA and the performance certification/data of the BMP. If the pollutant control requirements for a DMA are met onsite, then the DMA is not required to participate in an offsite storm water alternative compliance program to meet its pollutant control obligations.</p> <p>An applicant using a compact biofiltration BMP to meet the pollutant control requirements onsite must complete Section 1 of this form and include it in the PDP SWQMP. A separate form must be completed for each DMA. In instances where the City Engineer does not agree with the applicant's determination, Section 2 of this form will be completed by the City and returned to the applicant.</p>		
<p>Section 1: Biofiltration Criteria Checklist (Appendix F)</p> <p>Refer to Part 1 of the Storm Water Standards to complete this section. When separate forms/worksheets are referenced below, the applicant must also complete these separate forms/worksheets (as applicable) and include in the PDP SWQMP. The criteria numbers below correspond to the criteria numbers in Appendix F.</p>		
Criteria	Answer	Progression
<p>Criteria 1 and 3:</p> <p>What is the infiltration condition of the DMA?</p> <p>Refer to Section 5.4.2 and Appendix C of the BMP Design Manual (Part 1 of Storm Water Standards) for guidance.</p> <p>Applicant must complete and include the following in the PDP SWQMP submittal to support the feasibility determination:</p> <ul style="list-style-type: none"> Infiltration Feasibility Condition Letter; or Worksheet C.4-1: Form I-8A and Worksheet C.4-2: Form I-8B. <p>Applicant must complete and include all applicable sizing worksheets in the SWQMP submittal</p>	<p><input type="checkbox"/> Full Infiltration Condition</p> <p><input type="checkbox"/> Partial Infiltration Condition</p> <p><input type="checkbox"/> No Infiltration Condition</p>	<p>Stop. Compact biofiltration BMP is not allowed.</p> <p>Compact biofiltration BMP is only allowed, if the target volume retention is met onsite (Refer to Table B.5-1 in Appendix B.5). Use Worksheet B.5- 2 in Appendix B.5 to estimate the target volume retention (Note: retention in this context means reduction).</p> <p>If the required volume reduction is achieved proceed to Criteria 2.</p> <p>If the required volume reduction is not achieved, compact biofiltration BMP is not allowed. Stop.</p> <p>Compact biofiltration BMP is allowed if volume retention criteria in Table B.5-1 in Appendix B.5 for the no infiltration condition is met. Compliance with this criterion must be documented in the PDP SWQMP.</p> <p>If the criteria in Table B.5-1 is met proceed to Criteria 2.</p> <p>If the criteria in Table B.5-1 is not met, compact biofiltration BMP is not allowed. Stop.</p>

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Compact (high rate) Biofiltration BMP Checklist		Form I-10
Provide basis for Criteria 1 and 3:		
Feasibility Analysis:		
Summarize findings and include either infiltration feasibility condition letter or Worksheet C.4-1: Form I-8A and Worksheet C.4-2: Form I-8B in the PDP SWQMP submittal.		
If Partial Infiltration Condition:		
Provide documentation that target volume retention is met (include Worksheet B.5-2 in the PDP SWQMP submittal). Worksheet B.5-7 in Appendix B.5 can be used to estimate volume retention benefits from landscape areas.		
If No Infiltration Condition:		
Provide documentation that the volume retention performance standard is met (include Worksheet B.5-2 in the PDP SWQMP submittal) in the PDP SWQMP submittal. Worksheet B.5-6 in Appendix B.5 can be used to document that the performance standard is met.		
Criteria	Answer	Progression
Criteria 2: Is the compact biofiltration BMP sized to meet the performance standard from the MS4 Permit? Refer to Appendix B.5 and Appendix F.2 of the BMP Design Manual (Part 1 of Storm Water Standards) for guidance.	<input type="checkbox"/> Meets Flow Based Criteria	Use guidance from Appendix F.2.2 to size the compact biofiltration BMP to meet the flow based criteria. Include the calculations in the PDP SWQMP. Use parameters for sizing consistent with manufacturer guidelines and conditions of its third party certifications (i.e. a BMP certified at a loading rate of 1 gpm/sq. ft. cannot be designed using a loading rate of 1.5 gpm/sq. ft.) Proceed to Criteria 4.
	<input type="checkbox"/> Meets Volume Based Criteria	Provide documentation that the compact biofiltration BMP has a total static (i.e. non-routed) storage volume, including pore-spaces and pre-filter detention volume (Refer to Appendix B.5 for a schematic) of at least 0.75 times the portion of the DCV not reliably retained onsite. Proceed to Criteria 4.
	<input type="checkbox"/> Does not Meet either	Stop. Compact biofiltration BMP is not allowed.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Compact (high rate) Biofiltration BMP Checklist		Form I-10
<p>Provide basis for Criteria 2: Provide documentation that the BMP meets the numeric criteria and is designed consistent with the manufacturer guidelines and conditions of its third-party certification (i.e., loading rate, etc., as applicable).</p>		
Criteria	Answer	Progression
<p>Criteria 4: Does the compact biofiltration BMP meet the pollutant treatment performance standard for the projects most significant pollutants of concern?</p> <p>Refer to Appendix B.6 and Appendix F.1 of the BMP Design Manual (Part 1 of Storm Water Standards) for guidance.</p>	<input type="checkbox"/> Yes, meets the TAPE certification.	Provide documentation that the compact BMP has an appropriate TAPE certification for the projects most significant pollutants of concern. Proceed to Criteria 5.
	<input type="checkbox"/> Yes, through other third-party documentation.	Acceptance of third-party documentation is at the discretion of the City Engineer. The City engineer will consider, (a) the data submitted; (b) representativeness of the data submitted; and (c) consistency of the BMP performance claims with pollutant control objectives in Table F.1-2 and Table F.1-1 while making this determination. If a compact biofiltration BMP is not accepted, a written explanation/ reason will be provided in Section 2. Proceed to Criteria 5.
	<input type="checkbox"/> No	Stop. Compact biofiltration BMP is not allowed.
<p>Provide basis for Criteria 4: Provide documentation that identifies the projects most significant pollutants of concern and TAPE certification or other third party documentation that shows that the compact biofiltration BMP meets the pollutant treatment performance standard for the projects most significant pollutants of concern.</p>		

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Compact (high rate) Biofiltration BMP Checklist		Form I-10
Criteria	Answer	Progression
Criteria 5: Is the compact biofiltration BMP designed to promote appropriate biological activity to support and maintain treatment process? Refer to Appendix F of the BMP Design Manual (Part 1 of Storm Water Standards) for guidance.	<input type="checkbox"/> Yes	Provide documentation that the compact biofiltration BMP support appropriate biological activity. Refer to Appendix F for guidance. Proceed to Criteria 6.
	<input type="checkbox"/> No	Stop. Compact biofiltration BMP is not allowed.
Provide basis for Criteria 5: Provide documentation that appropriate biological activity is supported by the compact biofiltration BMP to maintain treatment process.		
Criteria	Answer	Progression
Criteria 6: Is the compact biofiltration BMP designed with a hydraulic loading rate to prevent erosion, scour and channeling within the BMP?	<input type="checkbox"/> Yes	Provide documentation that the compact biofiltration BMP is used in a manner consistent with manufacturer guidelines and conditions of its third-party certification. Proceed to Criteria 7.
	<input type="checkbox"/> No	Stop. Compact biofiltration BMP is not allowed.
Provide basis for Criteria 6: Provide documentation that the BMP meets the numeric criteria and is designed consistent with the manufacturer guidelines and conditions of its third-party certification (i.e., maximum tributary area, maximum inflow velocities, etc., as applicable).		

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Compact (high rate) Biofiltration BMP Checklist		Form I-10
Criteria	Answer	Progression
Criteria 7: Is the compact biofiltration BMP maintenance plan consistent with manufacturer guidelines and conditions of its third-party certification (i.e., maintenance activities, frequencies)?	<input type="checkbox"/> Yes, and the compact BMP is privately owned, operated and not in the public right of way.	Submit a maintenance agreement that will also include a statement that the BMP will be maintained in accordance with manufacturer guidelines and conditions of third-party certification. Stop. The compact biofiltration BMP meets the required criteria.
	<input type="checkbox"/> Yes, and the BMP is either owned or operated by the City or in the public right of way.	Approval is at the discretion of the City Engineer. The city engineer will consider maintenance requirements, cost of maintenance activities, relevant previous local experience with operation and maintenance of the BMP type, ability to continue to operate the system in event that the vending company is no longer operating as a business or other relevant factors while making the determination. Stop. Consult the City Engineer for a determination.
	<input type="checkbox"/> No	Stop. Compact biofiltration BMP is not allowed.
Provide basis for Criteria 7: Include copy of manufacturer guidelines and conditions of third-party certification in the maintenance agreement. PDP SWQMP must include a statement that the compact BMP will be maintained in accordance with manufacturer guidelines and conditions of third-party certification.		

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Worksheet C.4-2 (Form I-8A): Categorization of Infiltration Feasibility Condition Based on Geotechnical Conditions²

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, DMA-2		
Criteria 1: Infiltration Rate Screening		
1A	<p>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 data⁴?</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> No; the mapped soil types are A or B but is not corroborated by available site soil data (continue to Step 1B).</p> <p><input checked="" type="checkbox"/> 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.</p> <p><input type="checkbox"/> No; the mapped soil types are C, D, or "urban/unclassified" but is not corroborated by available site soil data (continue to Step 1B).</p>	
1B	<p>Is the reliable infiltration rate calculated using planning phase methods from Table D.3-1?</p> <p><input type="checkbox"/> Yes; Continue to Step 1C.</p> <p><input type="checkbox"/> No; Skip to Step 1D.</p>	
1C	<p>Is the reliable infiltration rate calculated using planning phase methods from Table D.3-1 greater than 0.5 inches per hour?</p> <p><input type="checkbox"/> Yes; the DMA may feasibly support full infiltration. Answer "Yes" to Criteria 1 Result.</p> <p><input type="checkbox"/> No; full infiltration is not required. Answer "No" to Criteria 1 Result.</p>	
1D	<p>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.</p> <p><input type="checkbox"/> Yes; continue to Step 1E.</p> <p><input type="checkbox"/> No; select an appropriate infiltration testing method.</p>	

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.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ³
1E	<p>Number of Percolation/Infiltration Tests. Does the infiltration testing method performed satisfy the minimum number of tests specified in Table D.3-2?</p> <p><input type="checkbox"/> Yes; continue to Step 1F.</p> <p><input type="checkbox"/> No; conduct appropriate number of tests.</p>	
1F	<p>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).</p> <p><input type="checkbox"/> Yes; continue to Step 1G.</p> <p><input type="checkbox"/> No; select appropriate factor of safety.</p>	
1G	<p>Full Infiltration Feasibility. Is the average measured infiltration rate divided by the Factor of Safety greater than 0.5 inches per hour?</p> <p><input type="checkbox"/> Yes; answer "Yes" to Criteria 1 Result.</p> <p><input type="checkbox"/> No; answer "No" to Criteria 1 Result.</p>	
Criteria 1 Result	<p>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?</p> <p><input type="checkbox"/> Yes; the DMA may feasibly support full infiltration. Continue to Criteria 2.</p> <p><input checked="" type="checkbox"/> No; full infiltration is not required. Skip to Part 1 Result.</p>	
<p>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.</p>		

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ³	
Criteria 2: Geologic/Geotechnical Screening			
2A	<p>If all questions in Step 2A are answered "Yes," continue to Step 2B.</p> <p>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.</p>		
2A-1	Can the proposed full infiltration BMP(s) avoid areas with existing fill materials greater than 5 feet thick below the infiltrating surface?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2A-2	Can the proposed full infiltration BMP(s) avoid placement within 10 feet of existing underground utilities, structures, or retaining walls?	<input type="checkbox"/> Yes	<input type="checkbox"/> 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?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2B	<p>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.</p> <p>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.</p>		
2B-1	<p>Hydroconsolidation. Analyze hydroconsolidation potential per approved ASTM standard due to a proposed full infiltration BMP.</p> <p>Can full infiltration BMPs be proposed within the DMA without increasing hydroconsolidation risks?</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2B-2	<p>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.</p> <p>Can full infiltration BMPs be proposed within the DMA without increasing expansive soil risks?</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ³	
2B-3	<p>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.</p> <p>Can full infiltration BMPs be proposed within the DMA without increasing liquefaction risks?</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2B-4	<p>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.</p> <p>Can full infiltration BMPs be proposed within the DMA without increasing slope stability risks?</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2B-5	<p>Other Geotechnical Hazards. Identify site-specific geotechnical hazards not already mentioned (refer to Appendix C.2.1).</p> <p>Can full infiltration BMPs be proposed within the DMA without increasing risk of geologic or geotechnical hazards not already mentioned?</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2B-6	<p>Setbacks. Establish setbacks from underground utilities, structures, and/or retaining walls. Reference applicable ASTM or other recognized standard in the geotechnical report.</p> <p>Can full infiltration BMPs be proposed within the DMA using established setbacks from underground utilities, structures, and/or retaining walls?</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ³	
2C	<p>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.</p> <p>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.</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> 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?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Summarize findings and basis; provide references to related reports or exhibits.			
Part 1 Result – Full Infiltration Geotechnical Screening ⁵		Result	
<p>If answers to both Criteria 1 and Criteria 2 are “Yes”, a full infiltration design is potentially feasible based on Geotechnical conditions only.</p> <p>If either answer to Criteria 1 or Criteria 2 is “No”, a full infiltration design is not required.</p>		<input type="checkbox"/> Full infiltration Condition <input checked="" type="checkbox"/> 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.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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, DMA-2		
Criteria 3: Infiltration Rate Screening		
3A	<p>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?</p> <p><input type="checkbox"/> 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.</p> <p><input checked="" type="checkbox"/> 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.</p> <p><input type="checkbox"/> No; infiltration testing is conducted (refer to Table D.3-1), continue to Step 3B.</p>	
3B	<p>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?</p> <p><input type="checkbox"/> Yes; the site may support partial infiltration. Answer “Yes” to Criteria 3 Result.</p> <p><input type="checkbox"/> 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.</p>	
Criteria 3 Result	<p>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?</p> <p><input checked="" type="checkbox"/> Yes; Continue to Criteria 4.</p> <p><input type="checkbox"/> No: Skip to Part 2 Result.</p>	
Summarize infiltration testing and/or mapping results (i.e. soil maps and series description used for infiltration rate).		

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ³	
Criteria 4: Geologic/Geotechnical Screening			
4A	<p>If all questions in Step 4A are answered "Yes," continue to Step 2B.</p> <p>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.</p>		
4A-1	Can the proposed partial infiltration BMP(s) avoid areas with existing fill materials greater than 5 feet thick?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4A-2	Can the proposed partial infiltration BMP(s) avoid placement within 10 feet of existing underground utilities, structures, or retaining walls?	<input type="checkbox"/> Yes	<input type="checkbox"/> 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?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4B	<p>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</p> <p>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.</p>		
4B-1	<p>Hydroconsolidation. Analyze hydroconsolidation potential per approved ASTM standard due to a proposed full infiltration BMP.</p> <p>Can partial infiltration BMPs be proposed within the DMA without increasing hydroconsolidation risks?</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4B-2	<p>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.</p> <p>Can partial infiltration BMPs be proposed within the DMA without increasing expansive soil risks?</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4B-3	<p>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.</p> <p>Can partial infiltration BMPs be proposed within the DMA without increasing liquefaction risks?</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ³	
4B-4	<p>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.</p> <p>Can partial infiltration BMPs be proposed within the DMA without increasing slope stability risks?</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4B-5	<p>Other Geotechnical Hazards. Identify site-specific geotechnical hazards not already mentioned (refer to Appendix C.2.1).</p> <p>Can partial infiltration BMPs be proposed within the DMA without increasing risk of geologic or geotechnical hazards not already mentioned?</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4B-6	<p>Setbacks. Establish setbacks from underground utilities, structures, and/or retaining walls. Reference applicable ASTM or other recognized standard in the geotechnical report.</p> <p>Can partial infiltration BMPs be proposed within the DMA using recommended setbacks from underground utilities, structures, and/or retaining walls?</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4C	<p>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.</p> <p>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.</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Criteria 4 Result	<p>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?</p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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	
<p>If answers to both Criteria 3 and Criteria 4 are “Yes”, a partial infiltration design is potentially feasible based on geotechnical conditions only.</p> <p>If answers to either Criteria 3 or Criteria 4 is “No”, then infiltration of any volume is considered to be infeasible within the site.</p>	<p><input type="checkbox"/> Partial Infiltration Condition</p> <p><input checked="" type="checkbox"/> No Infiltration Condition</p>	

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.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Worksheet C.4-2: Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions⁷

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	<p>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?</p> <p><input type="checkbox"/> Yes; continue to Step 1B.</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> 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.</p>	
1B	<p>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.</p> <p><input type="checkbox"/> Yes; continue to Step 1C.</p> <p><input type="checkbox"/> No; However, site layout changes or reasonable mitigation measures can be proposed to support full infiltration BMPs. Continue to Step 1C.</p> <p><input type="checkbox"/> No; Site layout changes or reasonable mitigation measures cannot be proposed to support full infiltration BMPs. Answer “No” to Criteria 1 Result.</p>	

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.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions		Worksheet C.4-2: Form I-8B ⁸
1C	<p>Inadequate Soil Treatment Capacity. Are full infiltration BMPs proposed in DMA soils that have adequate soil treatment capacity?</p> <p>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:</p> <ul style="list-style-type: none"> • 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. <p><input type="checkbox"/> Yes; continue to Step 1D.</p> <p><input type="checkbox"/> No; However, site layout changes or reasonable mitigation measures can be proposed to support full infiltration BMPs. Continue to Step 1D.</p> <p><input type="checkbox"/> No; Site layout changes or reasonable mitigation measures cannot be proposed to support full infiltration BMPs. Answer “No” to Criteria 1 Result.</p>	
1D	<p>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?</p> <p><input type="checkbox"/> Yes; there are other contamination hazards identified that can be mitigated. Answer “Yes” to Criteria 1 Result.</p> <p><input type="checkbox"/> No; there are other contamination hazards identified that cannot be mitigated. Answer “No” to Criteria 1 Result.</p> <p><input type="checkbox"/> N/A; no contamination hazards are identified. Answer “Yes” to Criteria 1 Result.</p>	
Criteria 1 Result	<p>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.</p> <p><input type="checkbox"/> Yes; Continue to Part 1, Criteria 2.</p> <p><input type="checkbox"/> No; Continue to Part 1 Result.</p>	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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	<p>Ephemeral Stream Setback. Does the proposed full infiltration BMP meet both the following?</p> <ul style="list-style-type: none"> 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. <p><input type="checkbox"/> Yes; Answer "Yes" to Criteria 2 Result.</p> <p><input type="checkbox"/> No; Continue to Step 2B.</p>	
2B	<p>Mitigation Measures. Can site layout changes be proposed to support full infiltration BMPs?</p> <p><input type="checkbox"/> Yes; the site can be reconfigured to mitigate potential water balance issues. Answer "Yes" to Criteria 2 Result.</p> <p><input type="checkbox"/> No; the site cannot be reconfigured to mitigate potential water balance issues. Continue to Step 2C and provide discussion.</p>	
2C	<p>Additional studies. Do additional studies support full infiltration BMPs?</p> <p>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.</p> <p><input type="checkbox"/> Yes; Answer "Yes" to Criteria 2 Result.</p> <p><input type="checkbox"/> No; Answer "No" to Criteria 2 Result.</p>	
Criteria 2 Result	<p>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?</p> <p><input type="checkbox"/> Yes; Continue to Part 1 Result.</p> <p><input type="checkbox"/> No; Continue to Part 1 Result.</p>	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Categorization of Infiltration Feasibility Condition based on Groundwater and Water Balance Conditions	Worksheet C.4-2: Form I-8B ⁸
<p>Summarize potential water balance effects. Documentation should focus on mapping and soil data regarding proximity to ephemeral streams and groundwater depth.</p>	
Empty space for documentation	
Part 1 – Full Infiltration Groundwater and Water Balance Screening Result ⁹	Result
<p>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.</p> <p>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.</p>	<p><input type="checkbox"/> Full Infiltration</p> <p><input type="checkbox"/> Complete Part 2</p>

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.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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	
<p>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.</p> <p><input type="checkbox"/> Yes; Answer “Yes” to Criteria 3 Result.</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> 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.</p>	
<p>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?</p> <p>Yes; Continue to Part 2, Criteria 4.</p> <p><input type="checkbox"/> No; Skip to Part 2 Result.</p>	
<p>Summarize findings and basis. Documentation should focus on mapped soil types and contaminated site locations.</p>	
Empty space for summarizing findings	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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	
<p>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.).</p>	
<p>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?</p> <p><input type="checkbox"/> Yes: Continue to Part 2 Result.</p> <p><input type="checkbox"/> No: Continue to Part 2 Result.</p>	
<p>Summarize potential water balance effects. Documentation should focus on mapping and soil data regarding proximity to ephemeral streams and groundwater depth</p>	
Part 2 – Partial Infiltration Groundwater and Water Balance Screening Result ¹⁰	Result
<p>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.</p> <p>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.</p>	<p><input type="checkbox"/> Partial Infiltration Condition</p> <p><input type="checkbox"/> No Infiltration Condition</p>

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.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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, $S_A = \sum p$			
B	Design	Level of pretreatment/ expected sediment loads	0.5		
		Redundancy/resiliency	0.25		
		Compaction during construction	0.25		
		Design Safety Factor, $S_B = \sum p$			
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:					

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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: <hr/>	[SEAL] <div style="border: 1px solid black; height: 150px; width: 100%;"></div>
Professional Geotechnical Engineer's Signed Name: <hr/>	
Date: <hr/>	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

ATTACHMENT 2

BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES

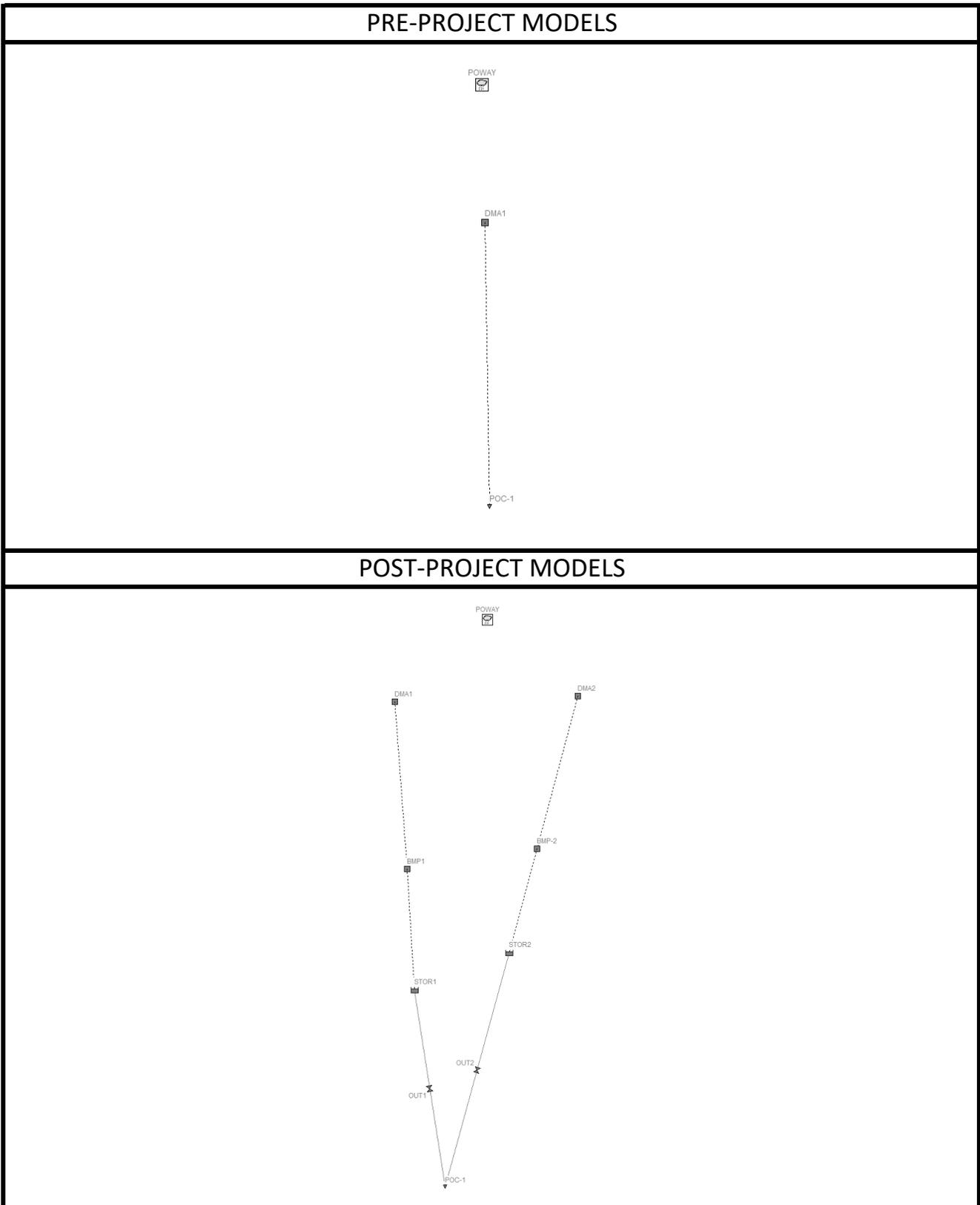
This is the cover sheet for Attachment 2.

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	<input checked="" type="checkbox"/> Included <input type="checkbox"/> Submitted as separate stand-alone document
Attachment 2b	Hydromodification Management Exhibit (Required)	<input checked="" type="checkbox"/> 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.	<input checked="" type="checkbox"/> Exhibit depicting onsite and/or upstream sources of critical coarse sediment as mapped in the WMAA AND, <input checked="" type="checkbox"/> Demonstration that the project effectively avoids and bypasses sources of mapped critical coarse sediment OR, <input type="checkbox"/> Demonstration that the downstream system is not sensitive to preservation of Coarse Sediment Supply (Form I-11). <input type="checkbox"/> 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.	<input checked="" type="checkbox"/> Not performed <input type="checkbox"/> Included <input type="checkbox"/> Submitted as separate stand-alone document
Attachment 2e	Vector Control Plan (Required when structural BMPs will not drain in 96 hours)	<input type="checkbox"/> Included <input checked="" type="checkbox"/> Not required because BMPs will drain in less than 96 hours

SWMM MODEL SCHEMATICS FOR STONEPOINTE DR.



[TITLE]

;;Project Title/Notes
STONEPOINTE DR.-VACANT LOT
J-2454
PRE-PROJECT CONDITION

[OPTIONS]

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

START_DATE 10/04/1962
START_TIME 08:00:00
REPORT_START_DATE 10/04/1962
REPORT_START_TIME 08:00:00
END_DATE 05/23/2008
END_TIME 23:00:00
SWEEP_START 01/01
SWEEP_END 12/31
DRY_DAYS 0
REPORT_STEP 01:00:00
WET_STEP 00:15:00
DRY_STEP 04:00:00
ROUTING_STEP 0:01:00
RULE_STEP 00:00:00

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

[EVAPORATION]

;;Data Source Parameters
;;-----
MONTHLY .07 0.96 .13 .17 .19 .22 .24 .22 .18 .13
.09 0.06
DRY_ONLY NO

[RAINGAGES]

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

[SUBCATCHMENTS]

```
;;Name          Rain Gage      Outlet      Area      %Imperv  Width  %Slope
  CurbLen  SnowPack
;;-----
DMA1           POWAY          POC-1       0.726     0.5      153    36
  0
```

[SUBAREAS]

```
;;Subcatchment  N-Imperv  N-Perv  S-Imperv  S-Perv  PctZero  RouteTo
PctRouted
;;-----
DMA1           0.012     0.15   0.05     0.1     25       OUTLET
```

[INFILTRATION]

```
;;Subcatchment  Param1  Param2  Param3  Param4  Param5
;;-----
DMA1           9       .025   .33
```

[OUTFALLS]

```
;;Name          Elevation  Type      Stage Data  Gated  Route To
;;-----
;Basin 100
POC-1          0         FREE      NO          NO
```

[TIMESERIES]

```
;;Name          Date      Time      Value
;;-----
POWAY           FILE "RAIN GUAGE\POWAY\poway.txt"
```

[REPORT]

```
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL
```

[TAGS]

[MAP]

```
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None
```

[COORDINATES]

;;Node	X-Coord	Y-Coord
POC-1	1363.861	6826.280

[VERTICES]

;;Link	X-Coord	Y-Coord
--------	---------	---------

[Polygons]

;;Subcatchment	X-Coord	Y-Coord
DMA1	1359.739	7060.598

[SYMBOLS]

;;Gage	X-Coord	Y-Coord
POWAY	1358.364	7173.290

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

STONEPOINTE DR.-VACANT LOT

J-2454

PRE-PROJECT CONDITION

Analysis Options

Flow Units CFS

Process Models:

Rainfall/Runoff YES

RDII NO

Snowmelt NO

Groundwater NO

Flow Routing NO

Water Quality NO

Infiltration Method GREEN_AMPT

Starting Date 10/04/1962 08:00:00

Ending Date 05/23/2008 23:00:00

Antecedent Dry Days 0.0

Report Time Step 01:00:00

Wet Time Step 00:15:00

Dry Time Step 04:00:00

Volume Depth

Runoff Quantity Continuity acre-feet inches

***** -----

Total Precipitation 33.774 558.250

SWMM OUTPUT REPORT

PRE-PROJECT CONDITION

Evaporation Loss	2.742	45.319
Infiltration Loss	26.122	431.773
Surface Runoff	5.717	94.502
Final Storage	0.000	0.000
Continuity Error (%)	-2.390	

*****	Volume	Volume
Flow Routing Continuity	acre-feet	10^6 gal
*****	-----	-----
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	5.717	1.863
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	5.717	1.863
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

Analysis begun on: Thu Jul 17 12:44:20 2025

Analysis ended on: Thu Jul 17 12:44:29 2025

Total elapsed time: 00:00:09

SWMM OUTPUT REPORT

PRE-PROJECT CONDITION

Topic: Click a column header to sort the column.

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Imperv Runoff in	Perv Runoff in	Total Runoff in	Total Runoff 10 ⁶ gal	Peak Runoff CFS	Runoff Coeff
DMA1	558.25	0.00	45.32	431.77	2.23	92.28	94.50	1.86	0.56	0.169

[TITLE]

;;Project Title/Notes
STONEPOINTE DR. VACANT LOT
J-2454
POST-PROJECT CONDITION

[OPTIONS]

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

START_DATE 10/04/1962
START_TIME 15:00:00
REPORT_START_DATE 10/04/1962
REPORT_START_TIME 15:00:00
END_DATE 05/23/2008
END_TIME 15:00:00
SWEEP_START 01/01
SWEEP_END 12/31
DRY_DAYS 0
REPORT_STEP 01:00:00
WET_STEP 00:15:00
DRY_STEP 04:00:00
ROUTING_STEP 0:01:00
RULE_STEP 00:00:00

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

[EVAPORATION]

;;Data Source Parameters
;;-----
MONTHLY .07 0.96 .13 .17 .19 .22 .24 .22 .18 .13
.09 0.06
DRY_ONLY NO

[RAINGAGES]

```

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

[SUBCATCHMENTS]

```

;;Name          Rain Gage      Outlet      Area      %Imperv  Width      %Slope
  CurbLen  SnowPack
;;-----
DMA1            POWAY          BMP1          0.280876951 35      83.8
12.3           0
BMP1            POWAY          STOR1          .004637282 0      83.8      0
0
DMA2            POWAY          BMP-2          0.168342516 48.5    27      18
0
BMP-2           POWAY          STOR2          .006887052 25      27      0.5
0
  
```

[SUBAREAS]

```

;;Subcatchment N-Imperv  N-Perv      S-Imperv  S-Perv      PctZero  RouteTo
PctRouted
;;-----
DMA1            0.012      0.15       0.05      0.1         25      OUTLET
BMP1            0.012      0.15       0.05      0.1         25      OUTLET
DMA2            0.012      0.15       0.05      0.1         25      OUTLET
BMP-2           0.01       0.1        0.05      0.05        25      OUTLET
  
```

[INFILTRATION]

```

;;Subcatchment Param1      Param2      Param3      Param4      Param5
;;-----
DMA1            9           .025        .33         7           0
BMP1            9           .025        .33         7           0
DMA2            9           .025        .33         7           0
BMP-2           9           .025        .33         7           0
  
```

[LID_CONTROLS]

```

;;Name          Type/Layer  Parameters
;;-----
BF-1            BC
BF-1            SURFACE    12         0.0         0           0           5
BF-1            SOIL       18         0.4         0.2         0.1         5.0
5.0            3.5
BF-1            STORAGE    18         0.6         0.547       0           NO
BF-1            DRAIN      19.4955    0.5         0           6           0           0
  
```

```

BF-2            BC
  
```

BF-2		SURFACE	6	0.0	0.1	1.0	5	
BF-2		SOIL	18	0.5	0.2	0.1	0.5	
10.0	3.5							
BF-2		STORAGE	18	0.75	0.5	0	NO	
BF-2		DRAIN	11.5778	0.5	6	6	0	0

[LID_USAGE]

Subcatchment	LID Process	Number	Area	Width	InitSat	FromImp
ToPerv	RptFile	DrainTo		FromPerv		
BMP1	BF-1	1	202.00	0	0	100
0	*	POC-1		100		
BMP-2	BF-2	1	300.00	0	0	0
0	*	*		0		

[OUTFALLS]

Name	Elevation	Type	Stage Data	Gated	Route To
Basin 100					
POC-1	0	FREE		NO	

[STORAGE]

Name	Elev.	MaxDepth	InitDepth	Shape	Curve Type/Params
SurDepth	Fevap	Psi	Ksat	IMD	
STOR1	0	1	0	TABULAR	STOR1
0	0				
STOR2	0	.5	0	TABULAR	STOR2
0	0				

[OUTLETS]

Name	From Node	To Node	Offset	Type
QTable/Qcoeff	Qexpon	Gated		
OUT1	STOR1	POC-1	0	TABULAR/DEPTH 18X18
	NO			
OUT2	STOR2	POC-1	0	TABULAR/DEPTH 18X18
	NO			

[CURVES]

Name	Type	X-Value	Y-Value
24" X 24" BROOKS BOX			
24X24	Rating	0.1	0.69
24X24		0.2	1.94
24X24		0.3	3.56

24X24		0.4	5.48
24X24		0.5	7.66
;			
18X18	Rating	.1	.53
18X18		.2	1.5
18X18		.3	2.75
18X18		.4	4.24
18X18		.5	5.93
18X18		.6	7.79
18X18		.7	9.82
18X18		.8	12
18X18		.9	14.31
18X18		1	16.77

```

;
;VOLUME ABOVE GRATE
STOR1      Storage    0      454
STOR1      Storage    0.25    526
STOR1      Storage    .5      601
STOR1      Storage    0.75    680
STOR1      Storage    1      762

```

```

;
;TOP OF GRATE TO TOP OF WALL BF-2
STOR2      Storage    .25    301
STOR2      Storage    .5     301

```

```

[TIMESERIES]
;;Name      Date      Time      Value
;;-----
POWAY      FILE "RAIN GUAGE\POWAY\poway.txt"

```

```

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

```

```

[TAGS]

```

```

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

```

```

[COORDINATES]
;;Node      X-Coord      Y-Coord
;;-----
POC-1      1363.861     6826.280
STOR1      1348.744     6921.107
STOR2      1394.916     6939.079

```

```

[VERTICES]

```

```
;;Link          X-Coord          Y-Coord
;;-----
```

[Polygons]

```
;;Subcatchment X-Coord          Y-Coord
;;-----
```

```
DMA1           1339.270          7060.520
BMP1           1345.266          6979.670
DMA2           1428.398          7063.404
BMP-2         1408.517          6989.597
```

```
;;Storage Node X-Coord          Y-Coord
;;-----
```

```
STOR1         1348.744          6921.107
STOR2         1394.916          6939.079
```

[SYMBOLS]

```
;;Gage          X-Coord          Y-Coord
;;-----
```

```
POWAY         1384.874          7099.946
```

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

STONEPOINTE DR. VACANT LOT

J-2454

POST-PROJECT CONDITION

Analysis Options

Flow Units CFS

Process Models:

Rainfall/Runoff YES

RDII NO

Snowmelt NO

Groundwater NO

Flow Routing YES

Ponding Allowed NO

Water Quality NO

Infiltration Method GREEN_AMPT

Flow Routing Method KINWAVE

Starting Date 10/04/1962 15:00:00

Ending Date 05/23/2008 15:00:00

Antecedent Dry Days 0.0

Report Time Step 01:00:00

Wet Time Step 00:15:00

Dry Time Step 04:00:00

Routing Time Step 60.00 sec

	Volume	Depth
Runoff Quantity Continuity	acre-feet	inches

SWMM OUTPUT REPORT

POST-PROJECT CONDITION

	-----	-----

Initial LID Storage	0.002	0.045
Total Precipitation	21.433	558.210
Evaporation Loss	3.913	101.909
Infiltration Loss	13.362	348.019
Surface Runoff	1.242	32.357
LID Drainage	3.192	83.141
Final Storage	0.003	0.076
Continuity Error (%)	-1.298	

	Volume	Volume
	acre-feet	10^6 gal
*****	-----	-----
Flow Routing Continuity		

Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	4.435	1.445
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	4.266	1.390
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	3.813	

Highest Flow Instability Indexes

All links are stable.

Routing Time Step Summary

Minimum Time Step : 60.00 sec
 Average Time Step : 60.00 sec
 Maximum Time Step : 60.00 sec
 % of Time in Steady State : 0.00
 Average Iterations per Step : 1.00
 % of Steps Not Converging : 0.00

Analysis begun on: Thu Jul 17 13:06:18 2025
 Analysis ended on: Thu Jul 17 13:06:32 2025
 Total elapsed time: 00:00:14

Topic: Click a column header to sort the column.

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Imperv Runoff in	Perv Runoff in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DMA1	558.21	0.00	74.14	279.22	150.97	61.13	212.10	1.62	0.22	0.380
BMP1	558.21	12846.02	922.20	3081.22	0.00	0.00	9399.91	1.18	0.21	0.701
DMA2	558.21	0.00	89.30	221.49	207.10	47.97	255.08	1.17	0.13	0.457
BMP-2	558.21	6234.56	990.41	4406.47	0.00	0.00	1397.59	0.26	0.13	0.206

Topic: Click a column header to sort the column.

Subcatchment	LID Control	Total Inflow in	Evap Loss in	Infil Loss in	Surface Outflow in	Drain Outflow in	Initial Storage in	Final Storage in	Continuity Error %
BMP1	BF-1	13404.23	922.23	3081.33	1139.31	8260.94	1.80	2.53	-0.00
BMP-2	BF-2	6792.77	990.45	4406.63	1397.65	0.00	1.80	2.19	-0.03

Topic: Click a column header to sort the column.

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Day of Maximum Inflow	Hour of Maximum Inflow	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error %
POC-1	OUTFALL	0.02	0.45	11801	05:03	1.04	1.39	0.000
STOR1	STORAGE	0.20	0.20	7475	13:16	0.143	0.143	9.235
STOR2	STORAGE	0.13	0.13	7475	13:01	0.261	0.261	19.673

SWMM OUTPUT REPORT

POST-PROJECT CONDITION

Project Data				
Data Category	Name	Type	X-Value	Y-Value
[TITLE]	;24" X 24" BROOKS BOX			
[OPTIONS]	24X24	Rating	0.1	0.69
[EVAPORATION]	24X24		0.2	1.94
[RAINGAGES]	24X24		0.3	3.56
[SUBCATCHMENTS]	24X24		0.4	5.48
[SUBAREAS]	24X24		0.5	7.66
[INFILTRATION]	;			
[LID_CONTROLS]	18X18	Rating	.1	.53
[LID_USAGE]	18X18		.2	1.5
[OUTFALLS]	18X18		.3	2.75
[STORAGE]	18X18		.4	4.24
[OUTLETS]	18X18		.5	5.93
[CURVES]	18X18		.6	7.79
[TIMESERIES]	18X18		.7	9.82
[REPORT]	18X18		.8	12
	18X18		.9	14.31
	18X18		1	16.77
	;			
	;VOLUME ABOVE GRATE			
	STOR1	Storage	0	454
	STOR1		0.25	526
	STOR1		.5	601
	STOR1		0.75	680
	STOR1		1	762
	;			
	;TOP OF GRATE TO TOP OF WALL BF-2			
	STOR2	Storage	.25	301
	STOR2		.5	301

Project Data									
Data Category	Name	Type/Layer	Parameters						
[TITLE]	BF-1	BC							
[OPTIONS]	BF-1	SURFACE	12	0.0	0	0	5		
[EVAPORATION]	BF-1	SOIL	18	0.4	0.2	0.1	5.0	5.0	3.5
[RAINGAGES]	BF-1	STORAGE	18	0.6	0.547	0	NO		
[SUBCATCHMENTS]	BF-1	DRAIN	19.4955	0.5	0	6	0	0	
[SUBAREAS]	BF-2	BC							
[INFILTRATION]	BF-2	SURFACE	6	0.0	0.1	1.0	5		
[LID_CONTROLS]	BF-2	SOIL	18	0.5	0.2	0.1	0.5	10.0	3.5
[LID_USAGE]	BF-2	STORAGE	18	0.75	0.5	0	NO		
[OUTFALLS]	BF-2	DRAIN	11.5778	0.5	6	6	0	0	
[STORAGE]									
[OUTLETS]									
[CURVES]									
[TIMESERIES]									
[REPORT]									

STONEPOINTE DR.

J-2454

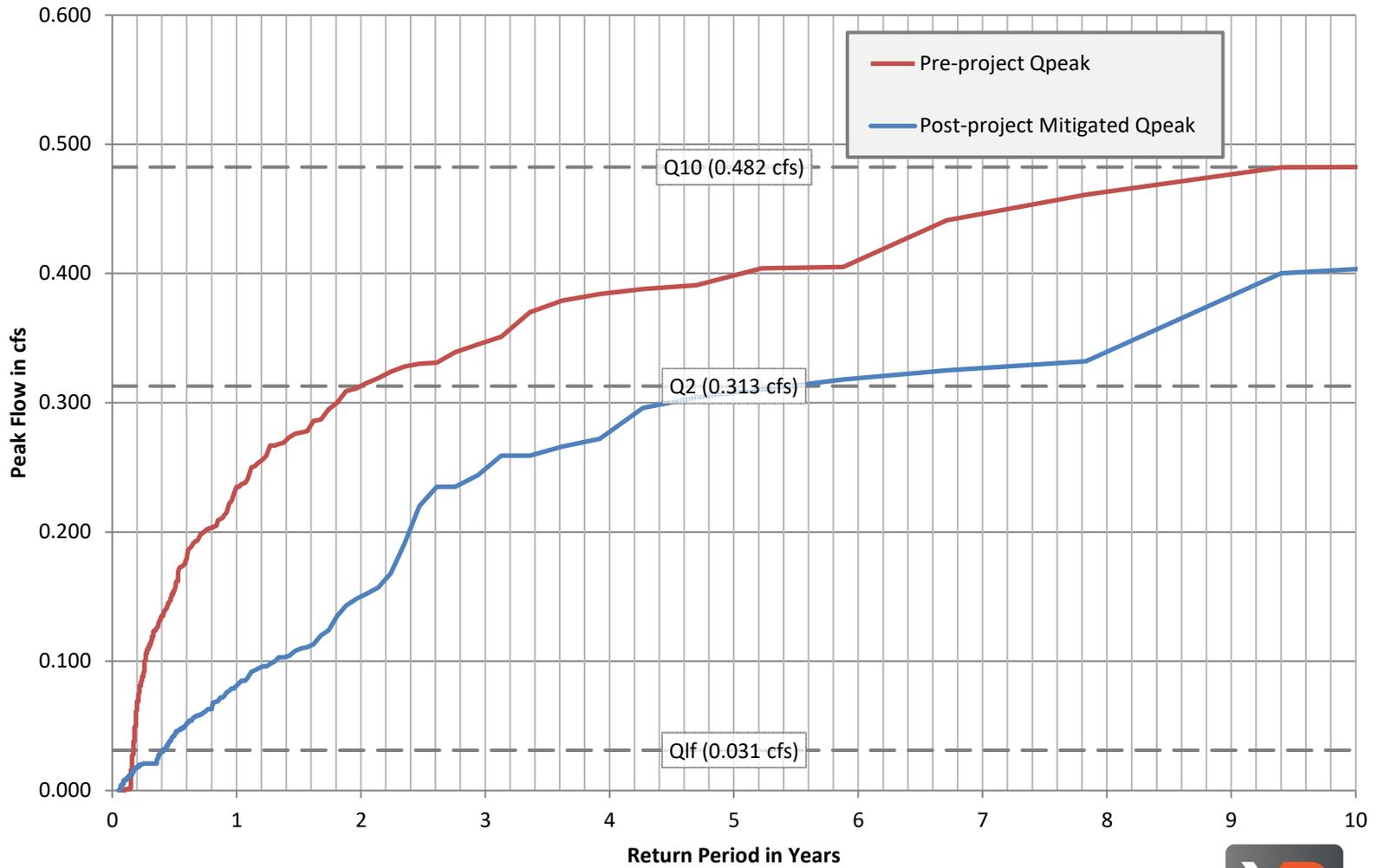
7/17/2025

Peak Flow Frequency Summary

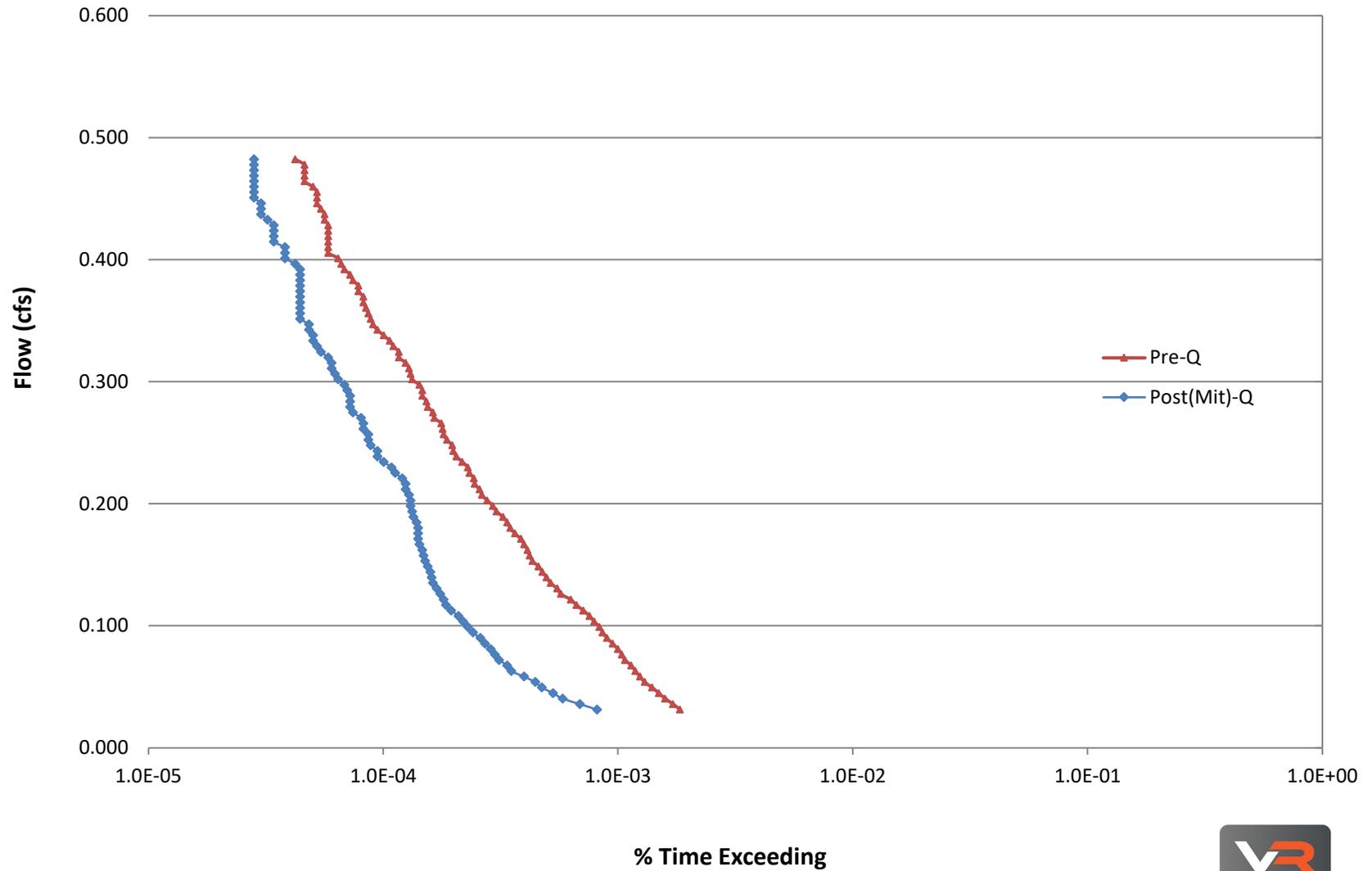
Return Period	Pre-project Q (cfs)	Post-project - Mitigated Q (cfs)
LF = 0.1*Q2	0.031	0.015
2-year	0.313	0.150
3-year	0.347	0.249
4-year	0.385	0.277
5-year	0.399	0.307
6-year	0.410	0.319
7-year	0.446	0.327
8-year	0.463	0.339
9-year	0.477	0.383
10-year	0.482	0.403



Peak Flow Frequency Curves



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



BMP 1

SWMM Model Drain Coefficient Calculation

PARAMETER	ABBREV.	Basin 1	
Ponding Depth	PD	12	in
Bioretention Soil Layer	S	18	in
Gravel Layer	G	18	in
TOTAL		4.0	ft
		48	in
Orifice Coefficient	C_g	0.6	--
Low Flow Orifice Diameter	D	3.5	in
Drain exponent	n	0.5	--
Flow Rate (volumetric)	Q	0.6316	cfs
Ponding Depth Surface Area	A_{PD}	749	ft ²
Bioretention Surface Area	A_S, A_G	202	ft ²
	A_S, A_G	0.0046	ac
Flow Rate (per unit area)	q	135.069	in/hr
Effective Ponding Depth	PD_{eff}	28.25	in
Drain Coefficient	C	19.4955	--
Cutoff Flow		Q_{cutoff}	
		0.63157	cfs
		135.0684	IN/HR



BMP 2

SWMM Model Drain Coefficient Calculation

PARAMETER	ABBREV.	Basin 1	
Ponding Depth	PD	6	in
Bioretention Soil Layer	S	18	in
Gravel Layer	G	8	in
TOTAL		2.7	ft
		32	in
Orifice Coefficient	c_g	0.6	--
Low Flow Orifice Diameter	D	3.3	in
Drain exponent	n	0.5	--
Flow Rate (volumetric)	Q	0.4548	cfs
Ponding Depth Surface Area	A_{PD}	300	ft ²
Bioretention Surface Area	A_S, A_G	300	ft ²
	A_S, A_G	0.0069	ac
Flow Rate (per unit area)	q	65.494	in/hr
Effective Ponding Depth	PD_{eff}	6.00	in
Drain Coefficient	C	11.5778	--
Cutoff Flow		Q_{cutoff}	
		0.45482	cfs
		65.49408	IN/HR



STONEPOINTE DR.
 J-2454
 7/17/2025

Low-flow Threshold: 10%
0.1xQ2 (Pre): 0.031 cfs
Q10 (Pre): 0.482 cfs
Ordinate #: 100
Incremental Q (Pre): 0.00451 cfs
Total Hourly Data: 497370 hours

The proposed BMP: **PASSED**

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail	PRE-PROJECT WORK	POST-PROJECT WORK
0	0.031	914	1.84E-03	405	8.14E-04	44%	Pass	0.00	0.00
1	0.036	853	1.72E-03	342	6.88E-04	40%	Pass	0.45	0.18
2	0.040	790	1.59E-03	289	5.81E-04	37%	Pass	1.17	0.43
3	0.045	742	1.49E-03	263	5.29E-04	35%	Pass	1.99	0.70
4	0.049	695	1.40E-03	236	4.74E-04	34%	Pass	2.83	0.96
5	0.054	646	1.30E-03	221	4.44E-04	34%	Pass	3.63	1.24
6	0.058	617	1.24E-03	198	3.98E-04	32%	Pass	4.50	1.44
7	0.063	590	1.19E-03	175	3.52E-04	30%	Pass	5.36	1.59
8	0.067	566	1.14E-03	168	3.38E-04	30%	Pass	6.20	1.84
9	0.072	533	1.07E-03	155	3.12E-04	29%	Pass	6.89	2.00
10	0.076	517	1.04E-03	149	3.00E-04	29%	Pass	7.75	2.23
11	0.081	497	9.99E-04	143	2.88E-04	29%	Pass	8.50	2.45
12	0.085	472	9.49E-04	135	2.71E-04	29%	Pass	9.10	2.60
13	0.090	447	8.99E-04	129	2.59E-04	29%	Pass	9.62	2.78
14	0.094	428	8.61E-04	120	2.41E-04	28%	Pass	10.20	2.86
15	0.099	415	8.34E-04	114	2.29E-04	27%	Pass	10.86	2.98
16	0.103	394	7.92E-04	109	2.19E-04	28%	Pass	11.26	3.11
17	0.108	376	7.56E-04	104	2.09E-04	28%	Pass	11.66	3.22
18	0.112	354	7.12E-04	97	1.95E-04	27%	Pass	11.85	3.25
19	0.117	331	6.66E-04	92	1.85E-04	28%	Pass	11.92	3.31
20	0.121	313	6.29E-04	90	1.81E-04	29%	Pass	12.07	3.47
21	0.126	284	5.71E-04	87	1.75E-04	31%	Pass	11.68	3.58
22	0.131	274	5.51E-04	84	1.69E-04	31%	Pass	11.99	3.68
23	0.135	257	5.17E-04	81	1.63E-04	32%	Pass	11.93	3.76
24	0.140	247	4.97E-04	80	1.61E-04	32%	Pass	12.12	3.93
25	0.144	237	4.77E-04	79	1.59E-04	33%	Pass	12.27	4.09
26	0.149	228	4.58E-04	77	1.55E-04	34%	Pass	12.43	4.20
27	0.153	215	4.32E-04	75	1.51E-04	35%	Pass	12.32	4.30
28	0.158	209	4.20E-04	74	1.49E-04	35%	Pass	12.55	4.44
29	0.162	205	4.12E-04	73	1.47E-04	36%	Pass	12.89	4.59
30	0.167	198	3.98E-04	71	1.43E-04	36%	Pass	13.01	4.66
31	0.171	192	3.86E-04	70	1.41E-04	36%	Pass	13.16	4.80
32	0.176	181	3.64E-04	70	1.41E-04	39%	Pass	12.92	5.00
33	0.180	173	3.48E-04	70	1.41E-04	40%	Pass	12.85	5.20
34	0.185	168	3.38E-04	69	1.39E-04	41%	Pass	12.97	5.33
35	0.189	161	3.24E-04	67	1.35E-04	42%	Pass	12.90	5.37
36	0.194	151	3.04E-04	66	1.33E-04	44%	Pass	12.54	5.48
37	0.198	146	2.94E-04	65	1.31E-04	45%	Pass	12.56	5.59
38	0.203	138	2.77E-04	65	1.31E-04	47%	Pass	12.28	5.78
39	0.207	131	2.63E-04	64	1.29E-04	49%	Pass	12.05	5.89
40	0.212	128	2.57E-04	62	1.25E-04	48%	Pass	12.16	5.89
41	0.216	122	2.45E-04	62	1.25E-04	51%	Pass	11.96	6.08
42	0.221	121	2.43E-04	60	1.21E-04	50%	Pass	12.23	6.06
43	0.225	116	2.33E-04	56	1.13E-04	48%	Pass	12.07	5.83
44	0.230	114	2.29E-04	54	1.09E-04	47%	Pass	12.22	5.79
45	0.234	108	2.17E-04	50	1.01E-04	46%	Pass	11.90	5.51
46	0.239	102	2.05E-04	47	9.45E-05	46%	Pass	11.56	5.33
47	0.243	99	1.99E-04	47	9.45E-05	47%	Pass	11.53	5.47
48	0.248	98	1.97E-04	44	8.85E-05	45%	Pass	11.71	5.26
49	0.252	93	1.87E-04	43	8.65E-05	46%	Pass	11.41	5.27
50	0.257	90	1.81E-04	43	8.65E-05	48%	Pass	11.32	5.41
51	0.261	89	1.79E-04	41	8.24E-05	46%	Pass	11.48	5.29
52	0.266	88	1.77E-04	41	8.24E-05	47%	Pass	11.62	5.42

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail	PRE-PROJECT WORK	POST-PROJECT WORK
53	0.270	82	1.65E-04	40	8.04E-05	49%	Pass	11.09	5.41
54	0.275	81	1.63E-04	37	7.44E-05	46%	Pass	11.21	5.12
55	0.279	77	1.55E-04	36	7.24E-05	47%	Pass	10.91	5.10
56	0.284	76	1.53E-04	36	7.24E-05	47%	Pass	11.01	5.21
57	0.288	73	1.47E-04	36	7.24E-05	49%	Pass	10.81	5.33
58	0.293	73	1.47E-04	35	7.04E-05	48%	Pass	11.04	5.29
59	0.297	71	1.43E-04	34	6.84E-05	48%	Pass	10.97	5.25
60	0.302	66	1.33E-04	32	6.43E-05	48%	Pass	10.41	5.05
61	0.306	65	1.31E-04	31	6.23E-05	48%	Pass	10.46	4.99
62	0.311	64	1.29E-04	30	6.03E-05	47%	Pass	10.51	4.93
63	0.315	62	1.25E-04	30	6.03E-05	48%	Pass	10.38	5.02
64	0.320	58	1.17E-04	29	5.83E-05	50%	Pass	9.90	4.95
65	0.324	58	1.17E-04	27	5.43E-05	47%	Pass	10.09	4.70
66	0.329	55	1.11E-04	26	5.23E-05	47%	Pass	9.75	4.61
67	0.333	53	1.07E-04	25	5.03E-05	47%	Pass	9.57	4.51
68	0.338	50	1.01E-04	25	5.03E-05	50%	Pass	9.19	4.60
69	0.342	47	9.45E-05	24	4.83E-05	51%	Pass	8.80	4.49
70	0.347	45	9.05E-05	24	4.83E-05	53%	Pass	8.57	4.57
71	0.351	44	8.85E-05	22	4.42E-05	50%	Pass	8.53	4.26
72	0.356	43	8.65E-05	22	4.42E-05	51%	Pass	8.48	4.34
73	0.360	42	8.44E-05	22	4.42E-05	52%	Pass	8.42	4.41
74	0.365	41	8.24E-05	22	4.42E-05	54%	Pass	8.36	4.48
75	0.370	41	8.24E-05	22	4.42E-05	54%	Pass	8.49	4.56
76	0.374	39	7.84E-05	22	4.42E-05	56%	Pass	8.21	4.63
77	0.379	39	7.84E-05	22	4.42E-05	56%	Pass	8.34	4.71
78	0.383	37	7.44E-05	22	4.42E-05	59%	Pass	8.04	4.78
79	0.388	36	7.24E-05	22	4.42E-05	61%	Pass	7.94	4.85
80	0.392	34	6.84E-05	22	4.42E-05	65%	Pass	7.62	4.93
81	0.397	33	6.63E-05	21	4.22E-05	64%	Pass	7.50	4.78
82	0.401	32	6.43E-05	19	3.82E-05	59%	Pass	7.39	4.39
83	0.406	29	5.83E-05	19	3.82E-05	66%	Pass	6.79	4.45
84	0.410	29	5.83E-05	19	3.82E-05	66%	Pass	6.89	4.51
85	0.415	29	5.83E-05	17	3.42E-05	59%	Pass	6.99	4.10
86	0.419	29	5.83E-05	17	3.42E-05	59%	Pass	7.09	4.16
87	0.424	29	5.83E-05	17	3.42E-05	59%	Pass	7.19	4.21
88	0.428	29	5.83E-05	17	3.42E-05	59%	Pass	7.29	4.27
89	0.433	28	5.63E-05	16	3.22E-05	57%	Pass	7.13	4.08
90	0.437	28	5.63E-05	15	3.02E-05	54%	Pass	7.23	3.87
91	0.442	27	5.43E-05	15	3.02E-05	56%	Pass	7.06	3.92
92	0.446	26	5.23E-05	15	3.02E-05	58%	Pass	6.89	3.98
93	0.451	26	5.23E-05	14	2.81E-05	54%	Pass	6.98	3.76
94	0.455	26	5.23E-05	14	2.81E-05	54%	Pass	7.07	3.81
95	0.460	25	5.03E-05	14	2.81E-05	56%	Pass	6.89	3.86
96	0.464	23	4.62E-05	14	2.81E-05	61%	Pass	6.41	3.90
97	0.469	23	4.62E-05	14	2.81E-05	61%	Pass	6.49	3.95
98	0.473	23	4.62E-05	14	2.81E-05	61%	Pass	6.57	4.00
99	0.478	23	4.62E-05	14	2.81E-05	61%	Pass	6.65	4.05
100	0.482	21	4.22E-05	14	2.81E-05	67%	Pass	6.15	4.10

TOTAL WORK: 944.17 422.16

EROSION POTENTIAL (EP): 0.4471

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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)

DMA-1 BMP SIZE

AREA NAME	AREA (SF)	POST-PROJECT SURFACE TYPE	SURFACE RUNOFF FACTOR	ADJUSTMENT FACTOR	AREA X ADJUSTED RUNOFF (SF)
A1-1	4,284	PROPOSED RESIDENCE	0.9	0.77	2,969
A1-2	7,749	LANDSCAPE/GRADING AREA	0.3	1.0	2,324
A1-3	202	BMP (BF-1)	0.3	1.0	61
TOTAL					5354

DMA-2 BMP SIZE

AREA NAME	AREA (SF)	POST-PROJECT SURFACE TYPE	SURFACE RUNOFF FACTOR	ADJUSTMENT FACTOR	AREA X ADJUSTED RUNOFF (SF)
A2-1	3,560	PCC-DRIVEWAY	0.9	0.77	2,467
A2-2	2,470	PERVIOUS PAVERS-DRIVEWAY	0.3	1.0	741
A2-3	1,018	GRADING/LANDSCAPE AREA	0.3	1.0	305
A2-4	285	BMP (BF-2)	0.3	1.0	86
TOTAL					3,599

DMA-1 DCV CALCULATIONS

TOTAL DMA SIZE = 12,235 SF
 ADJUSTED RUNOFF FACTOR = 0.54
 85TH % RAINFALL DEPTH = 0.75 INCHES
 DCV = 390 CU FT

DMA-2 DCV CALCULATIONS

TOTAL DMA SIZE = 7,333 SF
 ADJUSTED RUNOFF FACTOR = 0.62
 85TH % RAINFALL DEPTH = 0.75 INCHES
 DCV = 238 CU FT

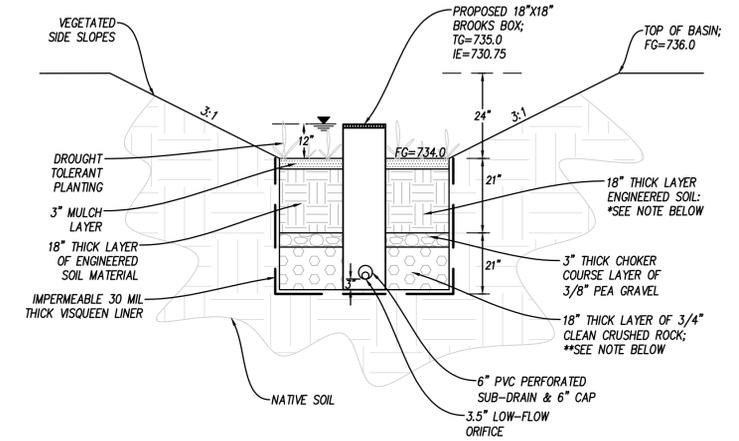
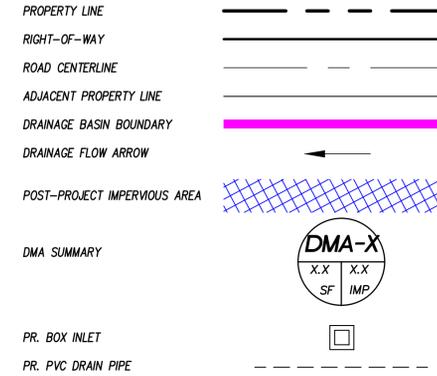
AREA CALCULATIONS

TOTAL AREA 65,103 S.F (1.49 AC)
 PERVIOUS AREA 56,547 S.F (1.29 AC)
 IMPERVIOUS AREA 8,556 S.F (0.20 AC)
 % IMP 13.14%

HYDROLOGIC SOIL GROUP

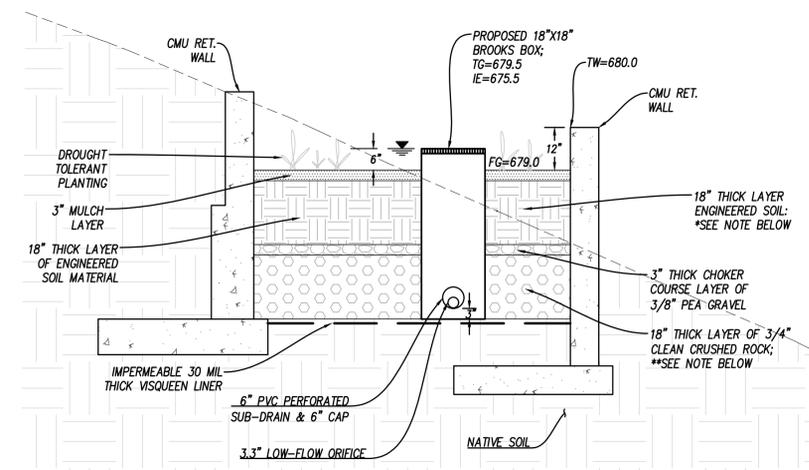
SOIL GROUP: D

LEGEND

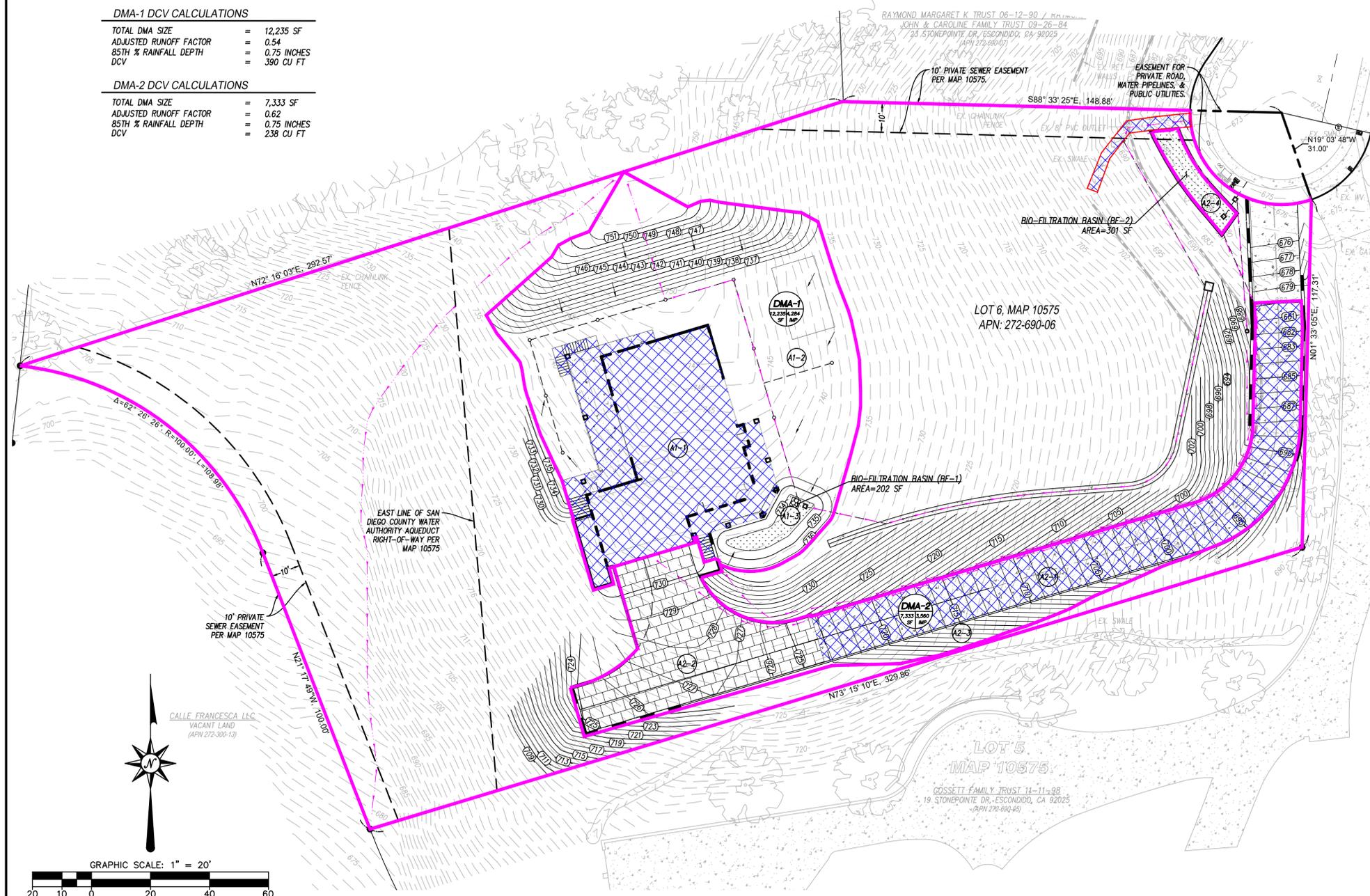


FINISHED GRADE OF BASIN SHALL BE LESS THAN OR EQUAL TO 2%
 **ENGINEERED SOIL* LAYER SHALL BE MINIMUM 18" DEEP "SANDY LOAM" SOIL MIX WITH 20% SANDY LOAM (SAND, SILT, & CLAY) CONTENT. THE MIX SHALL CONTAIN 65% SAND, AND 15% COMPOST OR HARDWOOD MULCH. BSM SHOULD ACHIEVE LONG-TERM, IN-PLACE INFILTRATION RATE OF 5 INCHES PER HOUR, ACCORDING TO THE COUNTY OF SAN DIEGO 2012 STANDARD URBAN STORMWATER MITIGATION PLAN (SUSMP) REQUIREMENTS. POLLUTANT CONTROL TREATMENT PERFORMANCE STANDARDS IN SECTION F.1.1 FROM THE SAN DIEGO COUNTY LID HANDBOOK MUST BE MET
 **3/4" CRUSHED ROCK LAYER SHALL BE A MINIMUM OF 12" BUT MAY BE DEEPENED TO INCREASE THE INFILTRATION AND STORAGE ABILITY OF THE DETAIL.

BIOFILTRATION BASIN (BF-1) - TYPICAL DETAIL
 NOT TO SCALE

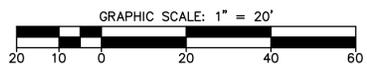


BIOFILTRATION BASIN (BF-2) - TYPICAL DETAIL
 NOT TO SCALE



SWQMP DMA & HYDROMODIFICATION MAP

STONEPOINTE DR. - VACANT LOT
 ESCONDIDO, CA 92025
 NUMBER: J-2454
 SCALE: 1" = 20'



Stonepointe CCSYA

Legend
CCSYA



Google Earth

Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

1000 ft



PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Downstream Systems Requirements for Preservation of Coarse Sediment Supply			Form I-11
When it has been determined that potential critical coarse sediment yield areas exist within the project site, the next step is to determine whether downstream systems would be sensitive to reduction of coarse sediment yield from the project site. Use this form to document the evaluation of downstream systems requirements for preservation of coarse sediment supply.			
Project Name:			
Project Tracking Number / Permit Application Number:			
1	Will the project discharge runoff to a hardened MS4 system (pipe or lined channel) or an un-lined channel?	<input type="checkbox"/> Hardened MS4 system	Go to 2
		<input type="checkbox"/> Un-lined channel	Go to 4
2	Will the hardened MS4 system convey sediment (e.g., a concrete-lined channel with steep slope and cleansing velocity) or sink sediment (e.g., flat slopes, constrictions, treatment BMPs, or ponds with restricted outlets within the system will trap sediment and not allow conveyance of coarse sediment from the project site to an un-lined system).	<input type="checkbox"/> Convey	Go to 3
		<input type="checkbox"/> Sink	Go to 7
3	What kind of receiving water will the hardened MS4 system convey the sediment to?	<input type="checkbox"/> Un-lined channel	Go to 4
		<input type="checkbox"/> Lake	Go to 7
		<input type="checkbox"/> Reservoir	
		<input type="checkbox"/> Bay	
4	Is the un-lined channel impacted by deposition of sediment? This condition must be documented by the local agency.	<input type="checkbox"/> Yes	Go to 7
		<input type="checkbox"/> No	Go to 5
5	End – Preserve coarse sediment supply to protect un-lined channels from accelerated erosion due to reduction of coarse sediment yield from the project site unless further investigation determines the sediment is not critical to the receiving stream. Sediment that is critical to receiving streams is the sediment that is a significant source of bed material to the receiving stream (bed sediment supply) (see Section 6.2.3 and Appendix H.2 of the manual).		
6	End – Provide management measures for preservation of coarse sediment supply (protect beach sand supply).		
7	End – Downstream system does not warrant preservation of coarse sediment supply, no measures for protection of critical coarse sediment yield areas onsite are necessary. Use the space below to describe the basis for this finding for the project.		

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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)	<input checked="" type="checkbox"/> 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)	<input type="checkbox"/> Included <input checked="" type="checkbox"/> Not Applicable

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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).

SITE DESIGN, SOURCE CONTROL AND POLLUTANT CONTROL BMP OPERATION & MAINTENANCE PROCEDURE

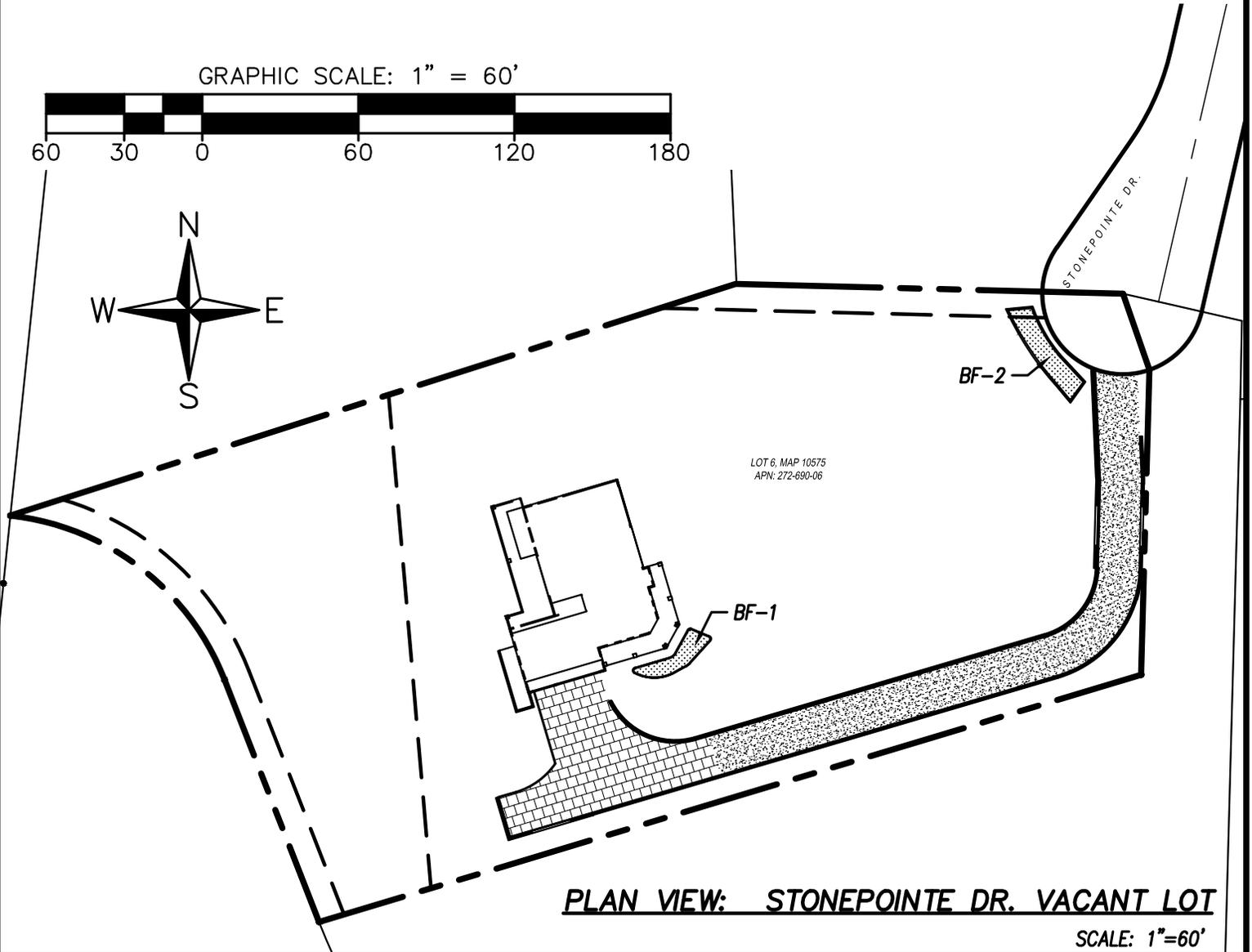
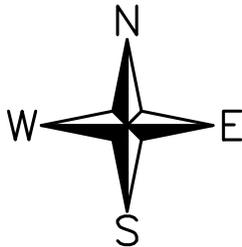
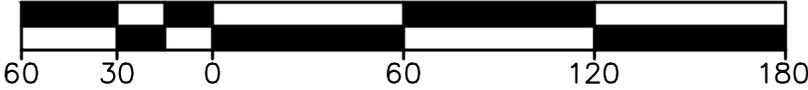
O&M RESPONSIBLE PARTY DESIGNEE: PROPERTY OWNER / HOA / CITY / OTHER: CASA FAMILIAR

BMP DESCRIPTION	INSPECTION FREQUENCY	MAINTENANCE FREQUENCY	MAINTENANCE METHOD	QUANTITY	INCLUDED IN O&M MANUAL		SHEET NUMBER(S)
					YES	NO	
SOURCE CONTROL ELEMENTS DESCRIPTION: BIOFILTRATION	ANNUAL	AS NEEDED	REMOVE AND REPLACE CLOGGED SURFACE SOILS	2	YES	<u>NO</u>	2
POLLUTANT CONTROL BMP(S) DESCRIPTION: BIOFILTRATION	BI-ANNUAL	BI-ANNUAL, AS NEEDED	MOWING AND DEBRIS COLLECTION AS NECESSARY	2	<u>YES</u>	NO	2
HMP FACILITY (IF SEPARATE) DESCRIPTION: BIOFILTRATION							-
HMP EXEMPT	NO						

STONEPONTE DR. VACANT LOT PERMANENT STORM WATER BMPs

BMP DATA TABLE		
BMP ID	BMP TYPE	AREA
BF-1	UPPER BIOFILTRATION BASIN	202 SF
BF-2	LOWER BIOFILTRATION BASIN	300 SF

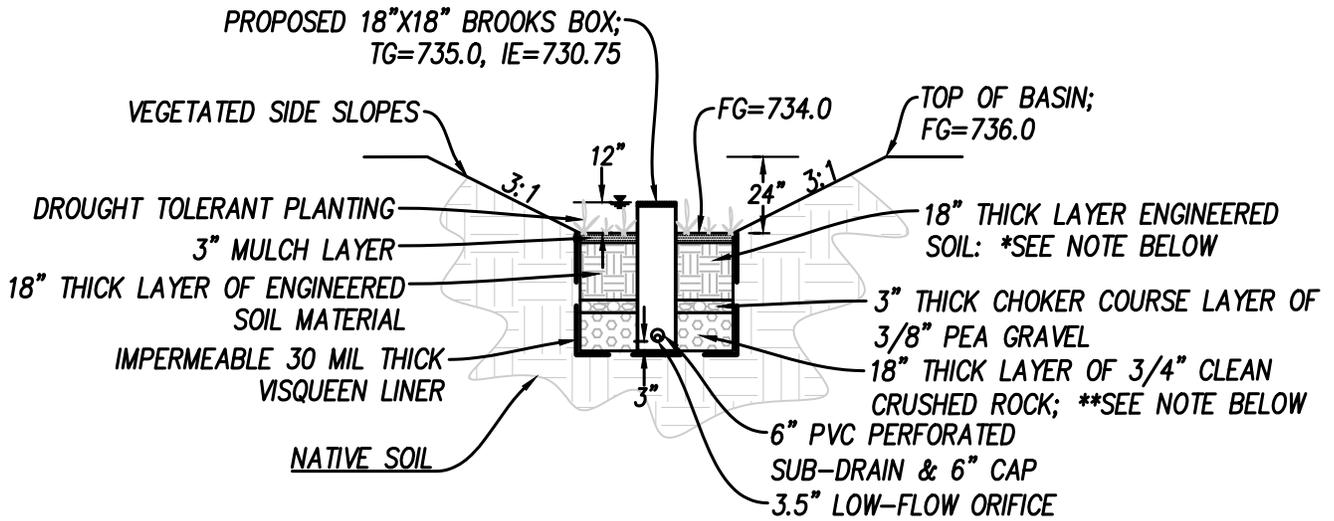
GRAPHIC SCALE: 1" = 60'



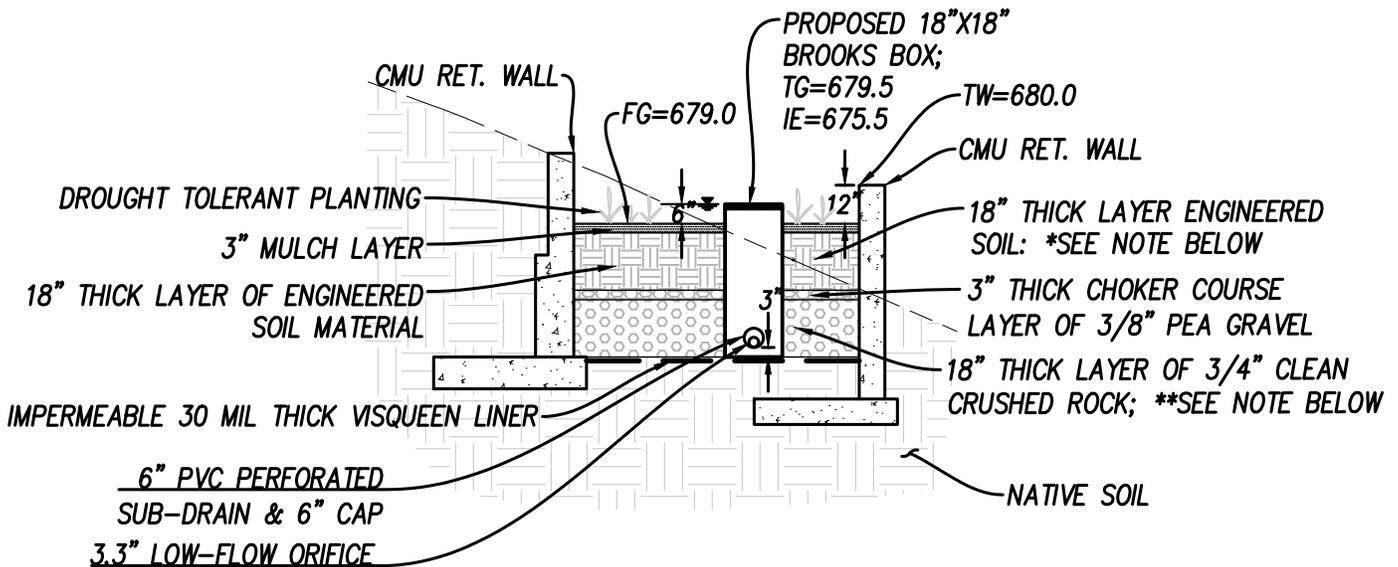
LOT 6, MAP 10575
APN: 272-690-06

PLAN VIEW: STONEPONTE DR. VACANT LOT

SCALE: 1"=60'



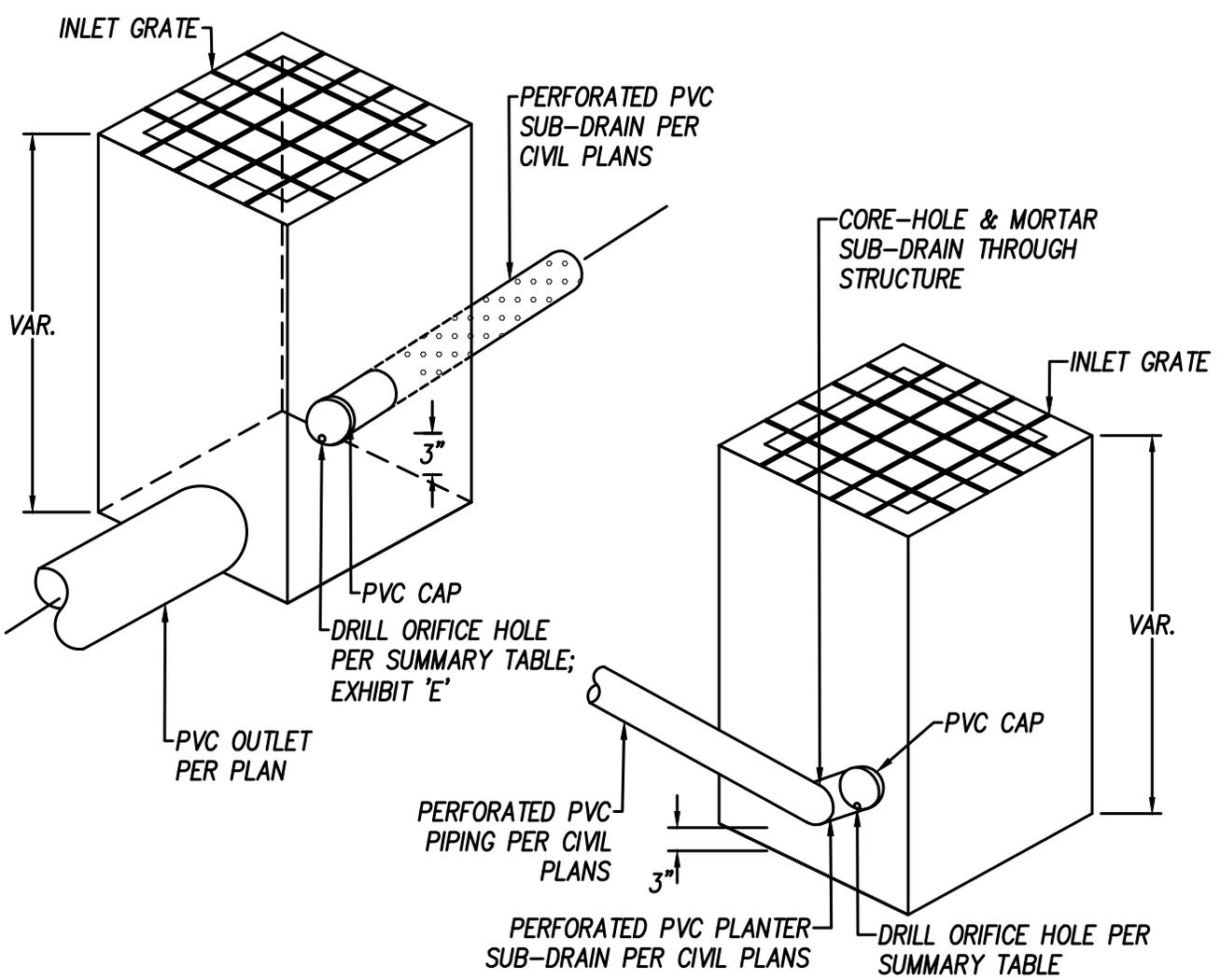
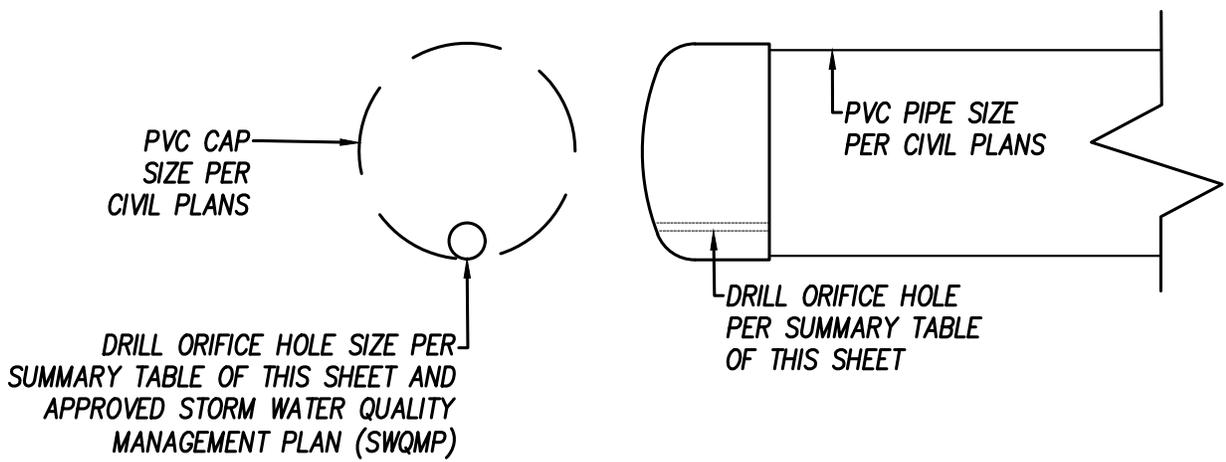
SECTION: BF-1
NOT TO SCALE



SECTION: BF-2
NOT TO SCALE

BIOFILTRATION AREA NOTES:

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



A2 DRILLED LOW FLOW ORIFICE CAP + DRAIN DETAIL (TYP.) NOT TO SCALE

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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	STONEPOINTE DE. VACANT LOT
Permit Number (e.g., grading/improvement plan number)	
Project Address	STONEPOINTE DR. VACANT LOT
Assessor's Parcel Number(s) (APN(s))	272-690-06
Project Watershed (Complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	Hydrologic Unit: San Dieguito Hydrologic Area: Hodges Hydrologic Sub-Area: Del Dios 905.21
Maintenance Notification / Agreement No.	
Responsible Party for Construction Phase	
Developer's Name	
Address	
Email Address	
Phone Number	
Engineer of Work	
Engineer's Phone Number	
Responsible Party for Ongoing Maintenance	
Owner's Name(s)*	David M Hensel
Address	21492 Harmony Village Drive Escondido, CA 92029
Email Address	dhensel@hc-engineers.com
Phone Number	619-665-3259
*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.	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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.

Professional Engineer's Printed Name:

Professional Engineer's Signed Name:

Date: _____

[SEAL]

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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.**

STORM WATER POLLUTION PREVENTION NOTES:

- BEST MANAGEMENT PRACTICES (BMPS) SHALL BE IMPLEMENTED DURING ALL PHASES OF CONSTRUCTION IN CONFORMANCE WITH THE CITY OF ESCONDIDO'S MUNICIPAL CODE. ADDITIONALLY, SITES OVER AN ACRE SHALL ABIDE BY THE CONSTRUCTION GENERAL PERMIT (CGP). ALL BMPS SHALL BE INSTALLED IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE CASQA HANDBOOK. AT A MINIMUM PERIMETER CONTROL AND CONSTRUCTION ENTRANCES SHOULD BE IN PLACE PRIOR TO A GRADING PERMIT BEING ACTIVATED.
- INSPECTION, MODIFICATION AND MAINTENANCE OF THE BMPS SHALL BE IMPLEMENTED AS NECESSARY. IN THE EVENT OF FAILURE OR REFUSAL TO PROPERLY MAINTAIN THE BMPS, THE CITY MAY ISSUE EMERGENCY MAINTENANCE WORK TO BE COMPLETED TO PROTECT ADJACENT PRIVATE AND PUBLIC PROPERTY. THE COST (INCLUDING AN INITIAL MOBILIZATION AMOUNT) AND ANY FINES ASSESSED TO THE CITY SHALL BE CHARGED TO THE OWNER OF THE PROJECT.
- NECESSARY MATERIALS TO IMPLEMENT THE REQUIRED BMPS SHALL BE AVAILABLE ON SITE TO FACILITATE RAPID DEPLOYMENT OR TO REPAIR ANY BMP FAILURES.
- CITY STAFF SHALL BE ALERTED BY THE CONTRACTOR, PERMITTEE OR OWNER, AS NEEDED FOR EMERGENCY WORK DURING STORMS.
- RUN-ON FLOW ONTO THE SITE SHALL BE PROPERLY MANAGED AND PLANNED FOR TO PREVENT FAILURE OF BMPS AND/OR ILLEGAL DISCHARGES FROM THE PROJECT SITE INTO THE STORM DRAIN.
- STORM DRAIN INLET PROTECTION SHALL BE INSTALLED AT EVERY ONSITE STORM DRAIN INLET TO PREVENT SEDIMENT FROM ENTERING THE STORM DRAIN SYSTEM. WHERE FEASIBLE DESILTING BASINS SHALL ALSO BE PROVIDED AT DRAINAGE OUTLETS FROM THE GRADED SITE.
- EROSION CONTROL MEASURES SHALL BE IMPLEMENTED ON SLOPES AND ANY EXPOSED SOIL USING THE FOLLOWING BMPS, FIBER BLANKETS, BONDED FIBER MATRIX, OR BY INSTALLING OR MAINTAINING EXISTING VEGETATION. THE CONTRACTOR SHALL IMMEDIATELY REPAIR AND STABILIZE ANY ERODED AREAS. INACTIVE SLOPES SHALL BE PROTECTED AND STABILIZED. ALL EXPOSED SOIL INCLUDING INACTIVE AND ACTIVE SLOPES SHALL BE PROTECTED PRIOR TO A RAIN EVENT.
- ALL UNPAVED GRADED CHANNELS SHALL IMPLEMENT EROSION PREVENTION MEASURES SUCH AS, LINING AND INSTALLING VELOCITY CHECK DAMS AT REGULAR INTERVALS.
- STREET SWEEPING VEHICLES WITH VACUUMS AND WATER TANKS SHALL BE USED TO KEEP PAVED STREETS FREE OF LOOSE SOIL AND/OR CONSTRUCTION DEBRIS.
- CONTRACTORS SHALL HAVE WATER TRUCKS AND EQUIPMENT ON-SITE TO MINIMIZE AIRBORNE DUST CREATED FROM GRADING AND HAULING OPERATIONS OR EXCESSIVE WIND CONDITIONS. ADDITIONAL DUST CONTROL MEASURES SHALL BE IMPLEMENTED AS NEEDED.
- STOCKPILES SHALL BE COVERED AT THE END OF EACH WORKING DAY AND PRIOR TO FORECAST RAIN. ASPHALT SHALL ADDITIONALLY BE PLACED ON A LAYER OF PLASTIC SHEET, OR EQUIVALENT.
- ALL PORTABLE TOILETS SHALL HAVE SECONDARY CONTAINMENT AND NOT BE LOCATED NEAR STORM DRAIN (I.E., CATCH BASIN OR STREET).
- VEHICLES SHALL HAVE DRIP PANS UNDERNEATH THEM AND ANY LEAKS OR SPILLS SHALL BE PROMPTLY REPAIRED AND REMOVED.
- ALL DEBRIS SHALL BE PLACED IN DUMPSTERS WITH LIDS. THE LIDS SHALL BE CLOSED AT THE END OF EACH DAY AND ARE NOT TO BE OVERFILLED. ADDITIONAL TRASH PICK-UPS SHALL BE MADE AS NECESSARY.
- LIQUID MATERIALS SHALL BE STORED IN CLOSED CONTAINERS IN SECONDARY CONTAINMENT AND UNDER COVER. SOLID MATERIALS SHALL BE STORED ON PALLETS AND BE COVERED PRIOR TO FORECAST RAIN.
- A MATERIALS WASHOUT SHALL BE AVAILABLE ONSITE WHENEVER LIQUID MATERIALS ARE USED. THE WASHOUT SHALL FULLY CONTAIN WASH MATERIALS AND THE SURROUNDING AREA SHALL BE KEPT FREE OF SPILLS.
- DISCHARGE OF POTABLE WATER (SUCH AS FROM POWER WASHING OR FILLING WATER TRUCKS) SHALL BE PREVENTED OR DIRECTED TO LANDSCAPE.
- PERIMETER CONTROL IS REQUIRED ON ALL SITES.
- ALL ACTIVE ENTRANCES SHALL PREVENT TRACKING BY INSTALLING STABILIZED CONSTRUCTION ENTRANCES.

RETAINING WALL NOTES

- ALL RETAINING WALLS SHALL COMPLY WITH THE LATEST EDITION OF THE CALIFORNIA BUILDING CODES WHICH TYPICALLY ADOPTS THE LATEST UBC "UNIFORM BUILDING CODE".
- THE PROJECT ENGINEER SHALL PROVIDE THE FOLLOWING INSPECTION REPORTS AND/OR CERTIFICATIONS TO THE FIELD ENGINEERING INSPECTOR DURING RETAINING WALL CONSTRUCTION:
 - AFTER RETAINING WALL FOUNDATION EXCAVATION AND PRIOR TO STEEL PLACEMENT, THE SOILS ENGINEER SHALL CERTIFY IN WRITING THAT THE FOUNDATION EXCAVATIONS COMPLY WITH THE INTENT OF THE SOILS REPORT.
 - ALL SPECIAL INSPECTION CERTIFICATIONS AS CALLED FOR ON THESE PLANS.
- TWO (2) COPIES OF A RETAINING WALL CERTIFICATION REPORT SIGNED AND SEALED BY A CALIFORNIA REGISTERED CIVIL ENGINEER SHALL BE SUBMITTED TO THE FIELD ENGINEERING INSPECTOR PRIOR TO ROUGH GRADING SIGN-OFF. THE REPORT SHALL CERTIFY THAT ALL CONSTRUCTION MATERIALS (SIZE, SPACING, STRENGTH, ETC.) ARE IN ACCORDANCE WITH THESE APPROVED PLANS.

SITE ADDRESS:

VACANT LOT ON STONEPOINTE DR.
ESCONDIDO, CA 92025

ASSESSOR'S PARCEL NO.:

272-690-06

LEGAL DESCRIPTION:

LOT 6 OF ESCONDIDO TRACT 510, IN THE CITY OF ESCONDIDO, IN THE COUNTY OF SAN DIEGO, ACCORDING TO MAP THEREOF NO. 10575, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, JANUARY, 28, 1983.

DECLARATION OF RESPONSIBLE CHARGE

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT. THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE CITY OF ESCONDIDO IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

JOHN A. VAN RYN DATE
03-31-27

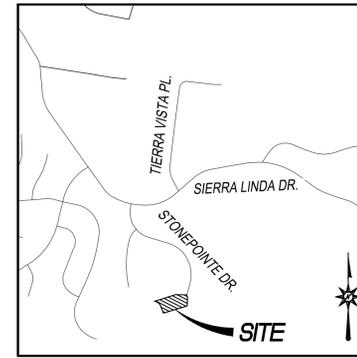
GENERAL NOTES

- ALL WORK TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 2015 EDITION, EFFECTIVE DECEMBER 07, 2016 BY RESOLUTION NO. 2016-17 AND THE DESIGN STANDARDS AND STANDARD DRAWINGS OF THE CITY OF ESCONDIDO EFFECTIVE APRIL 02, 2014 BY RESOLUTION 2014-08, ALONG WITH ANY AMENMENTS THERE TO.
- ALL CONTRACTORS WORKING IN THE PUBLIC RIGHT OF WAY SHALL OBTAIN A SEPARATE ENCROACHMENT PERMIT FROM THE DIRECTOR OF ENGINEERING SERVICES. INSPECTION OF ALL WORK IS REQUIRED. CONTACT THE ENGINEERING FIELD OFFICE AT (760) 839-4664 TO ARRANGE FOR ENCROACHMENT PERMITS AND INSPECTION. TWENTY-FOUR HOUR ADVANCE NOTICE IS REQUIRED FOR INSPECTION. NO WORK SHALL BE PERFORMED IN THE PUBLIC RIGHT OF WAY ON SATURDAYS, SUNDAYS OR LEGAL HOLIDAYS WITHOUT THE EXPRESS PERMISSION OF THE CITY ENGINEER.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL SUBSTRUCTURES, WHETHER SHOWN HEREON OR NOT, AND PROTECT THEM FROM DAMAGE. THE EXPENSE OF REPAIR OR REPLACEMENT OF SAID SUBSTRUCTURES SHALL BE BORNE BY THE CONTRACTOR.
- LOCATION AND ELEVATION OF ALL EXISTING IMPROVEMENTS WITHIN THE AREA OF WORK SHALL BE CONFIRMED BY FIELD MEASUREMENT PRIOR TO CONSTRUCTION OF NEW WORK. CONTRACTOR WILL MAKE EXPLORATORY EXCAVATIONS AND LOCATE EXISTING UNDERGROUND FACILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF REVISIONS ARE NECESSARY BECAUSE OF ACTUAL LOCATION OF EXISTING FACILITIES.

ENGINEER'S CERTIFICATION OF STRUCTURAL BMP'S

THE ENGINEER OF RECORD SHALL VERIFY THAT THE STRUCTURAL BMP'S HAVE BEEN CONSTRUCTED AND OPERATE IN COMPLIANCE WITH ALL OF THE DESIGN SPECIFICATIONS, PLANS, PERMITS, ORDINANCES AND THE REQUIREMENTS OF THE MS4 PERMIT.

THE ENGINEER OF RECORD SHALL PROVIDE THE FIELD OFFICE WITH A SIGNED AND STAMPED CERTIFICATION(S) THAT THE PROJECT'S SITE DESIGN AND STRUCTURAL BMP'S WERE INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS AND SWQMP. THE CERTIFICATION SHALL INCLUDE PHOTOGRAPHS TAKEN DURING SEVERAL PHASES OF THE TREATMENT FACILITIES DURING CONSTRUCTION (INCLUDING PHOTOGRAPHS OF SUBSURFACE STRUCTURES AND MATERIALS) AND FINAL AS-BUILT CONDITIONS.



VICINITY MAP
NO SCALE

GRADING NOTES

- FOLLOWING THE APPROVAL OF THE GRADING PLAN, BUT NO LONGER THAN 48 HOURS BEFORE STARTING GRADING, THE CONTRACTOR SHALL OBTAIN A GRADING PERMIT FROM THE ENGINEERING FIELD OFFICE AT 201 NORTH BROADWAY, (760) 839-4664.
- GRADING AREAS SHOWN ON THESE PLANS IN ACCORDANCE WITH ARTICLE 55, EXCAVATION AND GRADING, OF THE ESCONDIDO ZONING CODE.
- THE SOILS REPORT PREPARED BY _____ AND ALL SUPPLEMENTS THEREOF ARE DATED _____
- ALL FILLS SHALL BE COMPACTED TO 90% OF MAXIMUM DENSITY. A COMPACTION REPORT, ACCOMPANIED BY A PAD CERTIFICATION REPORT, SHALL BE SUBMITTED TO THE FIELD ENGINEER PRIOR TO THE ROUGH GRADING INSPECTION FOR ALL FILLS EXCEEDING ONE FOOT IN DEPTH, FOR EACH GRADED PAD. THE COMPACTION REPORT SHALL INCLUDE A STATEMENT THAT THE GEOTECHNICAL ENGINEERING AND ENGINEERING GEOLOGIC ASPECTS OF THE GRADING HAVE BEEN INSPECTED AND ARE IN COMPLIANCE WITH THE APPLICABLE CONDITIONS OF THE GRADING PERMIT, THE GEOTECHNICAL ENGINEER'S AND ENGINEERING GEOLOGIST'S RECOMMENDATIONS. THE COMPACTION REPORT AND PAD CERTIFICATION LETTER SHALL BE REVIEWED AND APPROVED BY THE FIELD ENGINEER PRIOR TO THE ROUGH GRADING APPROVAL.
- ALL SLOPES SHALL BE CONTOUR-GRADED SO AS TO ROUND CORNERS AND TO BLEND MANUFACTURED SLOPES INTO ADJACENT NATURAL SLOPES. SEE SECTION 33-1066-C OF THE GRADING ORDINANCE FOR SPECIFIC REQUIREMENTS.
- ALL SLOPES OVER THREE FEET IN HEIGHT SHALL BE LANDSCAPED. FOR SLOPES OVER FIVE FEET IN HEIGHT, THE CONTRACTOR SHALL PROVIDE PERMANENT SPRINKLER SYSTEMS INSTALLED ON EACH LOT.
- PAD ELEVATION CERTIFICATES MUST BE SUBMITTED FOR EACH PAD A MINIMUM OF 3 DAYS PRIOR TO REQUESTING FINAL ROUGH GRADING INSPECTION. THE CERTIFICATE MUST BE AN ORIGINAL SIGNED AND SEALED BY A CALIFORNIA LICENSED LAND SURVEYOR OR REGISTERED CIVIL ENGINEER WITH AN RCE NO. OF 33965 OR LESS, AND MUST CONTAIN AN ELEVATION TO THE NEAREST TENTH OF A FOOT. THE STATEMENT "SUBSTANTIAL CONFORMANCE" WILL NOT BE ALLOWED.
- NO BLASTING SHALL BE DONE UNTIL A BLASTING PERMIT IS OBTAINED FROM THE ESCONDIDO FIRE DEPARTMENT AT 1163 N. CENTRE CITY PKWY. AT (760) 839-5400.

WORK TO BE DONE

THE GRADING WORK SHALL CONSIST OF THE CONSTRUCTION OF ALL CUTS AND FILLS, RETAINING WALLS, REMEDIAL GRADING, DRAINAGE AND STORM WATER TREATMENT FACILITIES, EROSION CONTROL AND PLANTING OF PERMANENT LANDSCAPING.

LEGEND

DESCRIPTION	STD. DWG.	SYMBOL	QUANTITY
BOUNDARY LINE		---	
ADJOINING PROPERTY LINE		---	
ROAD CENTERLINE		---	
EX. RIGHT OF WAY LINE		---	
EX. ROOF OVERHANG		---	
EXISTING CONTOUR		---	
SPOT ELEVATION		---	
EX. CONCRETE		---	
EX. ASPHALT PAVEMENT		---	
EX. TREE/BUSH		---	
EX. PALM TREE		---	
EX. RETAINING WALL		---	
FENCE LINE WOOD		---	
EX. WATER METER		---	
EX. SEWER MAIN		---	
EX. SEWER MANHOLE		---	
EX. WATER VALVE		---	
EX. POWER LINES		---	
EX. POWER POLE		---	
EX. FLOW LINE		---	
PR. RETAINING WALL		---	
PR. MINOR CONTOUR		---	
PR. MAJOR CONTOUR		---	
PR. BUILDING FOOTPRINT		---	
PR. DRIVEWAY CENTERLINE		---	
PR. CONCRETE PAVEMENT		---	
PR. PAVEMENT		---	
PR. PVC AREA DRAIN		---	
PR. LIMITS OF GRADING LINE		---	

SHEET INDEX

SHEET 1	TITLE SHEET
SHEET 2	GRADING PLAN
SHEET 3	SECTIONS & DETAILS
SHEET 4	EROSION CONTROL PLAN

SOILS ENGINEER CERTIFICATE

THIS GRADING AND RETAINING WALL PLAN HAS BEEN REVIEWED BY THE UNDERSIGNED AND FOUND TO BE IN CONFORMANCE WITH THE RECOMMENDATIONS AND SPECIFICATIONS OUTLINED IN THE SOILS REPORT PREPARED FOR THIS DEVELOPMENT.

COMPANY: EARTH STRATA GEOTECHNICAL SERVICES
ADDRESS: 43391 BUSINESS PARK DR., STE# C-4
TEMECULA, CA 92590
PHONE: 951-461-4028 DATE: _____
ENGINEER: _____ R.C.E. NO. _____



REVIEWED BY: _____ DATE _____
DEPUTY DIRECTOR OF UTILITIES

OWNER/APPLICANT DEVELOPER:

DAVID HENSEL
NAME
21481 TRAIL RIDGE DRIVE
ADDRESS
ESCONDIDO, CA 92029
CITY, STATE, ZIP CODE
619-865-3259
PHONE



ENGINEER

JOHN A. VAN RYN
NAME

RECORD DRAWING

JOHN A. VAN RYN 07-XX-25
PRINT ENGINEER'S NAME R.C.E. C80667 DATE

CITY OF ESCONDIDO ENGINEERING DEPARTMENT
APPROVED

By: _____ Date: _____
(for City Engineer)

Comments: _____

OBTAIN GRADING PERMIT AT FIELD ENGINEERING OFFICE PRIOR TO GRADING



WDID # 0_00000000

City Project No.

ENG 00-0000

CONSTRUCTION RECORD	REFERENCES	Date	By	REVISIONS	App'd	Date	BENCH MARK	EARTHWORK QUANTITIES	SCALE	Office	Designed By	Drawn By	Checked By	CITY of ESCONDIDO	ENGINEERING SERVICES	Drawing No.
Contractor _____ Inspector _____ Date Completed _____							CHISELED SQUARE ON THE N.W. CORNER OF CONCRETE BASE OF SD&E ELECTRICAL BOX, ON THE NORTH SIDE OF SIERRA LINDA DRIVE. 414 Bench Mark No.	CUT: _____ C.Y. FILL: _____ C.Y. BALANCE: _____ C.Y.	Horizontal Vertical					STONELOINTE DR. VACANT LOT TITLE SHEET		GPXX-XXXX Sheet 1 of 4

OWNER INFORMATION:

DAVID M HENSEL & SUSANNAH J HENSEL FAMILY TRUST
21492 HARMONY VILLAGE DRIVE
ESCONDIDO, CA 92029

SITE INFORMATION:

SITE ADDRESS: APN: 272-690-06
VACANT LOT ON STONEPOINTE DR. AREA: 66,029 S.F. / 1.516 ACRES
ESCONDIDO, CA 92025

LEGAL DESCRIPTION:

LOT 6 OF ESCONDIDO TRACT 510, IN THE CITY OF ESCONDIDO, IN THE COUNTY OF SAN DIEGO, ACCORDING TO MAP THEREOF NO. 10575, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, JANUARY, 28, 1983.

EASEMENTS

EASEMENTS CALLED OUT ON THE MAP ARE ACCORDING TO MAP THEREOF NO. 10575, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, JANUARY 28, 1983.

IMPERVIOUS AREA CALCULATIONS

TOTAL DISTURBED AREA: ±0.46 AC/ ±20,250 S.F.
EXISTING IMPERVIOUS AREA: 0.021 AC/ 927 S.F.
PROPOSED IMPERVIOUS AREA: ±0.241 AC/ ±10,515 S.F.
TOTAL IMPERVIOUS AREA: ±0.263 AC/ ±11,442 S.F.

GRADING QUANTITIES:

CUT QUANTITIES: ± 4,083 CYD
FILL QUANTITIES: ± 253 CYD
IMPORT/EXPORT: ± 3,830 CYD (EXPORT)

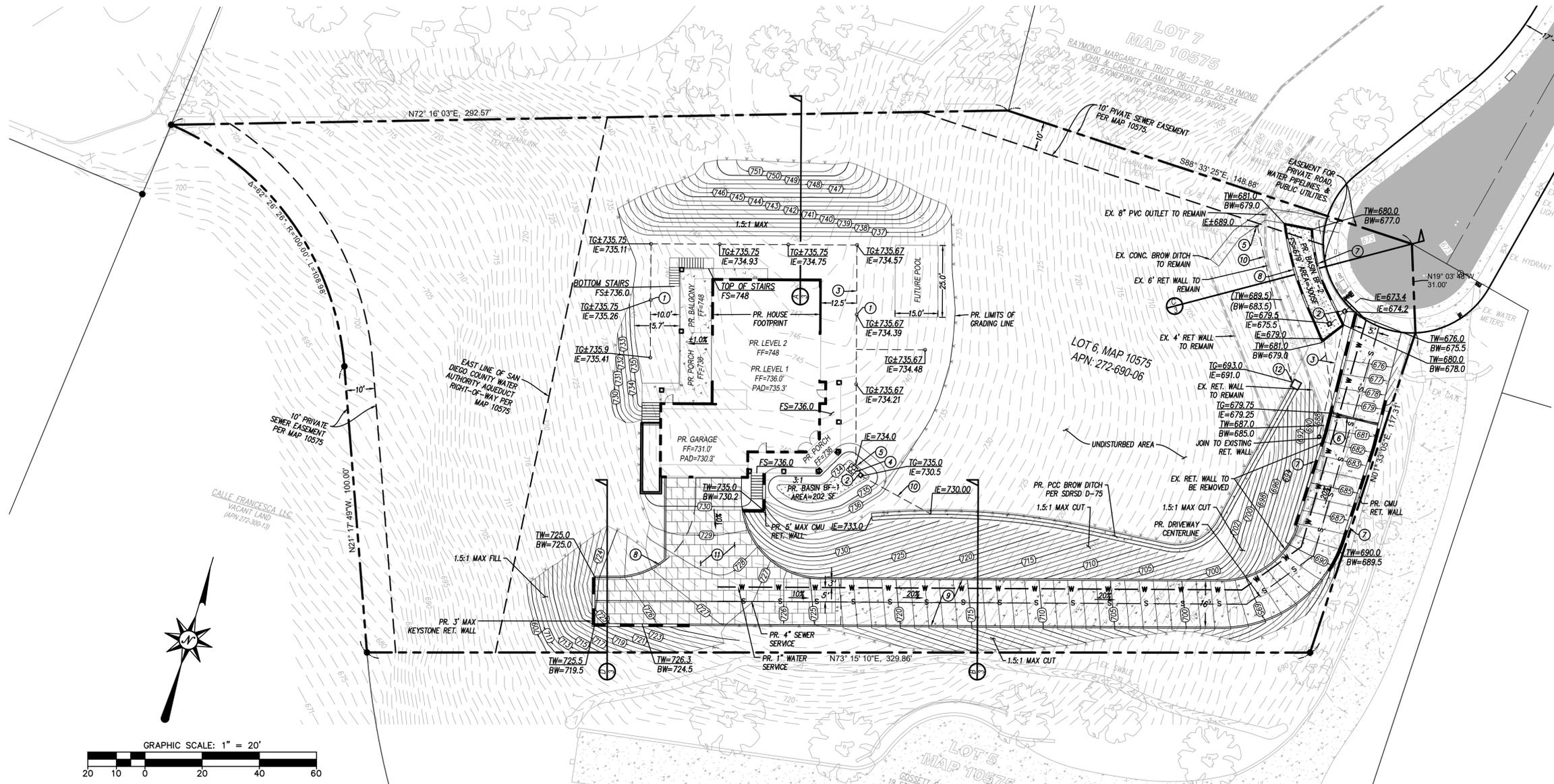
MAX CUT DEPTH: 12 FT (INSIDE BUILDING FOOTPRINT)
MAX FILL DEPTH: 0 FT (INSIDE BUILDING FOOTPRINT)
MAX CUT DEPTH: 12 FT (OUTSIDE BUILDING FOOTPRINT)
MAX FILL DEPTH: 5 FT (OUTSIDE BUILDING FOOTPRINT)

EARTH QUANTITIES MAY VARY DUE TO SHRINKAGE AND SWELLING

ALL EXPORT MATERIAL SHALL BE DISCHARGED TO A LEGAL DISPOSAL SITE, THE APPROVAL OF THIS PROJECT DOES NOT ALLOW PROCESSING AND SALE OF THE MATERIAL. ALL SUCH ACTIVITIES REQUIRE A SEPERATE CONDITIONAL USE PERMIT.

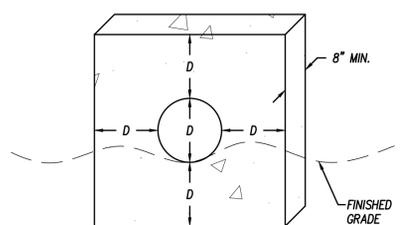
ABBREVIATIONS:

FF FINISH FLOOR
FS FINISH SURFACE
FG FINISHED GRADE
GF GARAGE FACE
TW TOP OF WALL
BW BOTTOM OF WALL
EC EDGE OF CONCRETE
TC TOP OF CURB
FL FLOW LINE
TG TOP OF GRATE
IE INVERT ELEVATION
PCC PORTLAND CEMENT CONCRETE
BLDG BUILDING
APN ASSESSOR PARCEL NUMBER
SF SQUARE FEET
ROW RIGHT OF WAY
() EXISTING
RET RETAINING



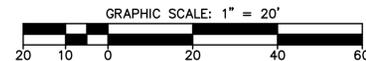
CONSTRUCTION NOTES:

- ① INSTALL 6" AREA DRAIN TYP
- ② INSTALL 18"x18" BROOKS BOX TYP
- ③ INSTALL 3" PVC PIPE
- ④ INTSALL RIP RAP ENERGY DISSIPATER PER SDRSD D-40; ROCK CLASS=No. 2 BACKING THICKNESS=1.1 FT LENGTH=3 FT WIDTH=3 FT
- ⑤ CONSTRUCT MODIFIED HEAD WALL PER DETAIL THIS SHEET
- ⑥ INSTALL 6" TRENCH DRAIN
- ⑦ CONSTRUCT MASONRY RETAINING WALL PER SDRSD C-03
- ⑧ CONSTRUCT MASONRY RETAINING WALL PER SDRSD C-04
- ⑧ FIRE TURNAROUND
- ⑨ INSTALL 8" CONC. CURB
- ⑩ INSTALL 6" PVC PIPE
- ⑪ INSTALL PERVIOUS PAVERS TO SUPPORT A LOAD OF 75,000 LBS. PER FIRE CODE REQUIREMENTS; DETAIL SHEET 2
- ⑫ INSTALL 3X3 PCC CATCH BASIN



TYPICAL DETAIL - MODIFIED PCC HEADWALL

NOT TO SCALE



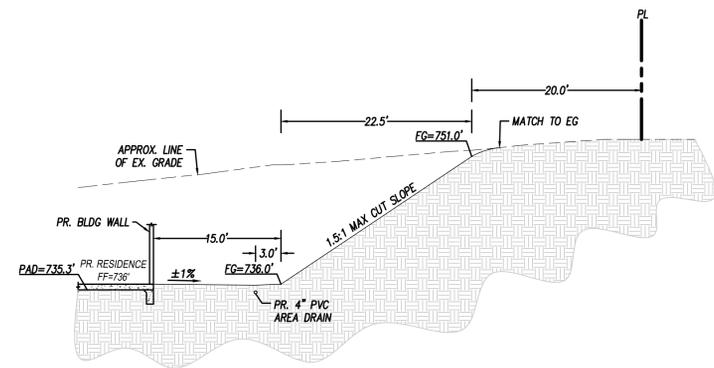
REVIEWED BY: _____
DEPUTY DIRECTOR OF UTILITIES DATE _____

RECORD DRAWING
JOHN A. VAN RYN
PRINT ENGINEER'S NAME R.C.E. C80667 DATE _____

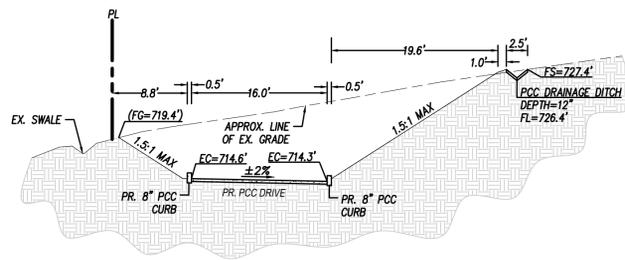
CITY OF ESCONDIDO ENGINEERING DEPARTMENT
APPROVED
By _____ Date _____
(for City Engineer)
Comments _____
OBTAIN GRADING PERMIT
AT FIELD ENGINEERING OFFICE
PRIOR TO GRADING

ESCONDIDO
City of Choice
WDID # 0_00000000
City Project No.
ENG 00-0000

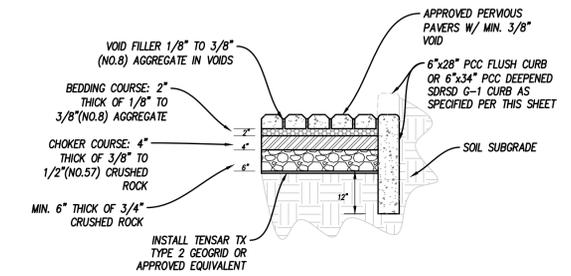
CONSTRUCTION RECORD	REFERENCES	Date	By	REVISIONS	App'd	Date	BENCH MARK	EARTHWORK QUANTITIES	SCALE	Office	Designed By	Drawn By	Checked By	CITY of ESCONDIDO	ENGINEERING SERVICES	Drawing No.
Contractor _____							DESCRIPTION:	CUT: _____ C.Y.	Horizontal	Filmed _____	Plans Prepared Under Supervision Of _____			STONELOINTE DR. VACANT LOT	GPXX-XXXX	
Inspector _____							Bench Mark No. _____	FILL: _____ C.Y.	Vertical	Traffic _____	Date _____			GRADING PLAN		
Date Completed _____								BALANCE: _____ C.Y.			R.C.E. No. _____					Sheet 2 of 4



A SECTION: NORTHERN PL TO BLDG
NOT TO SCALE

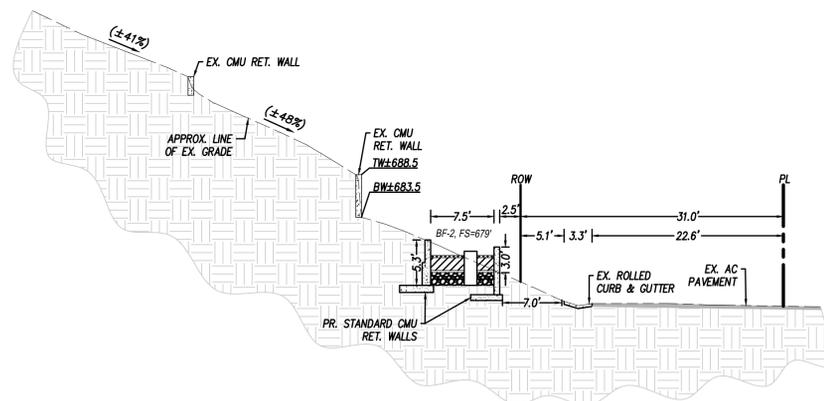


B SECTION: SOUTHERN PL TO DRIVEWAY
NOT TO SCALE

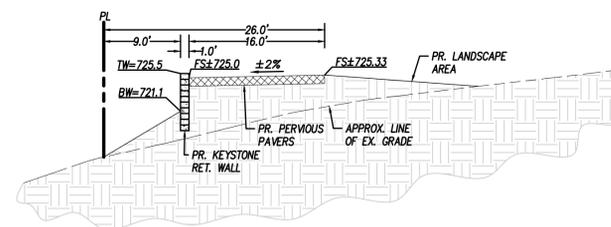


NOTE:
 -ALL AGGREGATE MUST BE CLEAN/WASHED AND FREE OF FINES(SAND, SILT, ETC.)
 -THE PAVERS SHALL NOT BE SEALED ONCE THE VOID FILLER HAS BEEN ADDED
 -EACH COURSE SHALL BE VIBRATORY COMPACTED BEFORE PLACEMENT OF NEXT COURSE
 -PERVIOUS PAVERS ADJACENT TO THE BUILDING SHALL BE LINED WITH AN IMPERVIOUS LINER A MINIMUM OF 5' HORIZONTAL DISTANCE FROM BUILDING
 -PER GEOTECHNICAL REPORT, SUBGRADE SHALL SLOPED 2% MIN. TO A PERFORATED SUBDRAIN
 -SPECIAL APPROVAL REQUIRED FOR USE IN HIGHLY EXPANSIVE SOIL-SUBDRAIN MAY BE REQUIRED

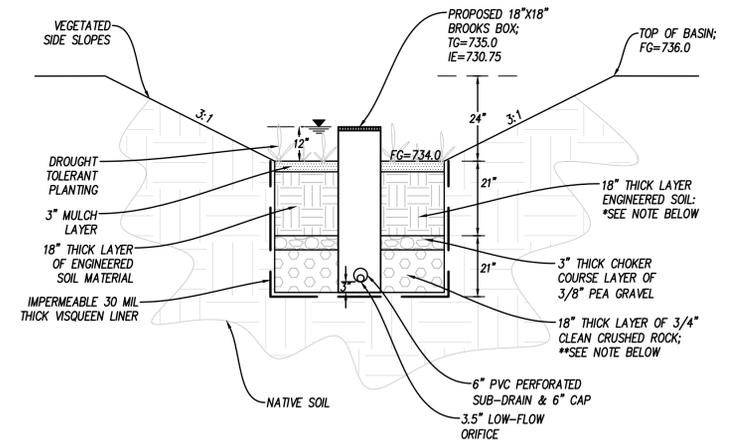
TYPICAL DETAIL - PERVIOUS PAVERS
NOT TO SCALE



C SECTION: STONEPOINTE ROW, BASIN BF-2
NOT TO SCALE



D SECTION: WESTERN TURNAROUND
NOT TO SCALE



FINISHED GRADE OF BASIN SHALL BE LESS THAN OR EQUAL TO 2%

ENGINEERED SOIL LAYER SHALL BE MINIMUM 18" DEEP "SANDY LOAM" SOIL MIX WITH 20% SANDY LOAM (SAND, SILT, & CLAY) CONTENT. THE MIX SHALL CONTAIN 65% SAND, AND 15% COMPOST OR HARDWOOD MULCH. BSM SHOULD ACHIEVE LONG-TERM, IN-PLACE INFILTRATION RATE OF 5 INCHES PER HOUR, ACCORDING TO THE COUNTY OF SAN DIEGO 2012 STANDARD URBAN STORMWATER MITIGATION PLAN (SUSMP) REQUIREMENTS. POLLUTANT CONTROL TREATMENT PERFORMANCE STANDARDS IN SECTION F.1.1 FROM THE SAN DIEGO COUNTY LID HANDBOOK MUST BE MET
 **3/4" CRUSHED ROCK LAYER SHALL BE A MINIMUM OF 12" BUT MAY BE DEEPENED TO INCREASE THE INFILTRATION AND STORAGE ABILITY OF THE DETAIL.

AT-GRADE BIOFILTRATION PLANTER - TYPICAL DETAIL
NOT TO SCALE

- ABBREVIATIONS:**
- FF FINISH FLOOR
 - FS FINISH SURFACE
 - FG FINISHED GRADE
 - GF GARAGE FACE
 - TW TOP OF WALL
 - BW BOTTOM OF WALL
 - EC EDGE OF CONCRETE
 - TC TOP OF CURB
 - FL FLOW LINE
 - TG TOP OF GRATE
 - IE INVERT ELEVATION
 - PCC PORTLAND CEMENT CONCRETE
 - BLDG BUILDING
 - APN ASSESSOR PARCEL NUMBER
 - SF SQUARE FEET
 - ROW RIGHT OF WAY
 - () EXISTING
 - RET RETAINING



REVIEWED BY: _____
 DEPUTY DIRECTOR OF UTILITIES DATE _____

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Date Completed _____							Elevation _____	BALANCE: _____ C.Y.			R.C.E. No. _____					Sheet 3 of 4

