

Final Initial Study

**Chalice Unitarian Universalist Congregation
Conditional Use Permit**

**Appendix E
Chalice Unitarian Universalist Congregation
Priority Development Project Stormwater Quality
Management Plan**

City of Escondido PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

CHALICE UNITARIAN
CONGREGATION

[INSERT RECORD ID : _____]

2324 Miller Ave.
Escondido, CA 92029

ASSESSOR'S PARCEL NUMBER(S):
238-110-3900

ENGINEER OF WORK:

[Patric de Boer RCE 83583]

PREPARED FOR:

**Chalice Unitarian
Congregation**

**2324 Miller Ave, Escondido
CA 92029**

PDP SWQMP PREPARED BY:

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DATE OF SWQMP:

November 6, 2017th

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APPROVAL DATE:



PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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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 (Worksheet B.2-1 DCV, Form I-4)

Attachment 1b: Form I-5, Categorization of Infiltration Feasibility Condition

Attachment 1c: Form I-6, 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
WMAA	Watershed Management Area Analysis
WQIP	Water Quality Improvement Plan

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

PDP SWQMP PREPARER'S CERTIFICATION PAGE

Project Name: Chalice Unitarian Congregation

Permit Application Number: _____

PREPARER'S CERTIFICATION

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

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

Patric de Boer
Print Name

Omega Engineering Consultants
Company

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	August 8 th , 2017	Initial Submittal
2	October 17 th , 2017	Second Submittal
3		
4		

Final Design

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

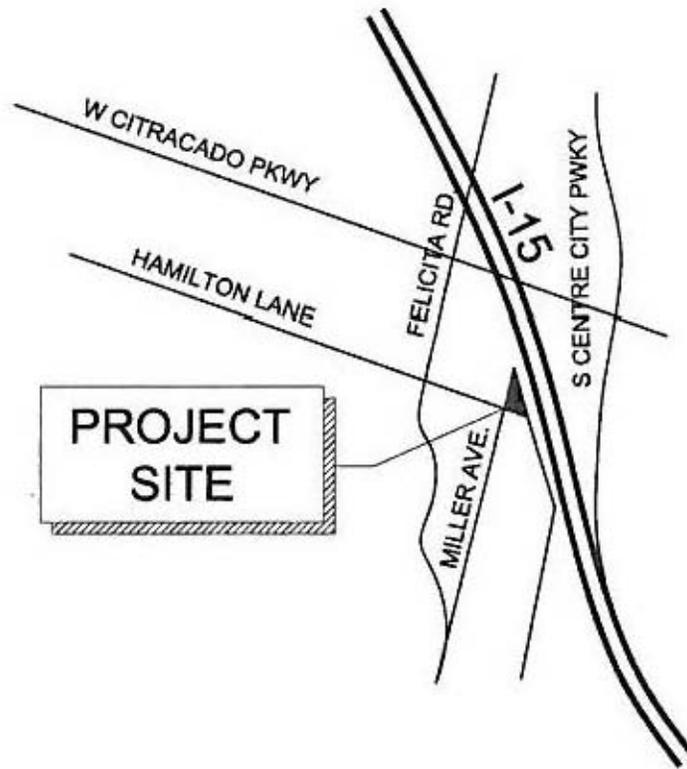
Plan Changes

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

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

PROJECT VICINITY MAP

Project Name: Chalice Unitarian Congregation
Record ID: _____



VICINITY MAP (N.T.S.)

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 1: Project type determination (Standard or Priority Development Project) (Form I-2a)

Project Summary Information	
Project Name	Chalice Unitarian Congregation
Project Address	2324 Miller Ave. Escondido, CA 92029
Assessor's Parcel Number(s)	238-110-39-00
Permit Application Number	
Project Watershed (Hydrologic Unit)	Select One: San Dieguito 905
Parcel Area (total area of Assessor's Parcel(s) associated with the project)	2.22 Acres (96,910 Square Feet)
Area to be disturbed by the project (Project Area)	2.16 Acres (94,158 Square Feet)
Project Proposed Impervious Area (subset of Project Area)	0.76 Acres (33,241 Square Feet)
Project Proposed Pervious Area (subset of Project Area)	1.39 Acres (60,917 Square Feet)
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Parcel Area.	
Confirmation of Priority Development Project Determination	
The project is (select one): <input type="checkbox"/> New Development <input checked="" type="checkbox"/> Redevelopment ¹	
The total proposed newly created or replaced impervious area is: 33,241 ft ²	

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; new sidewalks construction; pedestrian ramps; or bike lanes on existing roads; and routine replacement of damaged pavement, such as pothole repair.

Solar energy farms that are not also one of the categories listed in Step 2b of Table 1-1. City staff must also determine that appropriate BMPs are provided to mitigate for downstream impacts due to significant changes to the existing hydrology

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Is the project in any of the following categories, (a) through (f)?			
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 checked="" type="checkbox"/>	No <input 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). (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 other equivalent environmentally sensitive areas which have been identified by the Copermittees.</i>
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	(e)	New development projects, or redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface, that support one or more of the following uses: (i) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. (ii) Retail gasoline outlets (RGOs). This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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 style="margin-left: 20px;">(iii) 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.</p> <p style="margin-left: 20px;">(iv) 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 checked="" type="checkbox"/>	No <input 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 style="text-align: center;"><i>Note: See Storm Water Design Manual Section 1.4.2 for additional guidance.</i></p>

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

- No – the project is not a Priority Development Project (Standard Project).
 Yes – the project is a Priority Development Project (PDP).

Further guidance may be found in Chapter 1 and Table 1-2 of the Storm Water Design Manual.

The following is for **redevelopment PDPs only**:

The area of existing (pre-project) impervious area at the project site is:	15,108	ft ²
(A) The total proposed newly created or replaced impervious area is	33,241	ft ²
(B) Percent impervious surface created or replaced (B/A)*100:	220 %	

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

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

OR

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

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 1.1: Storm Water Quality Management Plan requirements

Step	Answer	Progression
<p>Is the project a Standard Project, Priority Development Project (PDP), or exception to PDP definitions?</p> <p>To answer this item, complete Step 1 Project Type Determination Checklist on Pages 1 and 2, and see PDP exemption information below. For further guidance, see Section 1.4 of the Storm Water Design Manual <i>in its entirety</i>.</p>	<input type="checkbox"/> Standard Project	<u>Standard Project</u> requirements apply, including <u>Standard Project SWQMP</u> . 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 6.3 and an ACP SWQMP.
	<input type="checkbox"/> PDP Exemption	Go to Step 1.2 below.

Step 1.2: Exemption to PDP definitions

<p>Is the project exempt from PDP definitions based on either of the following:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Projects that are only new or retrofit paved sidewalks, bicycle lanes, or trails that meet the following criteria: <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; <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 City of Escondido Guidance on Green Infrastructure. 	<p>If so:</p> <p><u>Standard Project</u> requirements apply, AND <u>any additional requirements specific to the type of project</u>. <u>City concurrence</u> with the exemption is required. <i>Provide discussion and list any additional requirements below in this form.</i></p>
	PDP Exempt.
<p><i>Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:</i> N/A</p>	

Step 2: Construction Storm Water BMPs

Construction storm water BMPs shall be shown on the Grading Plan and (if applicable) included in the Storm Water Pollution Prevention Plan (SWPPP).

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 3: City of Escondido PDP SWQMP Site Information Checklist (Form I-2a)

Step 3.1: Description of Existing Site Condition

<p>Current Status of the Site (select all that apply):</p> <p><input checked="" type="checkbox"/> Existing development</p> <p><input type="checkbox"/> Previously graded but not built out</p> <p><input type="checkbox"/> Demolition completed without new construction</p> <p><input type="checkbox"/> Agricultural or other non-impervious use</p> <p><input type="checkbox"/> Vacant, undeveloped/natural</p> <p><i>Description / Additional Information:</i> <i>Project site has an existing church structure, parking lot and several small outbuildings.</i></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>1.82</u> Acres (<u>79,050</u> Square Feet)</p> <p><input type="checkbox"/> Non-Vegetated Pervious Areas _____ Acres (_____ Square Feet)</p> <p><input checked="" type="checkbox"/> Impervious Areas <u>0.35</u> Acres (<u>15,108</u> Square Feet)</p> <p><i>Description / Additional Information: Pervious area on the project site is either maintained landscaping or natural brush/grasses.</i></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 checked="" type="checkbox"/> NRCS Type C</p> <p><input type="checkbox"/> NRCS Type D</p>
<p>Approximate Depth to Groundwater (GW) (or N/A for no infiltration BMPs):</p> <p><input type="checkbox"/> GW Depth < 5 feet</p> <p><input type="checkbox"/> 5 feet < GW Depth < 10 feet</p> <p><input type="checkbox"/> 10 feet < GW Depth < 20 feet</p> <p><input checked="" type="checkbox"/> GW 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><i>Description / Additional Information:</i> <i>N/A</i></p>

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 3.2: Description of Existing Site Drainage Patterns

How is storm water runoff conveyed from the site? At a minimum, this description should answer:

- (1) Whether existing drainage conveyance is natural or urban;
- (2) Is runoff from offsite conveyed through the site? if yes, quantify all offsite drainage areas, design flows, and locations where offsite flows enter the project site, and summarize how such flows are conveyed through the site;
- (3) Provide details regarding existing project site drainage conveyance network, including any existing storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels; and
- (4) Identify all discharge locations from the existing project site along with a summary of conveyance system size and capacity for each of the discharge locations. Provide summary of the pre-project drainage areas and design flows to each of the existing runoff discharge locations.

Describe existing site drainage patterns:

1: The existing drainage is a mixture of natural and urban. The site drains via overland flow through landscaping and native plants as well as surface flow across pavement.

2: Runoff is conveyed across the site via surface flow. Portions of the site drain to an earthen swale that runs down the east side of the site.

3: No storm drain system is known to exist on the existing project site. Site drains via surface flow.

4: Existing project site has two separate discharge points. One at the corner of Miller Ave and Hamilton Lane, and the other at a 12" culvert that passes under Hamilton Lane. Portions of the adjacent neighboring lots drain to the project site.

The discharge point at the corner receives runoff from a 0.82 acre basin and experiences a peak discharge rate of 1.48 cfs for the 100-yr storm

The discharge point at the 12" culvert receives runoff from a 3.56 acre basin and experiences a peak discharge rate of 4.61 cfs for the 100-year storm.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 3.3: Description of Proposed Site Development

<p><i>Project Description / Proposed Land Use and/or Activities:</i></p> <p><i>The proposed redevelopment of the site involves the construction of a new church building, parking lot and a private storm drain system. The existing church building will remain in place as will portions of the existing hardscape.</i></p>
<p><i>List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):</i></p> <p><i>The proposed impervious features of the site include building roof, AC pavement, and PCC pavement.</i></p>
<p><i>List/describe proposed pervious features of the project (e.g., landscape areas):</i></p> <p><i>The pervious areas of the site are either landscaped or native brush/grasses</i></p>
<p>Does the project include grading and changes to site topography?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><i>Description / Additional Information:</i></p> <p><i>The project site will be graded to allow for the construction of a new church building and parking lot. The topography will be modified, but the general flow patterns and discharge points will remain the same.</i></p>

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	79,050	60,917	-22.9%
Pervious (non-vegetated)	-	-	
Impervious	15,108	33,241	+120%

Step 3.4: Description of Proposed Site Drainage Patterns

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

Yes

No

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

Describe proposed site drainage patterns:

The project proposes to construct a storm drain system that will convey runoff via surface flow to two biofiltration with partial retention areas. These basin areas will infiltrate smaller rainfall events into the ground and will provide storage volume for flow attenuation for the 100 year storm. These basin areas will drain to the existing discharge points at rates that will not exceed the existing conditions.

Swales will be constructed in order to direct flow on-site and some areas of off-site flow into proposed street trees. The street trees have been sized in accordance with the County of San Diego BMPDM Appendix B.2.2.1 "Tree Wells". Street trees are provided with amended soils per the County of San Diego BMPDM Appendix E, fact Sheet SD-F.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 3.5: Potential Pollutant Source Areas

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

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

Description / Additional Information:

N/A

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 3.6: Identification and Narrative of Receiving Water and Pollutants of Concern

<p>Describe flow path of storm water from the project site discharge location(s), through urban storm conveyance systems as applicable, to receiving creeks, rivers, and lagoons as applicable, and ultimate discharge to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable): Project releases stormwater at 2 separate discharge points. Runoff from these discharge points confluences in an unnamed channel as it flows towards Felicita Creek, which is several hundred yards south of the site. Felicita Creek conveys the runoff to Lake Hodges, which drains to the San Digueito River, which conveys runoff to the Pacific Ocean.</p>			
<p>List any 303(d) impaired water bodies² within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies:</p>			
303(d) Impaired Water Body	Pollutant(s)/Stressor(s)	TMDLs / WQIP Highest Priority Pollutant	
Felicita Creek	Aluminum	Est 2019	
	Total Dissolved Solids	Est 2019	
Lake Hodges	Manganese	Est 2019	
	Mercury	Est 2021	
	Nitrogen	Est 2019	
	pH	Est 2019	
	Phosphorus	Est 2013	
	Turbidity	Est 2019	
San Dieguito River	Enterococcus	Est 2021	
	Fecal Coliform	Est 2021	
	Nitrogen	Est 2021	
	Phosphorus	Est 2021	
	Total Dissolved Solids	Est 2021	
	Toxicity	Est 2021	
<p style="text-align: center;">Identification of Project Site Pollutants*</p> <p>*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).</p>			
<p>Identify pollutants expected from the project site based on all proposed use(s) of the site (see Storm Water Design Manual Appendix B.6):</p>			
Pollutant	Not Applicable to the Project Site	Anticipated from the Project Site	Also Receiving Water Pollutant of Concern
Sediment			
Nutrients			
Heavy Metals			
Organic Compounds			
Trash & Debris			
Oxygen Demanding Substances			
Oil & Grease			
Bacteria & Viruses			
Pesticides			

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 3.7: Hydromodification Management Requirements

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

- Yes, hydromodification management requirements for flow control and preservation of critical coarse sediment yield areas are applicable.
- No, the project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.
- No, the project will discharge runoff directly to conveyance channels whose bed and bank are concrete-lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.
- No, the project will discharge runoff directly to an area identified as appropriate for an exemption by the WMAA³ for the watershed in which the project resides.

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

Project will manage hydromodification using storage in the two biofiltration with partial retention basins which have outlet orifices sized using SWMM EPA 5.1, and street trees sized per the County of San Diego BMPDM. Street trees are sized per their respective tributary DCV, the County of San Diego has implemented a DCV multiplier which can be applied to increase the tributary DCV by a factor that allows the tributary basins to meet Hydromodification requirements. The project is not in potential CCSYA and is not downstream of one either. See Attachment 2c.

³The Watershed Management Area Analysis (WMAA) is an optional element for inclusion in the Water Quality Improvement Plans (WQIPs) described in the 2013 MS4 Permit [Provision B.3.b.(4)]. It is available online at the Project Clean Water website:

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 3.7.1: Critical Coarse Sediment Yield Areas*

***This Section only required if hydromodification management requirements apply**

Based on the maps provided within the WMAA, do potential critical coarse sediment yield areas exist within the project drainage boundaries?

Yes

No, no critical coarse sediment yield areas to be protected based on WMAA maps

If yes, have any of the optional analyses presented in Section 6.2 of the manual been performed?

6.2.1 Verification of GLUs (classification that provides an estimate of sediment yield based on geology, hillslope, and land cover) Onsite

6.2.2 Downstream Systems Sensitivity to Coarse Sediment

6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas

Onsite No optional analyses performed, the project will avoid critical coarse sediment yield areas identified based on WMAA maps

If optional analyses were performed, what is the final result?

No critical coarse sediment yield areas to be protected based on verification of GLUs onsite.

Critical coarse sediment yield areas exist but additional analysis has determined that protection is not required. Documentation attached in Attachment 8 of the SWQMP.

Critical coarse sediment yield areas exist and require protection. The project will implement management measures described in Sections 6.2.4 and 6.2.5 as applicable, and the areas are identified on the SWQMP Exhibit.

Discussion / Additional Information:

The project is not in potential CCSYA and is not downstream of one either. See attachment 2c.

Step 3.8: Other Site Requirements and Constraints

When applicable, list other site requirements or constraints that will influence storm water management design, such as zoning requirements including setbacks and open space, or local codes governing minimum street width, sidewalk construction, allowable pavement types, and drainage requirements.

Due to the existing southerly facing super elevation along Hamilton Avenue, treatment of the off-site basin on Hamilton (DMA-11) cannot be treated. Thus, we have added an additional off-site basin (DMA-10) to our pollutant and hydromod requirements. DMA-10, is treated via street trees which have been sized to account for the additional DCV. See DMA Map Attachment 1d.

Optional Additional Information or Continuation of Previous Sections As Needed

This space provided for additional information or continuation of information from previous sections as needed.

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 4: Source Control BMP Checklist (Form I-2b)

Source Control BMPs			
<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?		
SC-1 Prevention of Illicit Discharges into the MS4	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Direct irrigation water away from impervious surfaces <input type="checkbox"/> Direct vehicle wash water away from impervious surfaces <input type="checkbox"/> Other: _____			
<i>Discussion / justification if SC-1 not implemented:</i>			
SC-2 Storm Drain Stenciling or Signage	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Stencil or stamp storm drains with anti-dumping message <input type="checkbox"/> Post signs prohibiting illegal dumping <input type="checkbox"/> Other			
<i>Discussion / justification if SC-2 not implemented:</i>			
SC-3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Store materials inside a covered enclosure <input type="checkbox"/> Direct runoff from downspouts and roofs away from storage areas <input type="checkbox"/> Other			
<i>Discussion / justification if SC-3 not implemented:</i>			
N/A			

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

SC-4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Locate work area away from storm drains or catch basins Work over impermeable surfaces where spills and pollutants can be captured and removed <input type="checkbox"/> removed <i>No outdoor work areas proposed</i>			
SC-5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Locate trash containers in a roofed, walled enclosure <input type="checkbox"/> Locate trash containers away from storm drains <i>Discussion / justification if SC-5 not implemented: Trash will be stored in a covered trash bin and brought to curb just as in residential areas.</i>			
SC-6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below):			
<input type="checkbox"/> A. On-site storm drain inlets	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> B. 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"/> C. Interior parking garages	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> D. Need for future indoor & structural pest control	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> E. Landscape/outdoor pesticide use	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> F. Pools, spas, ponds, fountains, and other water features	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> G. Food service	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> H. Refuse areas	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> I. Industrial processes	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> J. Outdoor storage of equipment or materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> K. Vehicle and equipment cleaning	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> L. Vehicle/equipment repair and maintenance	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> M. Fuel dispensing areas	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> N. Loading docks	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> O. Fire sprinkler test water	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> P. Miscellaneous drain or wash water	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Q. Plazas, sidewalks, and parking lots	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<i>Discussion / justification if SC-6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for <u>all</u> "No" answers shown above.</i> N/A			

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

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Step 5: Site Design BMP Checklist (Form I-2c)

Site Design BMPs			
<p>All development projects must implement site design BMPs SD-A through SD-H where applicable and feasible. See Chapter 4.3 and Appendix E of the City Storm Water Design Manual for information to implement site design 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 site design BMP as described in Chapter 4.3 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 site has no existing natural areas to conserve). Discussion / justification must be provided. 			
Site Design Requirement	Applied?		
SD-1 Maintain Natural Drainage Pathways and Hydrologic Features	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Maintain existing drainage patterns <i>Discussion / justification if SD-1 not implemented:</i>			
SD-2 Conserve Natural Areas, Soils, and Vegetation	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Preserve trees (see Zoning Code Art. 55 Grading & Erosion Control; Art. 62 Landscape Regulations) <input type="checkbox"/> Avoid sensitive areas such as wetlands and waterways <i>Discussion / justification if SD-2 not implemented:</i>			
SD-3 Minimize Impervious Area	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Install parking and driving aisles to minimum width required to meet standards <i>Discussion / justification if SD-3 not implemented:</i>			

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

SD-4 Minimize Soil Compaction	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Avoid compaction in planned landscaped spaces <input type="checkbox"/> Till and amend soil for improved infiltration capacity <i>Discussion / justification if SD-4 not implemented:</i>			
SD-5 Impervious Area Dispersion	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Drain rooftops, roads or sidewalks into adjacent landscape areas <input type="checkbox"/> Drain impervious surfaces through pervious areas <i>Discussion / justification if SD-5 not implemented:</i>			
SD-6 Runoff Collection	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
<i>Discussion / justification if SD-6 not implemented: Runoff collection is not used as, small localized infiltration is not necessary when the DCV will be fully infiltrated in the bioretention areas</i>			
SD-7 Landscaping with Native or Drought Tolerant Species	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<i>Discussion / justification if SD-7 not implemented:</i>			
SD-8 Harvesting and Using Precipitation	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
<i>Discussion / justification if SD-8 not implemented: Sufficient demand does not exist to justify harvest and use of rainwater</i>			

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 6: PDP Structural BMPs (Form I-3)

All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the Storm Water Design Manual). Selection of PDP structural BMPs for storm water pollutant control must be based on the selection process described in Chapter 5. PDPs subject to hydromodification management requirements must also implement structural BMPs for flow control for hydromodification management (see Chapter 6 of the Storm Water Design Manual). Both storm water pollutant control and flow control for hydromodification management can be achieved within the same structural BMP(s).

PDP structural BMPs must be verified by the City at the completion of construction. This may include requiring the project owner or project owner's representative and engineer of record to certify construction of the structural BMPs (see Section 8.2.3.2 of the Storm Water Design Manual). PDP structural BMPs must be maintained into perpetuity, and the City must confirm the maintenance (see Section 7 of the Storm Water Design Manual).

Use this section 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 (Step 6.2) for each structural BMP within the project (copy the BMP summary information sheet [Step 6.2] as many times as needed to provide summary information for each individual structural BMP).

Step 6.1: 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 BMP's presented in Section 5.1 of the Storm Water Design Manual were followed, and the results (type of BMP's selected). For projects requiring hydromodification flow control BMP's, indicate whether pollutant control and flow control BMP's are integrated or separate. At the end of this discussion provide a summary of all the structural BMP's within the project including the type and number.

The project site is located in an area that infiltration rates are feasible for biofiltration basins with partial retention. Thus, two biofiltration basins with partial retention are proposed to treat DMA-1 and DMA-2. Proposed basins have been sized to allow the tributary basins to meet pollutant control requirements, furthermore the basins provided hydromodification control via an outlet orifice that was sized utilizing SWMM EPA 5.1 software.

Street trees are used to treat the remainder of the site basins. DMA-5, is treated by a single street tree that allows the basin to meet pollutant control requirements. SWMM modeling allowed the site to meet hydromodification requirements without requiring additional hydrmodification control on DMA-5.

DMA's 4,9, & 10 are treated and meet hydrmodification requirements by implementing three street trees that were sized to serve as pollutant and hydrmodification control for the tributary basins.

(Continue on following page as necessary.)

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

(Continued from previous page)

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BIO-1	
Construction Plan Sheet No. DMA-Map (Sheet Number TBD)	
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 checked="" type="checkbox"/> Partial retention by biofiltration with partial retention (PR-1) <input 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)	Andrew J. Kann Omega Engineering (858) 634-8620
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 checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
<i>Discussion (as needed):</i>	
<i>(Continue on subsequent pages as necessary)</i>	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BIO-2	
Construction Plan Sheet No. DMA-Map (Sheet Number TBD)	
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 checked="" type="checkbox"/> Partial retention by biofiltration with partial retention (PR-1) <input 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)	Andrew J. Kann Omega Engineering (858) 634-8620
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 checked="" type="checkbox"/> Property Owner <input type="checkbox"/> City <input type="checkbox"/> Other (describe)
<i>Discussion (as needed):</i> <i>(Continue on subsequent pages as necessary)</i>	

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Step 6.3: 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) _____

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ATTACHMENT 1

BACKUP FOR PDP POLLUTANT CONTROL BMPS

This is the cover sheet for Attachment 1.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 1a	Storm Water Pollutant Control Worksheet Calculations -Worksheet B.2-1 (Required) -Worksheet B.3-1 (Form I-4; Required) -Worksheet B.4-1 (if applicable) -Worksheet B.5-1 (if applicable) -Worksheet B.5-2 (if applicable) -Worksheet B.5-3 (if applicable) -Worksheet B.6-1 (if applicable) -Summary Worksheet (optional)	<input checked="" type="checkbox"/> Included
Attachment 1b	Form I-5, Categorization of Infiltration Feasibility Condition (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the Storm Water Design Manual to complete Form I-5.	<input checked="" type="checkbox"/> Included <input type="checkbox"/> Not included because the entire project will use harvest and use BMPs
Attachment 1c	Form I-6, Factor of Safety and Design Infiltration Rate Worksheet (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the Storm Water Design Manual to complete Form I-6.	<input checked="" type="checkbox"/> Included <input type="checkbox"/> Not included because the entire project will use harvest and use BMPs
Attachment 1d	DMA Exhibit (Required) See DMA Exhibit Checklist on the back of this Attachment cover sheet.	<input checked="" type="checkbox"/> Included
Attachment 1e	Individual Structural BMP DMA Mapbook (Required) -Place each map on 8.5"x11" paper. -Show at a minimum the DMA, Structural BMP, and any existing hydrologic features within the DMA.	<input checked="" type="checkbox"/> Included

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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:

- Underlying hydrologic soil group
- Approximate depth to groundwater
- Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
- Critical coarse sediment yield areas to be protected
- Existing topography and impervious areas
- Existing and proposed site drainage network and connections to drainage offsite
- Proposed demolition
- Proposed grading
- Proposed impervious features
- Proposed design features and surface treatments used to minimize imperviousness
- Drainage management area (DMA) boundaries, DMA ID numbers, and DMA areas (square footage or acreage), and DMA type (i.e., drains to BMP, self-retaining, or self-mitigating)
- Potential pollutant source areas and corresponding required source controls (see Chapter 4, Appendix E.1, and Step 3.5)
- Structural BMPs (identify location, structural BMP ID#, type of BMP, and size/detail)

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

Category	#	Description	Value	Units
Capture & Use Inputs	0	Design Capture Volume for Entire Project Site	2,002	cubic-feet
	1	Proposed Development Type	Residential	unitless
	2	Number of Residents or Employees at Proposed Development	50	#
	3	Total Planted Area within Development	27,082	sq-ft
	4	Water Use Category for Proposed Planted Areas	Low	unitless
Infiltration Inputs	5	Is Average Site Infiltration Rate Less than 0.5 Inches per Hour?	No	yes/no
	6	Is Retention of the Full DCV Anticipated to Produce Negative Impacts?	Yes	yes/no
	7	Is Retention of Any Volume Anticipated to Produce Negative Impacts?	No	yes/no
Calculations	8	36-Hour Toilet Use Per Resident or Employee	0.37	cubic-feet
	9	Subtotal: Anticipated 36 Hour Toilet Use	19	cubic-feet
	10	Anticipated 1 Acre Landscape Use Over 36 Hours	52.14	cubic-feet
	11	Subtotal: Anticipated Landscape Use Over 36 Hours	32	cubic-feet
	12	Total Anticipated Use Over 36 Hours	51	cubic-feet
	13	Total Anticipated Use / Design Capture Volume	0.03	cubic-feet
	14	Are Full Capture and Use Techniques Feasible for this Project?	No	unitless
	15	Is Full Retention Feasible for this Project?	No	yes/no
	16	Is Partial Retention Feasible for this Project?	Yes	yes/no
Result	17	Feasibility Category	4	1, 2, 3, 4, 5

Worksheet B.3-1 General Notes:

A. Applicants may use this optional worksheet to gauge the feasibility of implementing capture and use techniques on their project site. User input should be provided for yellow shaded cells, values for all other cells will be automatically generated. Projects demonstrating feasibility or potential feasibility via this worksheet are encouraged to incorporate capture and use features in their project.

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

Category	#	Description	<i>i</i>	<i>ii</i>	<i>iii</i>	<i>iv</i>	<i>v</i>	<i>vi</i>	<i>vii</i>	<i>viii</i>	<i>ix</i>	<i>x</i>	Units
Standard Drainage Basin Inputs	0	Drainage Basin ID or Name	DMA-1	DMA-2	DMA-4,9,&10	DMA-5							unitless
	1	Basin Drains to the Following BMP Type	Partial Ret.	Partial Ret.	Other	Other							unitless
	2	85th Percentile 24-hr Storm Depth	0.54	0.54	1.35 *	0.54							inches
	3	Impervious Surfaces <u>Not Directed to Dispersion Area</u> (C=0.90)	25,678	4,494	11,670	847							sq-ft
	4	Semi-Pervious Surfaces <u>Not Serving as Dispersion Area</u> (C=0.30)											sq-ft
	5	Engineered Pervious Surfaces <u>Not Serving as Dispersion Area</u> (C=0.10)											sq-ft
	6	Natural Type A Soil <u>Not Serving as Dispersion Area</u> (C=0.10)											sq-ft
	7	Natural Type B Soil <u>Not Serving as Dispersion Area</u> (C=0.14)											sq-ft
	8	Natural Type C Soil <u>Not Serving as Dispersion Area</u> (C=0.23)	12,198	4,090	4,222	6,572							sq-ft
9	Natural Type D Soil <u>Not Serving as Dispersion Area</u> (C=0.30)											sq-ft	
Dispersion, Tree Well, & Rain Barrel Inputs (Optional)	10	Does Tributary Incorporate Dispersion, Tree Wells, and/or Rain Barrels?	No	No	Yes	Yes	No	No	No	No	No	No	yes/no
	11	Impervious Surfaces Directed to Dispersion Area per SD-B (Ci=0.90)											sq-ft
	12	Semi-Pervious Surfaces Serving as Dispersion Area per SD-B (Ci=0.30)											sq-ft
	13	Engineered Pervious Surfaces Serving as Dispersion Area per SD-B (Ci=0.10)											sq-ft
	14	Natural Type A Soil Serving as Dispersion Area per SD-B (Ci=0.10)											sq-ft
	15	Natural Type B Soil Serving as Dispersion Area per SD-B (Ci=0.14)											sq-ft
	16	Natural Type C Soil Serving as Dispersion Area per SD-B (Ci=0.23)											sq-ft
	17	Natural Type D Soil Serving as Dispersion Area per SD-B (Ci=0.30)											sq-ft
	18	Number of Tree Wells Proposed per SD-A			3	1							#
	19	Average Mature Tree Canopy Diameter			30	15							ft
	20	Number of Rain Barrels Proposed per SD-E											#
21	Average Rain Barrel Size											gal	
Final Adjusted Runoff Factor Calculations	22	Total Area Tributary to BMP	37,876	8,584	15,892	7,419	0	0	0	0	0	0	sq-ft
	23	Composite Runoff Factor for Standard Drainage Areas	0.68	0.58	0.72	0.31	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	24	Initial Composite Runoff Factor for Dispersed & Dispersion Areas	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	unitless
	25	Total Impervious Area Dispersed to Pervious Surface	0	0	0	0	0	0	0	0	0	0	sq-ft
	26	Total Pervious Dispersion Area	0	0	0	0	0	0	0	0	0	0	sq-ft
	27	Dispersed Impervious Area / Pervious Dispersion Area	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	ratio
	28	Adjustment Factor for Dispersed & Dispersion Areas	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	ratio
	29	Final Adjusted Tributary Runoff Factor	0.68	0.58	0.72	0.31	n/a	n/a	n/a	n/a	n/a	n/a	unitless
Volume Reduction Calculations	30	Final Effective Tributary Area	25,756	4,979	11,442	2,300	0	0	0	0	0	0	sq-ft
	31	Initial Design Capture Volume	1,159	224	1,287	104	0	0	0	0	0	0	cubic-feet
	32	Volume Reduction per Tree Well	0	0	420	100	0	0	0	0	0	0	cubic-feet
	33	Total Tree Well Volume Reduction	0	0	1,260	100	0	0	0	0	0	0	cubic-feet
	34	Total Rain Barrel Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
Result	35	Design Capture Volume Tributary to BMP	1,159	224	27	4	0	0	0	0	0	0	cubic-feet

Worksheet B.1-1 General Notes:

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

B. Impervious surfaces include roofs, concrete, asphalt, or pervious pavements with an impervious liner. Semi-pervious surfaces include decomposed granite, cobbles, crushed aggregate, or compacted soils such as unpaved parking. Engineered pervious surfaces include pervious pavements providing full retention of the 85th percentile rainfall depth, or areas with soils that have been amended and mulched per Section 86.709 of the Landscape Ordinance. Dispersion areas are pervious or semi-pervious surfaces that receive runoff from impervious surfaces (C=0.90) and reduce stormwater runoff as outlined in Fact Sheet SD-B.

DCV Multiplier = 2.5, per County of San Diego DCV multiplier sheet (see next sheet)
 Applied to 85th percentile depth, 85th percentile depth = 2.5 * 0.54 = 1.35

For Development Projects Subject to County of San Diego Approval Only

DCV Multipliers by Tree Well Soil Depth and Underlying Hydrologic Soil Group; Applies to sites subject to Pollutant Control AND Hydromodification Management Performance Requirements

Tree Well Soil Depth (inches)	Hydrologic Soil Group			
	A	B	C	D (Default)
DCV Multiplier				
30"	1.60	2.20	2.50	2.90
31"	1.63	2.24	2.56	2.94
32"	1.67	2.29	2.61	2.99
33"	1.70	2.33	2.67	3.03
34"	1.73	2.38	2.72	3.08
35"	1.77	2.42	2.78	3.12
36"	1.80	2.47	2.83	3.17
37"	1.83	2.51	2.89	3.21
38"	1.87	2.56	2.94	3.26
39"	1.90	2.60	3.00	3.30
40"	1.93	2.64	3.06	3.34
41"	1.97	2.69	3.11	3.39
42"	2.00	2.73	3.17	3.43
43"	2.03	2.78	3.22	3.48
44"	2.07	2.82	3.28	3.52
45"	2.10	2.87	3.33	3.57
46"	2.13	2.91	3.39	3.61
47"	2.17	2.96	3.44	3.66
48"	2.20	3.00	3.50	3.70
<30" OR >48"	Determination based on applicant-submitted modeling results			

Automated Worksheet B.5-2: Sizing Partial Retention BMPs (V1.1)

Category	#	Description	<i>i</i>	<i>ii</i>	<i>iii</i>	<i>iv</i>	<i>v</i>	<i>vi</i>	<i>vii</i>	<i>viii</i>	<i>ix</i>	<i>x</i>	Units
BMP Inputs	0	Drainage Basin ID or Name	DMA-1	DMA-2	-	-	-	-	-	-	-	-	sq-ft
	1	Effective Tributary Area	25,756	4,979	-	-	-	-	-	-	-	-	sq-ft
	2	Minimum Biofiltration Footprint Sizing Factor	0.030	0.030	-	-	-	-	-	-	-	-	ratio
	3	Design Capture Volume Tributary to BMP	1,159	224	-	-	-	-	-	-	-	-	cubic-feet
	4	Provided Partial Retention BMP Surface Area	1,000	275									sq-ft
	5	Provided Surface Ponding Depth	6	6									inches
	6	Provided Soil Media Thickness	18	18									inches
	7	Provided Depth of Gravel Above Underdrain Invert	3	3									inches
	8	Hydromodification Orifice Diameter of Underdrain	1.00	1.00									inches
	9	Provided Depth of Gravel Below the Underdrain	42	42									inches
10	Native Soil Infiltration Rate	1.20	1.80									in/hr	
Retention Calculations	11	Volume Infiltrated Over 6 Hour Storm	600	224	0	0	0	0	0	0	0	0	cubic-feet
	12	Soil Media Pore Space Available for Retention	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	unitless
	13	Gravel Pore Space Available for Retention	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	unitless
	14	Effective Retention Depth	18.60	18.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	15	Calculated Drawdown for Gravel Below Underdrain (Including 6 Hr Storm)	20	15	36	36	36	36	36	36	36	36	hours
	16	Volume Retained by BMP	2,150	650	0	0	0	0	0	0	0	0	cubic-feet
	17	Fraction of DCV Retained	1.86	2.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	18	Portion of Retention Performance Standard Satisfied	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	19	Equivalent Fraction of DCV Retained with 36-hr Drawdown	0.98	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	20	Design Capture Volume Remaining for Biofiltration	23	4	0	0	0	0	0	0	0	0	cubic-feet
Biofiltration Calculations	21	Max Hydromod Flow Rate through Underdrain	0.0390	0.0390	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	CFS
	22	Max Soil Filtration Rate Allowed by Underdrain Orifice	1.69	6.13	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	in/hr
	23	Soil Media Filtration Rate per Specifications	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	in/hr
	24	Soil Media Filtration Rate to be used for Sizing	1.69	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	in/hr
	25	Depth Biofiltered Over 6 Hour Storm	10.12	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	inches
	26	Soil Media Pore Space Available for Biofiltration	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	unitless
	27	Effective Depth of Biofiltration Storage	10.80	10.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	28	Drawdown Time for Surface Ponding	2	1	0	0	0	0	0	0	0	0	hours
	29	Drawdown Time for Effective Biofiltration Depth	4	2	0	0	0	0	0	0	0	0	hours
	30	Total Depth Biofiltered	20.92	40.80	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	inches
	31	Option 1 - Biofilter 1.50 DCV: Target Volume	35	6	0	0	0	0	0	0	0	0	cubic-feet
	32	Option 1 - Provided Biofiltration Volume	35	6	0	0	0	0	0	0	0	0	cubic-feet
	33	Option 2 - Store 0.75 DCV: Target Volume	17	3	0	0	0	0	0	0	0	0	cubic-feet
	34	Option 2 - Provided Storage Volume	17	3	0	0	0	0	0	0	0	0	cubic-feet
	35	Portion of Biofiltration Performance Standard Satisfied	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
Result	36	Overall Portion of Performance Standard Satisfied	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	37	Deficit of Effectively Treated Stormwater	0	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	cubic-feet

Worksheet B.5-2 General Notes:

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

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Categorization of Infiltration Feasibility Condition		Form I-5	
<p>Part 1 - Full Infiltration Feasibility Screening Criteria</p> <p>Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?</p>			
Criteria	Screening Question	Yes	No
1	<p>Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.</p>	x	
<p>Provide basis:</p> <p>Preliminary percolation testing indicates averaged infiltration rates are greater than 0.5 inches per hour and are feasible throughout the site. However, clayey soil areas are present in some areas of the site and should be avoided for the placement of infiltration facilities. The findings conclusions and recommendations regarding infiltration LID improvements are described in the report body.</p>			
2	<p>Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.</p>	x	
<p>Provide basis:</p> <p>Based on the findings of the referenced geotechnical investigation there are no geotechnical hazards that would be impacted by stormwater infiltration.</p> <p>Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</p>			

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Form I-5			
Criteria	Screening Question	Yes	No
3	<p>Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.</p>	x	
<p>Provide basis:</p> <p>According to the Geotracker website, there are no known active sites with groundwater contamination in the general area. During our investigation and prior percolation testing, groundwater was not encountered in the vicinity of any proposed infiltration LID's. Groundwater levels will exceed 15 feet below the bottom of proposed facilities.</p> <p>Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</p>			
4	<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 or increased discharge of contaminated groundwater to surface waters? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.</p>	x	
<p>Provide basis:</p> <p>Proposed infiltration facilities are adequately setback from ephemeral streams so as not to have a significant impact. For the very same reasons as listed above, the San Diego County Department of Environmental Health requires septic systems to be setback from 50 feet from intermittent streams;. The proposed infiltration facilities setbacks exceed this minimum setback.</p> <p>Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</p>			
Part 1 Result*	<p>If all answers to rows 1 - 4 are “Yes” a full infiltration design is potentially feasible. The feasibility screening category is Full Infiltration</p> <p>If any answer from row 1-4 is “No”, infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a “full infiltration” design. Proceed to Part 2</p>		YES

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Form I-5			
Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria			
Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?			
Criteria	Screening Question	Yes	No
5	Do soil and geologic conditions allow for infiltration in any appreciable rate or volume? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	x	
<p>Provide basis:</p> <p>Percolation testing indicates permeable soil conditions throughout the site and extending to suitable depths. Preliminary findings indicate infiltration rates average 0.5 inches per hour across the site. However, some localized “clayey soil ” areas require avoidance.</p> <p>Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.</p>			
6	Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	x	
<p>Provide basis:</p> <p>Based on the findings of the referenced geotechnical investigation there are no geotechnical hazards that would be impacted by stormwater infiltration.</p> <p>Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.</p>			

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Form I-5			
Criteria	Screening Question	Yes	No
7	<p>Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.</p>	x	
<p>Provide basis:</p> <p>We do not anticipate groundwater will be significantly impacted by proposed infiltration facilities. Proposed infiltration facilities are adequately setback from ephemeral streams so as not to have a significant impact. For the very same reason, the San Diego County Department of Environmental Health requires septic systems to be setback from drainages; setbacks range from 50 to 100 feet depending on the seasonality of the stream. The proposed infiltration facility setbacks far exceed these minimums.</p> <p>Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.</p>			
8	<p>Can infiltration be allowed without violating downstream water rights? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.</p>	x	
<p>Provide basis:</p> <p>Yes, as stated above.</p> <p>Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.</p>			
<p>Part 2 Result*</p>	<p>If all answers from row 5-8 are yes then partial infiltration design is potentially feasible. The feasibility screening category is Partial Infiltration.</p> <p>If any answer from row 5-8 is no, then infiltration of any volume is considered to be infeasible within the drainage area. The feasibility screening category is No Infiltration.</p>		

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Form I-5 Certification

The Geotechnical Engineer certifies they completed Form I-5 except Criteria 4 & 8 (see Appendix C.4.3).

Professional Geotechnical Engineer's Printed Name:

Professional Geotechnical Engineer's Signed Name:

Date: _____

[SEAL]

The Project Design Engineer certifies they completed Criteria 4 & 8 (see Appendix C.4.4).

Professional Project Design Engineer's Printed Name:

Professional Project Design Engineer's Signed Name:

Date: _____

[SEAL]

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PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Factor of Safety and Design Infiltration Rate Worksheet			Form I-6		
Factor Category	Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) $p = w \times v$	
A	Suitability Assessment	Soil assessment methods	0.25	2	0.5
		Predominant soil texture	0.25	2	0.5
		Site soil variability	0.25	2	0.5
		Depth to groundwater / impervious layer	0.25	2	0.5
		Suitability Assessment Safety Factor, $S_A = \sum p$			
B	Design	Level of pretreatment/ expected sediment loads	0.5	2	1
		Redundancy/resiliency	0.25	1.5	0.375
		Compaction during construction	0.25	1	0.25
		Design Safety Factor, $S_B = \sum p$			
Combined Safety Factor, $S_{total} = S_A \times S_B$			3.3		
Observed Infiltration Rate, inch/hr, $K_{observed}$ (corrected for test-specific bias)			Varies, EX: 4.0		
Design Infiltration Rate, in/hr, $K_{design} = K_{observed} / S_{total}$			1.2		
Supporting Data					
<p>Briefly describe infiltration test and provide reference to test forms: Percolation testing was performed at the project site for an Onsite Sewerage Treatment System in 2003 (See Reference #3). The percolation test report is attached as Appendix A. In summary, the testing included the placement of 19 percolation tests ranging from 3 to 12 feet in depth. However, only one of the tests (P-10) was located within 50 feet of a proposed infiltration facility (per Section D4.5 of San Diego County Appendix D). Generally, the percolation rates were relatively good and suitable for the onsite sewerage treatment system. Isolated areas measured poor percolation. The percolation testing was performed in accordance with the requirements of the San Diego County Department of Environmental Health under regulations in effect at the time. The testing would be considered the Borehole Percolation Test method from Section 3.3.2 of San Diego County, Appendix D.</p>					

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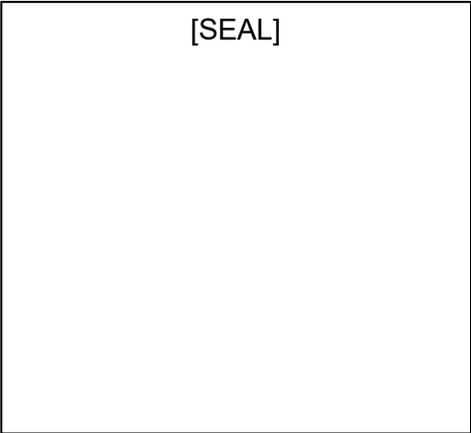
Factor of Safety and Design Infiltration Rate Worksheet	Form I-6 Certification
--	---------------------------

The Geotechnical Engineer certifies they completed Form I-6 (see Appendix C.4.3).

Professional Geotechnical Engineer's Printed Name:

Professional Geotechnical Engineer's Signed Name:

Date: _____



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:

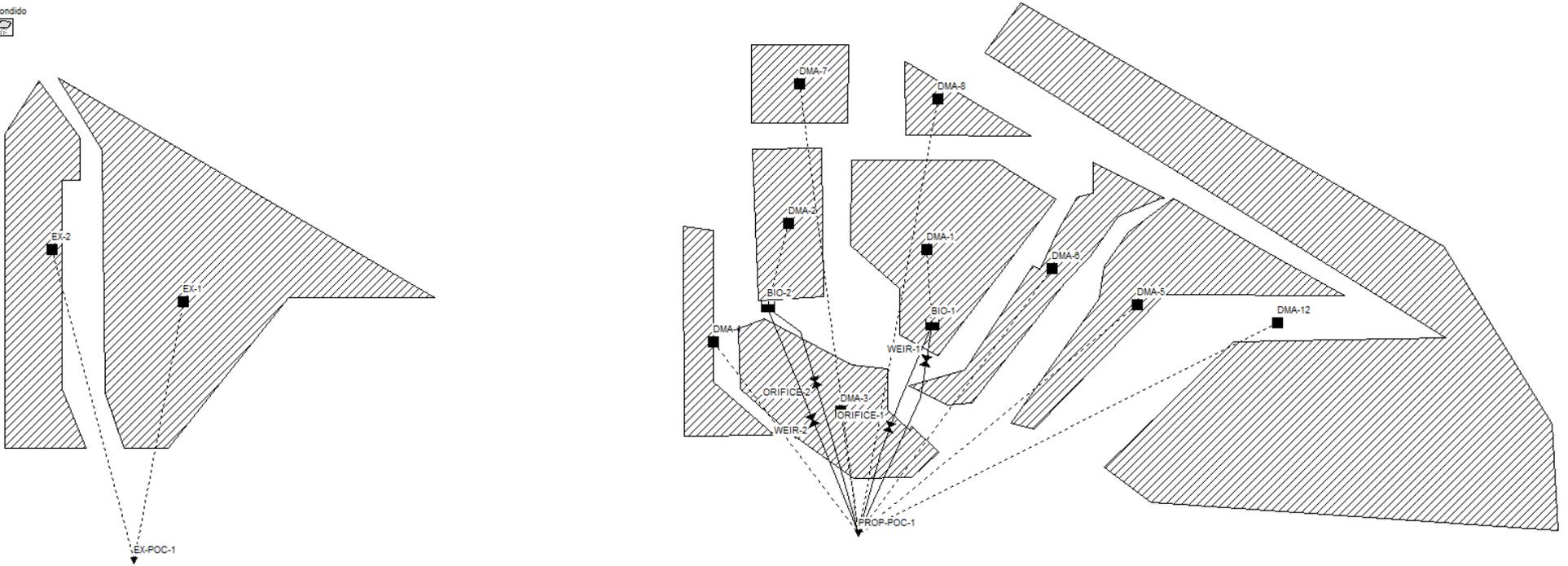
Attachment Sequence	Contents	Checklist
Attachment 2a	Flow Control Facility Design, including Structural BMP Drawdown Calculations and Overflow Design Summary (Required) See Chapter 6 and Appendix G of the Storm Water Design Manual	<input type="checkbox"/> Included <input type="checkbox"/> Submitted as separate stand-alone document
Attachment 2b	Hydromodification Management Exhibit (Required)	<input 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 type="checkbox"/> Exhibit depicting onsite and/or upstream sources of critical coarse sediment as mapped in the WMAA AND, <input type="checkbox"/> Demonstration that the project effectively avoids and bypasses sources of mapped critical coarse sediment OR, <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 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 type="checkbox"/> Not required because BMPs will drain in less than 96 hours

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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SWMM TESTING AND RESULTS

Escondido



Pre-project Flow Frequency - Long-term Simulation

Statistics - Node EX-POC-1 Total Inflow

Rank	Start Date	Event Duration (hours)	Event Peak (CFS)	Exceedance Frequency (percent)	Return Period (years)
1	1/6/1993	34	3.186	0.26	45
2	2/23/1971	7	2.917	0.53	22.5
3	2/15/1986	10	2.898	0.79	15
4	1/25/1995	3	2.658	1.06	11.25
5	1/4/1995	8	2.45	1.32	9
6	2/14/1998	11	2.405	1.58	7.5
7	12/25/1983	5	2.357	1.85	6.43
8	8/26/2007	2	2.333	2.11	5.63
9	11/19/1967	9	2.328	2.37	5
10	3/1/1983	5	2.23	2.64	4.5
11	1/16/1978	8	2.225	2.9	4.09
12	3/17/1978	15	2.206	3.17	3.75
13	4/21/1988	4	2.189	3.43	3.46
14	12/5/1966	47	2.183	3.69	3.21
15	4/11/1967	12	2.15	3.96	3
16	2/9/1981	4	2.104	4.22	2.81
17	11/14/1972	2	2.061	4.49	2.65
18	1/31/2007	1	2.052	4.75	2.5
19	11/25/1983	3	2.047	5.01	2.37
20	1/11/2005	8	1.899	5.28	2.25
21	1/9/2005	19	1.868	5.54	2.14
22	1/24/1969	24	1.836	5.8	2.05
23	1/9/1993	19	1.809	6.07	1.96
24	1/9/1998	6	1.805	6.33	1.88
25	2/19/1980	24	1.793	6.6	1.8
26	1/13/1993	14	1.764	6.86	1.73
27	1/28/1980	11	1.763	7.12	1.67
28	12/18/1967	25	1.745	7.39	1.61
29	3/20/1991	3	1.689	7.65	1.55
30	10/18/2004	3	1.683	7.92	1.5
31	11/30/2007	15	1.679	8.18	1.45
32	2/3/1998	5	1.639	8.44	1.41
33	2/15/1992	5	1.624	8.71	1.36
34	2/8/1993	5	1.59	8.97	1.32
35	11/22/1965	26	1.582	9.23	1.29
36	3/2/1980	7	1.573	9.5	1.25
37	10/20/2004	6	1.552	9.76	1.22
38	11/25/1985	7	1.54	10.03	1.18
39	3/19/1981	2	1.467	10.29	1.15
40	2/20/1980	7	1.43	10.55	1.13
41	2/17/1980	12	1.425	10.82	1.1
42	12/4/1974	2	1.416	11.08	1.07
43	3/18/1982	26	1.413	11.35	1.05
44	2/27/1983	5	1.393	11.61	1.02
45	2/16/1980	7	1.387	11.87	1
46	1/5/1979	9	1.38	12.14	0.98
47	10/27/2004	6	1.38	12.4	0.96
48	3/4/1970	5	1.343	12.66	0.94
49	2/25/2003	2	1.322	12.93	0.92
50	2/5/1978	3	1.319	13.19	0.9
51	1/10/1980	16	1.316	13.46	0.88
52	1/30/1980	2	1.311	13.72	0.87
53	11/14/1993	1	1.304	13.98	0.85
54	4/5/2006	4	1.295	14.25	0.83
55	2/6/1978	13	1.289	14.51	0.82
56	2/12/2003	3	1.287	14.78	0.8
57	1/17/1979	1	1.287	15.04	0.79
58	11/29/1970	10	1.256	15.3	0.78
59	12/17/1978	3	1.252	15.57	0.76
60	1/5/1979	4	1.25	15.83	0.75
61	4/14/1976	1	1.243	16.09	0.74
62	2/6/1969	4	1.224	16.36	0.73
63	1/1/1982	3	1.223	16.62	0.71
64	2/26/2004	3	1.211	16.89	0.7
65	5/8/1977	4	1.165	17.15	0.69
66	3/1/1991	14	1.161	17.41	0.68
67	3/5/1995	18	1.159	17.68	0.67
68	2/11/1973	2	1.158	17.94	0.66
69	3/3/1976	3	1.096	18.21	0.65
70	2/8/1998	6	1.095	18.47	0.64
71	1/4/1974	9	1.091	18.73	0.63
72	2/28/1970	15	1.077	19	0.63
73	12/22/1982	2	1.077	19.26	0.62
74	11/29/1985	11	1.073	19.53	0.61
75	3/19/1991	4	1.052	19.79	0.6
76	1/8/1993	6	1.05	20.05	0.59
77	3/2/1983	10	1.047	20.32	0.58
78	4/9/1965	5	1.031	20.58	0.58
79	3/23/1983	5	1.031	20.84	0.57
80	12/13/1965	1	1.027	21.11	0.56
81	1/14/1978	14	1.025	21.37	0.56
82	2/22/2004	14	1.02	21.64	0.55
83	1/24/1967	7	1.014	21.9	0.54
84	3/25/1994	1	1.003	22.16	0.54
85	3/1/1981	12	1.003	22.43	0.53
86	2/6/1992	8	1.002	22.69	0.52
87	3/8/1974	13	0.999	22.96	0.52
88	12/21/1970	8	0.998	23.22	0.51
89	2/14/1980	11	0.985	23.48	0.51
90	12/29/1991	3	0.976	23.75	0.5
91	2/23/1998	5	0.964	24.01	0.49
92	2/7/1994	7	0.953	24.27	0.49
93	3/11/1995	8	0.952	24.54	0.48
94	2/8/1976	13	0.948	24.8	0.48
95	12/31/1976	4	0.938	25.07	0.47
96	3/27/1991	11	0.934	25.33	0.47
97	3/2/1970	4	0.922	25.59	0.46
98	11/21/1967	2	0.92	25.86	0.46
99	3/15/2003	2	0.913	26.12	0.45
100	1/31/1996	11	0.912	26.39	0.45
101	2/17/1998	4	0.911	26.65	0.45
102	2/17/1994	2	0.908	26.91	0.44
103	11/21/1996	8	0.901	27.18	0.44

10-year Q: 2.542 cfs
 5-year Q: 2.328 cfs
 2-year Q: 1.811 cfs

(Adjust Column "I" to interpolate from Table)

Lower Flow Threshold: 10%

0.1xQ2 (Pre): 0.181 cfs

104	3/6/1980	3	0.893	27.44	0.43
105	1/27/1983	7	0.893	27.7	0.43
106	1/5/1992	12	0.887	27.97	0.42
107	3/1/1979	8	0.883	28.23	0.42
108	1/3/2005	3	0.879	28.5	0.42
109	4/14/2003	1	0.871	28.76	0.41
110	3/15/1982	11	0.868	29.02	0.41
111	3/8/1975	5	0.866	29.29	0.41
112	1/7/1987	1	0.864	29.55	0.4
113	1/16/1973	3	0.854	29.82	0.4
114	2/12/1992	14	0.852	30.08	0.39
115	2/28/1991	1	0.849	30.34	0.39
116	12/9/1965	10	0.847	30.61	0.39
117	12/3/1966	8	0.836	30.87	0.38
118	12/29/1965	2	0.829	31.13	0.38
119	1/22/1967	7	0.827	31.4	0.38
120	12/20/2002	4	0.827	31.66	0.38
121	12/24/1988	4	0.822	31.93	0.37
122	2/6/1976	3	0.822	32.19	0.37
123	1/14/1969	6	0.82	32.45	0.37
124	12/18/1978	2	0.81	32.72	0.36
125	1/15/1993	34	0.808	32.98	0.36
126	11/17/1986	5	0.808	33.25	0.36
127	1/2/2006	2	0.806	33.51	0.35
128	11/13/1978	1	0.803	33.77	0.35
129	12/4/1972	3	0.781	34.04	0.35
130	1/17/1988	2	0.78	34.3	0.35
131	2/21/2005	12	0.779	34.56	0.34
132	2/6/1998	4	0.774	34.83	0.34
133	11/20/1983	1	0.766	35.09	0.34
134	2/22/2005	10	0.764	35.36	0.34
135	3/28/1998	3	0.76	35.62	0.33
136	11/16/1965	6	0.751	35.88	0.33
137	4/8/1965	6	0.738	36.15	0.33
138	1/11/2001	5	0.735	36.41	0.33
139	9/10/1976	3	0.732	36.68	0.32
140	2/3/2004	2	0.728	36.94	0.32
141	12/16/2002	3	0.713	37.2	0.32
142	3/13/1978	9	0.701	37.47	0.32
143	4/28/1994	2	0.69	37.73	0.31
144	1/17/1990	2	0.676	37.99	0.31
145	5/12/1998	3	0.675	38.26	0.31
146	2/14/1995	2	0.667	38.52	0.31
147	2/8/1986	3	0.666	38.79	0.31
148	3/21/1995	5	0.656	39.05	0.3
149	12/25/1971	4	0.655	39.31	0.3
150	1/21/1969	9	0.652	39.58	0.3
151	2/25/1969	18	0.651	39.84	0.3
152	1/12/1993	11	0.649	40.11	0.3
153	3/27/1979	18	0.646	40.37	0.29
154	1/7/1974	16	0.646	40.63	0.29
155	2/23/1969	10	0.646	40.9	0.29
156	12/16/1987	4	0.643	41.16	0.29
157	3/8/1970	8	0.634	41.42	0.29
158	3/10/1980	6	0.631	41.69	0.28
159	11/17/1964	6	0.627	41.95	0.28
160	3/10/1975	12	0.624	42.22	0.28
161	3/8/1973	8	0.622	42.48	0.28
162	3/13/1967	7	0.614	42.74	0.28
163	2/8/1983	3	0.614	43.01	0.28
164	1/29/1980	9	0.612	43.27	0.27
165	3/28/1993	1	0.612	43.54	0.27
166	3/8/1968	4	0.612	43.8	0.27
167	12/29/1992	7	0.611	44.06	0.27
168	1/17/1993	20	0.611	44.33	0.27
169	2/10/1982	12	0.611	44.59	0.27
170	12/14/1965	2	0.602	44.85	0.26
171	12/9/1996	3	0.6	45.12	0.26
172	12/7/1992	7	0.6	45.38	0.26
173	3/11/1973	5	0.597	45.65	0.26
174	11/16/1972	5	0.594	45.91	0.26
175	4/8/1975	16	0.59	46.17	0.26
176	11/7/1966	3	0.589	46.44	0.26
177	3/10/2006	1	0.585	46.7	0.25
178	3/23/1995	2	0.585	46.97	0.25
179	9/10/1976	4	0.582	47.23	0.25
180	11/24/2001	1	0.582	47.49	0.25
181	11/22/1973	4	0.581	47.76	0.25
182	3/17/1979	3	0.578	48.02	0.25
183	1/9/1980	1	0.577	48.28	0.25
184	3/15/1986	10	0.576	48.55	0.24
185	5/7/1971	2	0.575	48.81	0.24
186	1/13/1997	9	0.572	49.08	0.24
187	3/31/1978	4	0.571	49.34	0.24
188	3/10/1986	5	0.569	49.6	0.24
189	2/13/2003	2	0.568	49.87	0.24
190	11/8/2002	1	0.568	50.13	0.24
191	3/18/1983	16	0.563	50.4	0.24
192	2/22/1969	5	0.557	50.66	0.23
193	1/4/1987	7	0.552	50.92	0.23
194	1/17/1988	1	0.551	51.19	0.23
195	11/12/1976	1	0.545	51.45	0.23
196	2/20/1994	1	0.544	51.72	0.23
197	12/19/1970	5	0.542	51.98	0.23
198	3/26/1991	5	0.538	52.24	0.23
199	12/21/1988	1	0.536	52.51	0.23
200	1/29/1983	3	0.535	52.77	0.22
201	1/18/1973	6	0.532	53.03	0.22
202	2/22/2008	7	0.532	53.3	0.22
203	12/27/1971	3	0.531	53.56	0.22
204	11/30/1982	8	0.523	53.83	0.22
205	3/11/2006	2	0.522	54.09	0.22
206	4/18/1995	4	0.51	54.35	0.22
207	1/7/2005	2	0.508	54.62	0.22
208	2/3/2008	5	0.502	54.88	0.22
209	3/2/2004	2	0.502	55.15	0.22
210	4/30/1983	2	0.497	55.41	0.21
211	2/27/1991	6	0.493	55.67	0.21
212	1/19/1980	1	0.487	55.94	0.21
213	12/29/2004	4	0.487	56.2	0.21
214	11/25/1988	1	0.483	56.46	0.21
215	12/16/1965	3	0.482	56.73	0.21

216	1/12/1995	6	0.476	56.99	0.21
219	2/24/1998	3	0.475	57.78	0.21
219	2/21/2000	3	0.475	57.78	0.21
219	11/29/2002	3	0.475	57.78	0.21
220	1/7/1992	3	0.474	58.05	0.2
221	11/4/1987	7	0.461	58.31	0.2
222	9/25/1986	3	0.459	58.58	0.2
223	1/14/1990	3	0.449	58.84	0.2
224	3/20/1983	8	0.44	59.1	0.2
225	8/17/1977	10	0.435	59.37	0.2
226	1/10/1998	2	0.432	59.63	0.2
227	4/11/1998	3	0.431	59.89	0.2
228	11/10/1982	2	0.428	60.16	0.2
229	12/6/1997	2	0.428	60.42	0.2
230	12/6/1986	2	0.427	60.69	0.2
231	3/12/1986	1	0.419	60.95	0.19
232	2/22/1998	2	0.418	61.21	0.19
233	1/6/1974	12	0.414	61.48	0.19
234	3/14/1978	7	0.409	61.74	0.19
235	1/12/1997	4	0.409	62.01	0.19
236	2/21/1979	1	0.407	62.27	0.19
237	1/7/1995	9	0.404	62.53	0.19
238	3/25/1998	2	0.403	62.8	0.19
239	2/11/2003	1	0.402	63.06	0.19
240	4/20/1988	6	0.397	63.32	0.19
241	11/11/1985	7	0.397	63.59	0.19
242	1/6/2008	2	0.391	63.85	0.19
243	2/28/2006	8	0.387	64.12	0.19
244	1/7/2008	6	0.384	64.38	0.18
245	3/1/1976	3	0.382	64.64	0.18
246	4/7/1978	2	0.374	64.91	0.18
247	2/19/1993	6	0.372	65.17	0.18
248	3/22/1973	3	0.368	65.44	0.18
249	1/25/1995	5	0.367	65.7	0.18
250	1/26/2001	6	0.367	65.96	0.18
251	3/28/2006	4	0.365	66.23	0.18
252	4/13/1976	5	0.361	66.49	0.18
253	3/2/1992	2	0.36	66.75	0.18
254	1/5/2008	7	0.356	67.02	0.18
255	3/18/1978	1	0.346	67.28	0.18
256	1/18/1979	1	0.339	67.55	0.18
257	3/5/1981	9	0.338	67.81	0.18
258	2/25/1996	1	0.325	68.07	0.17
259	2/12/1973	2	0.32	68.34	0.17
260	1/25/1997	11	0.313	68.6	0.17
261	3/22/2005	1	0.313	68.87	0.17
262	12/11/1996	3	0.309	69.13	0.17
263	2/23/1993	7	0.304	69.39	0.17
264	2/19/2007	9	0.302	69.66	0.17
265	1/20/1969	1	0.301	69.92	0.17
266	11/11/1982	1	0.286	70.18	0.17
267	4/22/1967	3	0.286	70.45	0.17
268	3/13/1969	5	0.285	70.71	0.17
269	1/21/1996	2	0.279	70.98	0.17
270	3/24/1994	3	0.277	71.24	0.17
271	3/16/2003	2	0.276	71.5	0.17
272	12/3/1985	4	0.271	71.77	0.17
273	1/9/1980	1	0.269	72.03	0.16
274	2/18/1969	2	0.266	72.3	0.16
275	3/3/1983	3	0.265	72.56	0.16
276	11/11/1972	1	0.258	72.82	0.16
277	3/16/1986	2	0.256	73.09	0.16
278	1/26/1969	2	0.254	73.35	0.16
279	3/20/1991	7	0.254	73.61	0.16
280	3/20/1973	3	0.251	73.88	0.16
281	12/25/1971	6	0.25	74.14	0.16
282	12/28/1971	3	0.249	74.41	0.16
283	3/19/1979	5	0.248	74.67	0.16
284	1/18/1979	3	0.246	74.93	0.16
285	3/11/1995	4	0.246	75.2	0.16
286	4/1/1965	5	0.24	75.46	0.16
287	2/12/1973	3	0.238	75.73	0.16
288	1/31/1979	1	0.235	75.99	0.16
289	12/26/1977	7	0.234	76.25	0.16
290	2/14/2008	2	0.233	76.52	0.16
291	12/26/1977	2	0.223	76.78	0.15
292	3/17/2002	1	0.218	77.04	0.15
293	10/20/1979	2	0.215	77.31	0.15
294	2/13/2000	2	0.211	77.57	0.15
295	3/25/1991	1	0.208	77.84	0.15
296	4/12/1967	2	0.208	78.1	0.15
297	3/7/1973	2	0.205	78.36	0.15
298	12/8/1972	2	0.202	78.63	0.15
299	3/13/1978	1	0.202	78.89	0.15
300	12/25/1994	1	0.2	79.16	0.15
301	3/23/1992	1	0.199	79.42	0.15
302	12/25/2003	1	0.198	79.68	0.15
303	4/6/1975	2	0.187	79.95	0.15
304	1/9/1980	1	0.186	80.21	0.15
305	1/30/1978	2	0.186	80.47	0.15
306	1/20/1982	3	0.186	80.74	0.15
307	4/2/1982	4	0.185	81	0.15
308	4/26/1994	1	0.185	81.27	0.15
309	4/1/1968	1	0.181	81.53	0.15
310	2/13/1980	4	0.18	81.79	0.15
311	3/11/1975	3	0.174	82.06	0.14
312	5/1/1983	2	0.173	82.32	0.14
313	4/3/1965	2	0.167	82.59	0.14
314	12/21/2001	2	0.164	82.85	0.14
315	2/21/1979	1	0.164	83.11	0.14
316	1/27/2001	2	0.162	83.38	0.14
317	3/28/1982	1	0.162	83.64	0.14
318	12/20/1995	1	0.162	83.91	0.14
319	1/31/1993	1	0.161	84.17	0.14
320	1/10/1993	1	0.161	84.43	0.14
321	2/18/2005	2	0.16	84.7	0.14
322	2/7/1976	3	0.155	84.96	0.14
323	1/28/1969	1	0.154	85.22	0.14
324	1/4/2005	2	0.153	85.49	0.14
325	2/15/1980	3	0.147	85.75	0.14
326	1/4/1977	1	0.147	86.02	0.14
327	1/12/2001	1	0.146	86.28	0.14

328	2/25/1981	1	0.142	86.54	0.14
329	3/11/1970	5	0.141	86.81	0.14
330	6/10/1990	2	0.133	87.07	0.14
331	3/26/1998	1	0.132	87.34	0.14
332	3/22/1983	3	0.13	87.6	0.14
333	2/10/1975	1	0.122	87.86	0.14
334	4/15/1976	1	0.12	88.13	0.13
335	2/23/2005	1	0.113	88.39	0.13
336	2/12/2005	1	0.113	88.65	0.13
337	3/11/1965	1	0.108	88.92	0.13
338	12/10/1965	6	0.107	89.18	0.13
339	2/2/1979	1	0.106	89.45	0.13
340	3/20/1979	1	0.105	89.71	0.13
341	11/20/1967	2	0.105	89.97	0.13
342	11/9/2002	1	0.102	90.24	0.13
343	3/21/2006	1	0.1	90.5	0.13
344	11/21/1978	1	0.097	90.77	0.13
345	2/6/1965	1	0.096	91.03	0.13
346	4/2/1974	3	0.094	91.29	0.13
347	4/9/1965	1	0.088	91.56	0.13
348	2/28/1973	2	0.087	91.82	0.13
349	3/26/1980	2	0.084	92.08	0.13
350	3/13/1986	2	0.083	92.35	0.13
351	2/26/1996	1	0.082	92.61	0.13
352	2/12/2005	2	0.079	92.88	0.13
353	2/1/1979	1	0.077	93.14	0.13
354	6/5/1993	1	0.075	93.4	0.13
355	12/25/1983	1	0.074	93.67	0.13
356	11/2/1987	2	0.07	93.93	0.13
357	3/22/1978	1	0.069	94.2	0.13
358	1/29/1998	1	0.056	94.46	0.13
359	12/31/2004	2	0.054	94.72	0.13
360	11/28/1981	2	0.052	94.99	0.13
361	5/3/2003	1	0.051	95.25	0.12
362	10/19/2004	1	0.049	95.51	0.12
363	1/24/1969	1	0.046	95.78	0.12
364	2/17/2000	1	0.046	96.04	0.12
365	4/5/1975	1	0.044	96.31	0.12
366	11/21/1983	1	0.043	96.57	0.12
367	4/4/2006	1	0.043	96.83	0.12
368	10/29/1974	2	0.04	97.1	0.12
369	3/6/1980	1	0.04	97.36	0.12
370	3/6/1970	3	0.035	97.63	0.12
371	4/21/1988	1	0.035	97.89	0.12
372	3/29/1998	1	0.031	98.15	0.12
373	11/23/1978	1	0.03	98.42	0.12
374	12/8/2007	1	0.026	98.68	0.12
375	12/3/1983	1	0.02	98.94	0.12
376	3/2/1992	1	0.018	99.21	0.12
377	3/21/1969	1	0.016	99.47	0.12
378	11/25/1965	1	0.015	99.74	0.12

0.349	0.889	0.310261	1.42
0.09	0.551	0.04959	
0.43	0.887	0.38141	
0.22	0.468	0.10296	
0.06	0.825	0.0495	
0.32	0.08	0.0256	
1.469		0.919321	

Post-project (Mitigated) Flow Frequency - Long-term Simulation

Statistics - Node PROP-POC-1 Total Inflow

Rank	Start Date	Event Duration (hours)	Event Peak (CFS)	Exceedance Frequency (percent)	Return Period (years)
1	1/6/1993	84	3.18	0.37	45
2	2/23/1971	15	2.724	0.75	22.5
3	1/4/1995	14	2.477	1.12	15
4	2/14/1998	15	2.31	1.49	11.25
5	3/1/1983	11	2.235	1.87	9
6	1/16/1978	14	2.23	2.24	7.5
7	11/19/1967	23	2.201	2.61	6.43
8	12/5/1966	52	2.201	2.99	5.63
9	3/17/1978	19	2.2	3.36	5
10	12/25/1983	18	2.176	3.73	4.5
11	2/15/1986	15	2.069	4.1	4.09
12	4/21/1988	9	1.97	4.48	3.75
13	2/9/1981	10	1.929	4.85	3.46
14	1/24/1969	30	1.844	5.22	3.21
15	1/25/1995	10	1.843	5.6	3
16	1/28/1980	32	1.789	5.97	2.81
17	1/13/1993	16	1.679	6.34	2.65
18	2/19/1980	31	1.678	6.72	2.5
19	11/22/1965	28	1.583	7.09	2.37
20	8/26/2007	9	1.565	7.46	2.25
21	4/11/1967	13	1.556	7.84	2.14
22	11/25/1985	14	1.495	8.21	2.05
23	11/30/2007	22	1.445	8.58	1.96
24	1/11/2005	14	1.428	8.96	1.88
25	1/9/2005	26	1.408	9.33	1.8
26	2/20/1980	14	1.379	9.7	1.73
27	2/18/1980	16	1.346	10.07	1.67
28	1/6/1979	15	1.344	10.45	1.61
29	11/14/1972	7	1.32	10.82	1.55
30	11/25/1983	7	1.295	11.19	1.5
31	3/20/1991	27	1.231	11.57	1.45
32	1/9/1998	12	1.214	11.94	1.41
33	3/2/1980	15	1.208	12.31	1.36
34	2/8/1993	13	1.199	12.69	1.32
35	3/5/1995	24	1.154	13.06	1.29
36	12/18/1967	26	1.09	13.43	1.25
37	1/31/2007	5	1.083	13.81	1.22
38	3/18/1982	25	1.073	14.18	1.18
39	10/18/2004	8	1.032	14.55	1.15
40	3/2/1983	22	1.028	14.93	1.13
41	1/4/1978	20	1.024	15.3	1.1
42	10/27/2004	15	1.007	15.67	1.07
43	2/3/1998	11	1.005	16.04	1.05
44	3/4/1970	9	1.003	16.42	1.02
45	1/24/1967	13	0.989	16.79	1
46	1/11/1980	22	0.981	17.16	0.98
47	3/1/1981	24	0.969	17.54	0.96
48	3/8/1974	19	0.949	17.91	0.94
49	12/17/1978	29	0.945	18.28	0.92
50	11/29/1985	16	0.94	18.66	0.9
51	2/26/2004	10	0.922	19.03	0.88
52	2/27/1991	51	0.907	19.4	0.87
53	2/28/1970	21	0.897	19.78	0.85
54	12/3/1966	14	0.879	20.15	0.83
55	2/15/1992	10	0.872	20.52	0.82
56	5/8/1977	19	0.858	20.9	0.8
57	11/21/1996	14	0.826	21.27	0.79
58	3/27/1991	18	0.801	21.64	0.78
59	1/22/1967	12	0.796	22.01	0.76
60	3/19/1991	11	0.787	22.39	0.75
61	2/16/1980	13	0.776	22.76	0.74
62	2/21/2005	17	0.772	23.13	0.73
63	1/31/1996	17	0.757	23.51	0.71
64	2/6/1969	13	0.75	23.88	0.7
65	2/8/1976	22	0.727	24.25	0.69
66	2/5/1978	7	0.707	24.63	0.68
67	1/15/1993	50	0.656	25	0.67
68	4/9/1965	10	0.647	25.37	0.66
69	2/25/1969	27	0.644	25.75	0.65
70	3/23/1983	8	0.627	26.12	0.64
71	1/1/1982	5	0.608	26.49	0.63
72	10/20/2004	12	0.602	26.87	0.63
73	2/12/2003	9	0.6	27.24	0.62
74	12/4/1974	9	0.591	27.61	0.61
75	11/21/1967	2	0.567	27.99	0.6
76	2/17/1994	6	0.564	28.36	0.59
77	2/12/1992	17	0.563	28.73	0.58
78	2/27/1983	7	0.562	29.1	0.58
79	3/2/1970	10	0.559	29.48	0.57
80	4/8/1965	8	0.548	29.85	0.56
81	2/24/1969	19	0.545	30.22	0.56
82	1/5/1992	18	0.538	30.6	0.55
83	12/21/1970	6	0.535	30.97	0.54
84	3/11/1995	14	0.535	31.34	0.54
85	2/8/1998	7	0.529	31.72	0.53
86	1/7/1974	22	0.523	32.09	0.52
87	11/29/1970	18	0.51	32.46	0.52
88	1/30/1980	7	0.497	32.84	0.51
89	4/5/2006	8	0.496	33.21	0.51
90	12/24/1988	7	0.492	33.58	0.5
91	12/7/1992	14	0.491	33.96	0.49
92	3/13/1967	11	0.472	34.33	0.49
93	11/17/1986	11	0.471	34.7	0.48
94	4/8/1975	19	0.469	35.07	0.48
95	1/17/1993	23	0.457	35.45	0.47
96	12/25/1971	8	0.452	35.82	0.47
97	3/19/1981	4	0.45	36.19	0.46
98	3/8/1975	9	0.45	36.57	0.46
99	2/10/1982	14	0.445	36.94	0.45
100	1/16/1973	7	0.44	37.31	0.45
101	3/8/1970	10	0.439	37.69	0.45
102	1/4/1974	12	0.437	38.06	0.44
103	1/3/2005	11	0.429	38.43	0.44

10-year Q: 2.268 cfs
 5-year Q: 2.200 cfs
 2-year Q: 1.454 cfs

(Adjust Column "I" to interpolate from Table)

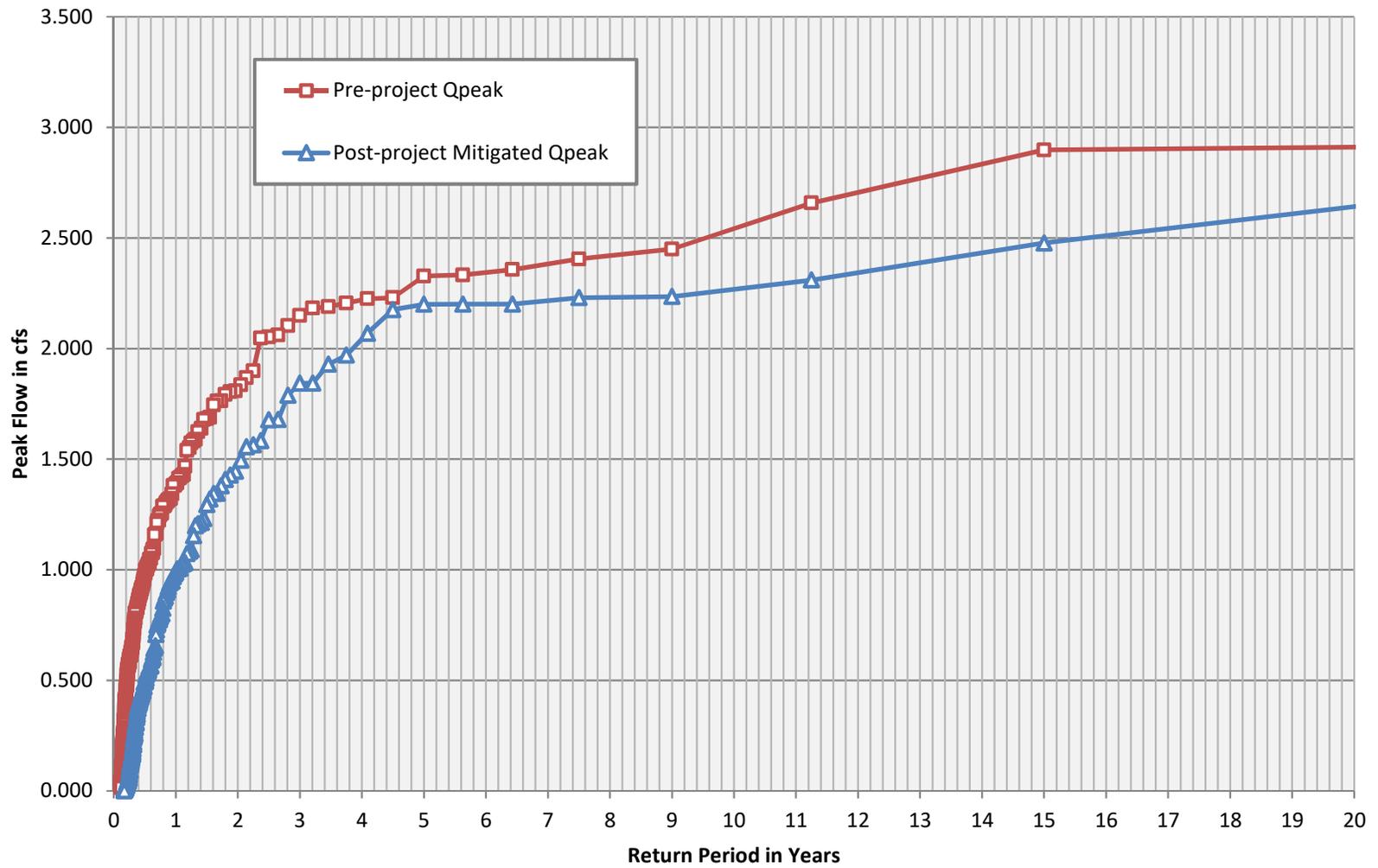
Lower Flow Threshold: 10%

0.1xQ2 (Post Mit): 0.145 cfs

104	3/8/1973	10	0.425	38.81	0.43
105	3/13/1978	46	0.421	39.18	0.43
106	2/25/2003	9	0.415	39.55	0.42
107	1/11/2001	12	0.412	39.93	0.42
108	1/27/1983	9	0.408	40.3	0.42
109	3/3/1976	10	0.404	40.67	0.41
110	2/22/2004	22	0.401	41.04	0.41
111	2/22/2005	20	0.396	41.42	0.41
112	3/10/1975	13	0.395	41.79	0.4
113	2/23/1998	8	0.394	42.16	0.4
114	11/16/1972	7	0.386	42.54	0.39
115	2/7/1994	19	0.384	42.91	0.39
116	2/14/1980	15	0.373	43.28	0.39
117	11/30/1982	13	0.37	43.66	0.38
118	11/16/1965	11	0.37	44.03	0.38
119	2/6/1992	14	0.359	44.4	0.38
120	3/1/1979	8	0.347	44.78	0.38
121	12/19/1970	6	0.344	45.15	0.37
122	1/12/1997	25	0.339	45.52	0.37
123	12/22/1982	7	0.331	45.9	0.37
124	9/25/1986	8	0.312	46.27	0.36
125	2/6/1978	16	0.31	46.64	0.36
126	11/23/1973	6	0.307	47.01	0.36
127	1/21/1969	10	0.307	47.39	0.35
128	12/9/1965	16	0.305	47.76	0.35
129	2/19/1993	10	0.291	48.13	0.35
130	2/22/2008	10	0.285	48.51	0.35
131	11/17/1964	8	0.271	48.88	0.34
132	1/14/1969	10	0.26	49.25	0.34
133	1/12/1995	6	0.259	49.63	0.34
134	12/27/1971	4	0.254	50	0.34
135	2/14/1995	6	0.25	50.37	0.33
136	11/7/1966	8	0.248	50.75	0.33
137	1/7/1995	13	0.248	51.12	0.33
138	3/10/1980	6	0.245	51.49	0.33
139	1/17/1979	1	0.237	51.87	0.32
140	3/17/1979	2	0.221	52.24	0.32
141	4/14/1976	1	0.21	52.61	0.32
142	8/17/1977	15	0.209	52.99	0.32
143	11/14/1993	1	0.203	53.36	0.31
144	3/18/1983	16	0.193	53.73	0.31
145	1/4/1987	15	0.19	54.1	0.31
146	12/29/1991	3	0.188	54.48	0.31
147	3/15/1982	11	0.176	54.85	0.31
148	4/20/1988	7	0.169	55.22	0.3
149	1/17/1988	16	0.169	55.6	0.3
150	3/25/1994	1	0.164	55.97	0.3
151	12/16/1987	9	0.164	56.34	0.3
152	2/17/1998	5	0.164	56.72	0.3
153	2/8/1986	5	0.164	57.09	0.29
154	2/22/1969	5	0.162	57.46	0.29
155	1/26/1997	12	0.159	57.84	0.29
156	2/8/1983	2	0.153	58.21	0.29
157	3/6/1980	15	0.15	58.58	0.29
158	9/10/1976	22	0.149	58.96	0.28
159	2/24/1998	6	0.147	59.33	0.28
160	3/28/1979	12	0.146	59.7	0.28
161	1/18/1973	6	0.14	60.07	0.28
162	12/14/1965	1	0.138	60.45	0.28
163	3/26/1991	6	0.132	60.82	0.28
164	3/11/1973	5	0.131	61.19	0.27
165	2/11/1973	9	0.126	61.57	0.27
166	3/8/1968	8	0.124	61.94	0.27
167	11/4/1987	7	0.123	62.31	0.27
168	12/29/1992	3	0.119	62.69	0.27
169	3/15/1986	10	0.117	63.06	0.27
170	1/29/1983	2	0.116	63.43	0.26
171	12/25/1971	3	0.111	63.81	0.26
172	2/6/1976	5	0.098	64.18	0.26
173	5/7/1971	1	0.097	64.55	0.26
174	12/18/1978	11	0.094	64.93	0.26
175	2/3/2008	8	0.093	65.3	0.26
176	12/4/1972	9	0.09	65.67	0.26
177	3/1/1976	7	0.087	66.04	0.25
178	3/16/1986	5	0.086	66.42	0.25
179	12/29/2004	8	0.083	66.79	0.25
180	1/5/2008	11	0.079	67.16	0.25
181	1/7/1987	2	0.078	67.54	0.25
182	2/28/2006	12	0.076	67.91	0.25
183	2/13/2003	6	0.071	68.28	0.25
184	2/12/2005	19	0.068	68.66	0.24
185	12/20/2002	4	0.066	69.03	0.24
186	3/15/2003	2	0.06	69.4	0.24
187	11/11/1985	9	0.06	69.78	0.24
188	1/7/2008	10	0.059	70.15	0.24
189	10/20/1979	7	0.056	70.52	0.24
190	1/9/1980	12	0.054	70.9	0.24
191	4/13/1976	8	0.054	71.27	0.24
192	3/11/1975	7	0.051	71.64	0.23
193	2/6/1998	4	0.047	72.01	0.23
194	12/31/1976	6	0.046	72.39	0.23
195	4/6/1986	2	0.044	72.76	0.23
196	1/14/1990	2	0.043	73.13	0.23
197	3/11/1995	6	0.043	73.51	0.23
198	12/13/1965	1	0.043	73.88	0.23
199	1/10/1998	6	0.043	74.25	0.23
200	1/6/2008	3	0.041	74.63	0.22
201	11/13/1978	1	0.041	75	0.22
202	12/29/1965	2	0.04	75.37	0.22
203	12/10/1965	9	0.04	75.75	0.22
204	11/12/1976	13	0.039	76.12	0.22
205	12/26/1977	7	0.039	76.49	0.22
206	3/28/1998	4	0.039	76.87	0.22
207	1/2/2006	4	0.038	77.24	0.22
208	3/10/1986	1	0.037	77.61	0.22
209	4/14/2003	2	0.036	77.99	0.22
210	2/20/1994	1	0.036	78.36	0.21
211	3/11/2006	2	0.036	78.73	0.21
212	5/28/1971	1	0.035	79.1	0.21
213	1/5/1979	5	0.035	79.48	0.21
214	3/2/2004	1	0.031	79.85	0.21
215	12/11/1996	2	0.031	80.22	0.21

216	1/12/1993	7	0.03	80.6	0.21
217	3/19/1994	5	0.029	80.97	0.21
218	12/9/1996	2	0.028	81.34	0.21
219	12/16/2002	3	0.027	81.72	0.21
220	2/12/1973	6	0.026	82.09	0.2
221	12/21/1988	1	0.026	82.46	0.2
222	12/16/1965	2	0.025	82.84	0.2
223	4/1/1968	1	0.025	83.21	0.2
224	3/19/1979	2	0.025	83.58	0.2
225	11/24/2001	2	0.024	83.96	0.2
226	4/30/1983	1	0.024	84.33	0.2
227	3/12/1978	5	0.023	84.7	0.2
228	2/7/1976	3	0.022	85.07	0.2
229	1/7/1992	2	0.022	85.45	0.2
230	11/10/1982	1	0.022	85.82	0.2
231	11/25/1988	5	0.02	86.19	0.19
232	12/28/1971	1	0.02	86.57	0.19
233	3/22/1973	2	0.019	86.94	0.19
234	11/20/1983	1	0.017	87.31	0.19
235	12/3/1985	3	0.016	87.69	0.19
236	1/4/2005	9	0.016	88.06	0.19
237	2/2/1988	1	0.015	88.43	0.19
238	3/20/1983	8	0.015	88.81	0.19
239	3/29/2006	2	0.013	89.18	0.19
240	1/25/1995	2	0.013	89.55	0.19
241	1/6/1974	4	0.012	89.93	0.19
242	5/12/1998	2	0.012	90.3	0.19
243	2/13/1973	1	0.011	90.67	0.19
244	4/28/1994	1	0.01	91.04	0.18
245	2/18/1969	1	0.01	91.42	0.18
246	4/2/1965	3	0.01	91.79	0.18
247	4/7/1978	1	0.01	92.16	0.18
248	1/21/1982	1	0.01	92.54	0.18
249	1/7/2005	1	0.009	92.91	0.18
250	3/7/1973	1	0.009	93.28	0.18
251	3/25/1989	1	0.008	93.66	0.18
252	3/21/1969	1	0.008	94.03	0.18
253	3/23/1995	2	0.008	94.4	0.18
254	10/1/1983	1	0.008	94.78	0.18
255	3/7/1994	1	0.008	95.15	0.18
256	3/20/1973	2	0.007	95.52	0.18
257	1/17/1990	2	0.007	95.9	0.18
258	2/21/1979	1	0.007	96.27	0.17
259	4/18/1995	3	0.007	96.64	0.17
260	2/3/2004	2	0.006	97.01	0.17
261	12/25/2003	1	0.006	97.39	0.17
262	2/8/1986	1	0.005	97.76	0.17
263	3/12/1986	1	0.005	98.13	0.17
264	1/18/1979	1	0.004	98.51	0.17
265	3/11/1970	1	0.004	98.88	0.17
266	3/5/2005	1	0.002	99.25	0.17
267	4/2/1982	1	0.002	99.63	0.17

Peak Flow Frequency Curves



Peak Flow Frequency Summary

Return Period	Pre-project Qpeak (cfs)	Post-project - Mitigated Q (cfs)
LF = 0.1xQ2	0.181	0.145
2-year	1.811	1.454
5-year	2.328	2.200
10-year	2.542	2.268

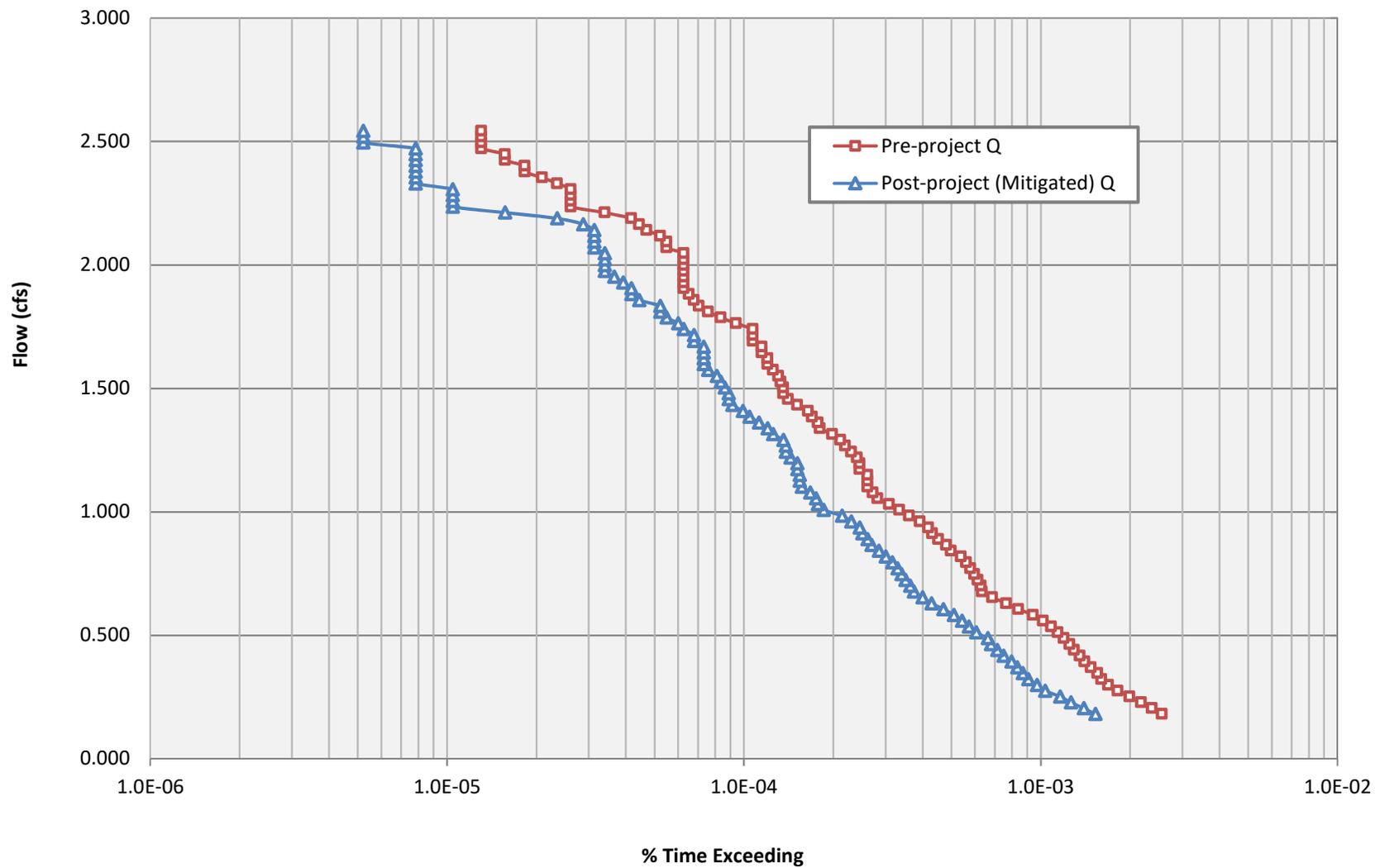
Low-flow Threshold: 10%
 0.1xQ2 (Pre): 0.181 cfs
 Q10 (Pre): 2.542 cfs
 Ordinate #: 100
 Incremental Q (Pre): 0.02361 64
 Total Hourly Data: 382734 hours

The proposed BMP: **PASSED**

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
0	0.181	981	2.56E-03	585	1.53E-03	60%	Pass
1	0.205	908	2.37E-03	535	1.40E-03	59%	Pass
2	0.228	834	2.18E-03	484	1.26E-03	58%	Pass
3	0.252	763	1.99E-03	445	1.16E-03	58%	Pass
4	0.276	696	1.82E-03	396	1.03E-03	57%	Pass
5	0.299	646	1.69E-03	372	9.72E-04	58%	Pass
6	0.323	613	1.60E-03	348	9.09E-04	57%	Pass
7	0.346	595	1.55E-03	333	8.70E-04	56%	Pass
8	0.370	565	1.48E-03	319	8.33E-04	56%	Pass
9	0.394	538	1.41E-03	305	7.97E-04	57%	Pass
10	0.417	519	1.36E-03	287	7.50E-04	55%	Pass
11	0.441	496	1.30E-03	273	7.13E-04	55%	Pass
12	0.464	479	1.25E-03	260	6.79E-04	54%	Pass
13	0.488	458	1.20E-03	254	6.64E-04	55%	Pass
14	0.512	437	1.14E-03	232	6.06E-04	53%	Pass
15	0.535	415	1.08E-03	219	5.72E-04	53%	Pass
16	0.559	390	1.02E-03	208	5.43E-04	53%	Pass
17	0.583	361	9.43E-04	195	5.09E-04	54%	Pass
18	0.606	322	8.41E-04	180	4.70E-04	56%	Pass
19	0.630	293	7.66E-04	164	4.28E-04	56%	Pass
20	0.653	263	6.87E-04	153	4.00E-04	58%	Pass
21	0.677	243	6.35E-04	143	3.74E-04	59%	Pass
22	0.701	241	6.30E-04	139	3.63E-04	58%	Pass
23	0.724	235	6.14E-04	134	3.50E-04	57%	Pass
24	0.748	229	5.98E-04	130	3.40E-04	57%	Pass
25	0.771	222	5.80E-04	126	3.29E-04	57%	Pass
26	0.795	215	5.62E-04	121	3.16E-04	56%	Pass
27	0.819	206	5.38E-04	115	3.00E-04	56%	Pass
28	0.842	191	4.99E-04	109	2.85E-04	57%	Pass
29	0.866	184	4.81E-04	103	2.69E-04	56%	Pass
30	0.890	173	4.52E-04	100	2.61E-04	58%	Pass
31	0.913	165	4.31E-04	96	2.51E-04	58%	Pass
32	0.937	160	4.18E-04	94	2.46E-04	59%	Pass
33	0.960	150	3.92E-04	88	2.30E-04	59%	Pass
34	0.984	138	3.61E-04	82	2.14E-04	59%	Pass
35	1.008	128	3.34E-04	71	1.86E-04	55%	Pass
36	1.031	118	3.08E-04	68	1.78E-04	58%	Pass
37	1.055	108	2.82E-04	67	1.75E-04	62%	Pass
38	1.078	104	2.72E-04	64	1.67E-04	62%	Pass
39	1.102	100	2.61E-04	60	1.57E-04	60%	Pass
40	1.126	100	2.61E-04	59	1.54E-04	59%	Pass
41	1.149	100	2.61E-04	59	1.54E-04	59%	Pass
42	1.173	94	2.46E-04	58	1.52E-04	62%	Pass
43	1.196	94	2.46E-04	58	1.52E-04	62%	Pass
44	1.220	92	2.40E-04	55	1.44E-04	60%	Pass
45	1.244	88	2.30E-04	53	1.38E-04	60%	Pass
46	1.267	84	2.19E-04	53	1.38E-04	63%	Pass
47	1.291	81	2.12E-04	52	1.36E-04	64%	Pass
48	1.315	76	1.99E-04	48	1.25E-04	63%	Pass
49	1.338	69	1.80E-04	46	1.20E-04	67%	Pass
50	1.362	68	1.78E-04	43	1.12E-04	63%	Pass
51	1.385	65	1.70E-04	40	1.05E-04	62%	Pass
52	1.409	63	1.65E-04	38	9.93E-05	60%	Pass
53	1.433	58	1.52E-04	35	9.14E-05	60%	Pass
54	1.456	54	1.41E-04	34	8.88E-05	63%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
55	1.480	52	1.36E-04	34	8.88E-05	65%	Pass
56	1.503	52	1.36E-04	33	8.62E-05	63%	Pass
57	1.527	51	1.33E-04	32	8.36E-05	63%	Pass
58	1.551	50	1.31E-04	31	8.10E-05	62%	Pass
59	1.574	48	1.25E-04	29	7.58E-05	60%	Pass
60	1.598	46	1.20E-04	28	7.32E-05	61%	Pass
61	1.622	46	1.20E-04	28	7.32E-05	61%	Pass
62	1.645	44	1.15E-04	28	7.32E-05	64%	Pass
63	1.669	44	1.15E-04	28	7.32E-05	64%	Pass
64	1.692	41	1.07E-04	26	6.79E-05	63%	Pass
65	1.716	41	1.07E-04	26	6.79E-05	63%	Pass
66	1.740	41	1.07E-04	24	6.27E-05	59%	Pass
67	1.763	36	9.41E-05	23	6.01E-05	64%	Pass
68	1.787	32	8.36E-05	21	5.49E-05	66%	Pass
69	1.810	29	7.58E-05	20	5.23E-05	69%	Pass
70	1.834	27	7.05E-05	20	5.23E-05	74%	Pass
71	1.858	26	6.79E-05	17	4.44E-05	65%	Pass
72	1.881	25	6.53E-05	16	4.18E-05	64%	Pass
73	1.905	24	6.27E-05	16	4.18E-05	67%	Pass
74	1.928	24	6.27E-05	15	3.92E-05	63%	Pass
75	1.952	24	6.27E-05	14	3.66E-05	58%	Pass
76	1.976	24	6.27E-05	13	3.40E-05	54%	Pass
77	1.999	24	6.27E-05	13	3.40E-05	54%	Pass
78	2.023	24	6.27E-05	13	3.40E-05	54%	Pass
79	2.047	24	6.27E-05	13	3.40E-05	54%	Pass
80	2.070	21	5.49E-05	12	3.14E-05	57%	Pass
81	2.094	21	5.49E-05	12	3.14E-05	57%	Pass
82	2.117	20	5.23E-05	12	3.14E-05	60%	Pass
83	2.141	18	4.70E-05	12	3.14E-05	67%	Pass
84	2.165	17	4.44E-05	11	2.87E-05	65%	Pass
85	2.188	16	4.18E-05	9	2.35E-05	56%	Pass
86	2.212	13	3.40E-05	6	1.57E-05	46%	Pass
87	2.235	10	2.61E-05	4	1.05E-05	40%	Pass
88	2.259	10	2.61E-05	4	1.05E-05	40%	Pass
89	2.283	10	2.61E-05	4	1.05E-05	40%	Pass
90	2.306	10	2.61E-05	4	1.05E-05	40%	Pass
91	2.330	9	2.35E-05	3	7.84E-06	33%	Pass
92	2.354	8	2.09E-05	3	7.84E-06	38%	Pass
93	2.377	7	1.83E-05	3	7.84E-06	43%	Pass
94	2.401	7	1.83E-05	3	7.84E-06	43%	Pass
95	2.424	6	1.57E-05	3	7.84E-06	50%	Pass
96	2.448	6	1.57E-05	3	7.84E-06	50%	Pass
97	2.472	5	1.31E-05	3	7.84E-06	60%	Pass
98	2.495	5	1.31E-05	2	5.23E-06	40%	Pass
99	2.519	5	1.31E-05	2	5.23E-06	40%	Pass
100	2.542	5	1.31E-05	2	5.23E-06	40%	Pass

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



[TITLE]
 ;;Project Title/Notes

SWMM Parameters

[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 09/24/1964
 START_TIME 00:00:00
 REPORT_START_DATE 09/24/1964
 REPORT_START_TIME 00:00:00
 END_DATE 05/23/2008
 END_TIME 06:00:00
 SWEEP_START 01/01
 SWEEP_END 12/31
 DRY_DAYS 0
 REPORT_STEP 01:00:00
 WET_STEP 00:15:00
 DRY_STEP 04:00:00
 ROUTING_STEP 0:01:00

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

[EVAPORATION]
 ;;Data Source Parameters
 ;;-----
 MONTHLY 0.06 0.08 0.11 0.16 0.18 0.21 0.21 0.20 0.16 0.12 0.08 0.06
 DRY_ONLY NO

[RAINGAGES]
 ;;Name Format Interval SCF Source
 ;;-----
 Escondido INTENSITY 1:00 1.0 TIMESERIES Escondido

[SUBCATCHMENTS]
 ;;Name Rain Gage Outlet Area %Imperv Width %Slope CurbLen SnowPack
 ;;-----
 EX-2 Escondido EX-POC-1 0.45 0.0 43 8.5 0
 EX-1 Escondido EX-POC-1 3.46 0.0 274 8.0 0
 DMA-4 Escondido PROP-POC-1 0.10422 7 35 3 0
 DMA-5 Escondido PROP-POC-1 0.17 11 42 9.0 0
 DMA-1 Escondido BIO-1 0.87 68 169 4.0 0

SWMM							
DMA-2	Escondido	BIO-2	0.20	52	72	4.0	0
DMA-7	Escondido	PROP-POC-1	0.35	0	79	8.0	0
DMA-8	Escondido	PROP-POC-1	0.15	0.0	33	6.0	0
DMA-3	Escondido	PROP-POC-1	0.21	21	96	4.0	0
DMA-6	Escondido	PROP-POC-1	0.11	0	15	4	0
DMA-12	Escondido	PROP-POC-1	1.75	0	190	4.0	0

[SUBAREAS]

;;Subcatchment	N-Imperv	N-Perv	S-Imperv	S-Perv	PctZero	RouteTo	PctRouted
EX-2	0.012	0.04	0.05	0.10	25	OUTLET	
EX-1	0.012	0.04	0.05	0.10	25	OUTLET	
DMA-4	0.012	0.08	0.05	0.3	25	PERVIOUS	100
DMA-5	0.012	0.08	0.05	0.30	25	PERVIOUS	100
DMA-1	0.012	0.08	0.05	0.3	25	PERVIOUS	100
DMA-2	0.012	0.08	0.05	0.3	25	PERVIOUS	100
DMA-7	0.012	0.08	0.05	0.3	25	PERVIOUS	100
DMA-8	0.012	0.08	0.05	0.3	25	PERVIOUS	100
DMA-3	0.012	0.08	0.05	0.30	25	PERVIOUS	100
DMA-6	0.01	0.08	0.05	0.30	25	PERVIOUS	100
DMA-12	0.01	0.08	0.05	0.30	25	PERVIOUS	100

[INFILTRATION]

;;Subcatchment	Suction	Ksat	IMD
EX-2	9.0	0.025	0.33
EX-1	9.0	0.025	0.33
DMA-4	9.0	0.025	0.33
DMA-5	9.0	0.025	0.33
DMA-1	9.0	0.025	0.33
DMA-2	9.0	0.025	0.33
DMA-7	9.0	0.025	0.33
DMA-8	9.0	0.025	0.33
DMA-3	9.0	0.025	0.33
DMA-6	9.0	0.025	0.33
DMA-12	9.0	0.025	0.33

[OUTFALLS]

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

[STORAGE]

;;Name	Elev.	MaxDepth	InitDepth	Shape	Curve Name/Params	N/A	Fevap	Psi
Ksat	IMD							
BIO-1	0	10	0	TABULAR	BIO-1	0	0	6.0
1.2	0.32							
BIO-2	0	10	0	TABULAR	BIO-2	0	0	6.0
1.8	0.32							

[ORIFICES]

;;Name	From Node	To Node	Type	Offset	Qcoeff	Gated	CloseTime
ORIFICE-2	BIO-2	PROP-POC-1	SIDE	3.462	0.65	NO	0
ORIFICE-1	BIO-1	PROP-POC-1	SIDE	3.462	0.65	NO	0

[WEIRS]

;;Name	From Node	To Node	SWMM Type	CrestHt	Qcoeff	Gated	EndCon
EndCoeff	Surcharge	RoadWidth	RoadSurf				
WEIR-1	BIO-1	PROP-POC-1	TRANSVERSE	5.95	3.33	NO	0 0
YES							
WEIR-2	BIO-2	PROP-POC-1	TRANSVERSE	5.95	3.33	NO	0 0
YES							

[XSECTIONS]

;;Link	Shape	Geom1	Geom2	Geom3	Geom4	Barrels	Culvert
ORIFICE-2	CIRCULAR	0.08333	0	0	0		
ORIFICE-1	CIRCULAR	0.083333	0	0	0		
WEIR-1	RECT_OPEN	10	8	0	0		
WEIR-2	RECT_OPEN	10	6.0	0	0		

[CURVES]

;;Name	Type	X-Value	Y-Value
BIO-1	Storage	0	400
BIO-1		4.0	400
BIO-1		4.01	200
BIO-1		5.5	200
BIO-1		5.51	1000
BIO-1		6.0	1000
BIO-2	Storage	0	55
BIO-2		4.0	55
BIO-2		4.01	110
BIO-2		5.5	110
BIO-2		5.51	275
BIO-2		6.0	275
BIO-3	Storage	0	160
BIO-3		4.0	160
BIO-3		4.01	80
BIO-3		5.5	80
BIO-3		5.51	400
BIO-3		6.0	400

[TIMESERIES]

;;Name	Date	Time	Value
Escondido	9/24/1964	13:00	0.2
Escondido	10/15/1964	8:00	0.1
Escondido	10/15/1964	9:00	0.2
Escondido	10/15/1964	10:00	0.1
Escondido	10/15/1964	13:00	0.1
Escondido	11/9/1964	11:00	0.1
Escondido	11/9/1964	12:00	0.2
Escondido	11/9/1964	14:00	0.1
Escondido	11/9/1964	15:00	0.1
Escondido	11/10/1964	15:00	0.1
Escondido	11/10/1964	16:00	0.2
Escondido	11/10/1964	17:00	0.1
Escondido	11/12/1964	2:00	0.1
Escondido	11/12/1964	4:00	0.1
Escondido	11/17/1964	12:00	0.1
Escondido	11/17/1964	14:00	0.1
Escondido	11/17/1964	15:00	0.1
Escondido	11/17/1964	17:00	0.3
Escondido	11/17/1964	18:00	0.2
Escondido	11/17/1964	20:00	0.1
Escondido	11/17/1964	22:00	0.2
Escondido	11/26/1964	11:00	0.02

SWMM

Escondido	11/26/1964	12:00	0.01
Escondido	11/26/1964	13:00	0.01
Escondido	11/26/1964	14:00	0.01
Escondido	11/26/1964	17:00	0.01
Escondido	12/27/1964	6:00	0.04
Escondido	12/27/1964	7:00	0.05
Escondido	12/27/1964	8:00	0.06
Escondido	12/27/1964	9:00	0.09
Escondido	12/27/1964	10:00	0.1
Escondido	12/27/1964	11:00	0.11
Escondido	12/27/1964	12:00	0.07
Escondido	12/27/1964	13:00	0.18
Escondido	12/27/1964	14:00	0.17
Escondido	12/27/1964	15:00	0.13
Escondido	12/27/1964	16:00	0.01
Escondido	12/27/1964	17:00	0.03
Escondido	12/27/1964	18:00	0.01
Escondido	12/27/1964	19:00	0.03
Escondido	12/27/1964	20:00	0.02
Escondido	12/28/1964	3:00	0.11
Escondido	12/28/1964	4:00	0.01
Escondido	12/28/1964	5:00	0.01
Escondido	12/28/1964	7:00	0.02
Escondido	12/28/1964	8:00	0.05
Escondido	12/28/1964	16:00	0.01
Escondido	12/28/1964	24:00	0.01
Escondido	12/29/1964	1:00	0.01
Escondido	12/29/1964	3:00	0.01
Escondido	12/29/1964	7:00	0.01
Escondido	1/7/1965	9:00	0.02
Escondido	1/7/1965	10:00	0.07
Escondido	1/7/1965	11:00	0.02
Escondido	1/7/1965	12:00	0.01
Escondido	1/7/1965	13:00	0.03
Escondido	1/24/1965	5:00	0.01
Escondido	1/24/1965	6:00	0.09
Escondido	1/24/1965	7:00	0.13
Escondido	1/24/1965	8:00	0.08
Escondido	1/24/1965	9:00	0.01
Escondido	2/5/1965	23:00	0.1
Escondido	2/6/1965	1:00	0.1
Escondido	2/6/1965	2:00	0.1
Escondido	2/6/1965	3:00	0.2
Escondido	2/6/1965	7:00	0.1
Escondido	2/6/1965	9:00	0.1
Escondido	2/6/1965	11:00	0.1
Escondido	2/6/1965	13:00	0.1
Escondido	2/6/1965	15:00	0.1
Escondido	2/6/1965	17:00	0.2
Escondido	2/6/1965	24:00	0.1
Escondido	3/6/1965	24:00	0.04
Escondido	3/7/1965	1:00	0.01
Escondido	3/7/1965	4:00	0.01
Escondido	3/7/1965	5:00	0.03
Escondido	3/7/1965	9:00	0.01
Escondido	3/11/1965	6:00	0.01
Escondido	3/11/1965	7:00	0.04
Escondido	3/11/1965	8:00	0.04
Escondido	3/11/1965	9:00	0.01
Escondido	3/11/1965	10:00	0.01
Escondido	3/11/1965	13:00	0.23
Escondido	3/11/1965	14:00	0.02
Escondido	3/11/1965	16:00	0.01
Escondido	3/13/1965	5:00	0.01
Escondido	3/13/1965	6:00	0.04
Escondido	3/13/1965	7:00	0.02

SWMM

Escondido	3/13/1965	8:00	0.02
Escondido	3/13/1965	9:00	0.01
Escondido	3/15/1965	1:00	0.1
Escondido	3/15/1965	2:00	0.04
Escondido	3/15/1965	3:00	0.04
Escondido	3/15/1965	4:00	0.01
Escondido	3/24/1965	8:00	0.01
Escondido	3/24/1965	9:00	0.04
Escondido	3/24/1965	13:00	0.01
Escondido	3/24/1965	14:00	0.01
Escondido	3/24/1965	15:00	0.03
Escondido	3/24/1965	16:00	0.03
Escondido	3/31/1965	13:00	0.06
Escondido	3/31/1965	14:00	0.25
Escondido	3/31/1965	15:00	0.06
Escondido	3/31/1965	16:00	0.11
Escondido	3/31/1965	17:00	0.14
Escondido	3/31/1965	18:00	0.04
Escondido	3/31/1965	19:00	0.01
Escondido	3/31/1965	20:00	0.02
Escondido	3/31/1965	21:00	0.01
Escondido	3/31/1965	22:00	0.05
Escondido	4/1/1965	4:00	0.04
Escondido	4/1/1965	5:00	0.01
Escondido	4/1/1965	6:00	0.01
Escondido	4/1/1965	7:00	0.01
Escondido	4/1/1965	9:00	0.02
Escondido	4/1/1965	11:00	0.1
Escondido	4/1/1965	12:00	0.1
Escondido	4/1/1965	14:00	0.1
Escondido	4/1/1965	16:00	0.1
Escondido	4/1/1965	19:00	0.1
Escondido	4/1/1965	21:00	0.2
Escondido	4/1/1965	23:00	0.1
Escondido	4/2/1965	1:00	0.1
Escondido	4/2/1965	22:00	0.01
Escondido	4/2/1965	24:00	0.07
Escondido	4/3/1965	4:00	0.09
Escondido	4/3/1965	5:00	0.05
Escondido	4/3/1965	6:00	0.08
Escondido	4/3/1965	7:00	0.1
Escondido	4/3/1965	8:00	0.09
Escondido	4/3/1965	11:00	0.01
Escondido	4/3/1965	12:00	0.02
Escondido	4/3/1965	13:00	0.01
Escondido	4/3/1965	16:00	0.03
Escondido	4/3/1965	17:00	0.02
Escondido	4/3/1965	18:00	0.13
Escondido	4/3/1965	19:00	0.06
Escondido	4/4/1965	2:00	0.03
Escondido	4/4/1965	7:00	0.02
Escondido	4/4/1965	8:00	0.05
Escondido	4/4/1965	15:00	0.01
Escondido	4/4/1965	16:00	0.02
Escondido	4/4/1965	17:00	0.05
Escondido	4/4/1965	18:00	0.01
Escondido	4/4/1965	19:00	0.01
Escondido	4/4/1965	20:00	0.02
Escondido	4/4/1965	21:00	0.02
Escondido	4/4/1965	22:00	0.02
Escondido	4/4/1965	23:00	0.01
Escondido	4/4/1965	24:00	0.01
Escondido	4/5/1965	6:00	0.01
Escondido	4/5/1965	7:00	0.01
Escondido	4/5/1965	8:00	0.01
Escondido	4/5/1965	9:00	0.01

SWMM

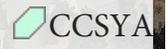
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Escondido	4/7/1965	3:00	0.13
Escondido	4/7/1965	4:00	0.03
Escondido	4/7/1965	5:00	0.14
Escondido	4/7/1965	6:00	0.04
Escondido	4/7/1965	7:00	0.04
Escondido	4/7/1965	8:00	0.02
Escondido	4/7/1965	9:00	0.01
Escondido	4/8/1965	2:00	0.01
Escondido	4/8/1965	3:00	0.01
Escondido	4/8/1965	4:00	0.02
Escondido	4/8/1965	5:00	0.07
Escondido	4/8/1965	6:00	0.04
Escondido	4/8/1965	7:00	0.03
Escondido	4/8/1965	8:00	0.02
Escondido	4/8/1965	9:00	0.02
Escondido	4/8/1965	10:00	0.01
Escondido	4/8/1965	11:00	0.01
Escondido	4/8/1965	12:00	0.06
Escondido	4/8/1965	13:00	0.19
Escondido	4/8/1965	14:00	0.12
Escondido	4/8/1965	15:00	0.07
Escondido	4/8/1965	16:00	0.1
Escondido	4/8/1965	17:00	0.23
Escondido	4/8/1965	18:00	0.07
Escondido	4/8/1965	19:00	0.01
Escondido	4/9/1965	5:00	0.01
Escondido	4/9/1965	8:00	0.02
Escondido	4/9/1965	10:00	0.16
Escondido	4/9/1965	11:00	0.01
Escondido	4/9/1965	16:00	0.02
Escondido	4/9/1965	18:00	0.11
Escondido	4/9/1965	19:00	0.18
Escondido	4/9/1965	20:00	0.3
Escondido	4/9/1965	21:00	0.04
Escondido	4/9/1965	22:00	0.22
Escondido	4/9/1965	23:00	0.03
Escondido	4/10/1965	6:00	0.01
Escondido	4/10/1965	7:00	0.01
Escondido	4/10/1965	8:00	0.01
Escondido	4/10/1965	24:00	0.04
Escondido	4/11/1965	2:00	0.01
Escondido	4/11/1965	4:00	0.04
Escondido	4/11/1965	5:00	0.01
Escondido	4/11/1965	9:00	0.01
Escondido	4/11/1965	10:00	0.01
Escondido	4/11/1965	24:00	0.03
Escondido	4/12/1965	1:00	0.02
Escondido	4/12/1965	2:00	0.03
Escondido	5/23/1965	1:00	0.01
Escondido	5/23/1965	13:00	0.01
Escondido	5/23/1965	14:00	0.01
Escondido	5/24/1965	6:00	0.01
Escondido	5/24/1965	7:00	0.02
Escondido	5/24/1965	8:00	0.02
Escondido	6/25/1965	5:00	0.01
Escondido	6/25/1965	6:00	0.01
Escondido	6/25/1965	7:00	0.02
Escondido	9/5/1965	17:00	0.01
Escondido	11/14/1965	6:00	0.02
Escondido	11/14/1965	7:00	0.03
Escondido	11/14/1965	8:00	0.05
Escondido	11/14/1965	9:00	0.05
Escondido	11/14/1965	10:00	0.03
Escondido	11/14/1965	12:00	0.02
Escondido	11/14/1965	15:00	0.01

Rain Gauge data has been significantly reduced, to save paper. However, all rain gauge data was used and can be provided upon request.

Potential CCSYA map

No CCSYA's exist on or upstream of the project site.

Legend



CCSYA



Google earth

© 2016 Google

1000 ft



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)

(SEE DMA AND BMP MAP)

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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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 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 type="checkbox"/> Not Applicable

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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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 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).

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

ATTACHMENT 4

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

PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

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City of Escondido Storm Water Structural BMP Verification Form Page 1 of 4	
Project Summary Information	
Project Name	Challice Unitarian Congregation
Record ID (e.g., grading/improvement plan number)	
Project Address	2324 Miller Ave. Escondido, CA 92029
Assessor's Parcel Number(s) (APN(s))	238-110-3900
Project Watershed (Complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	San Dieguito 905
Maintenance Notification / Agreement No.	
Responsible Party for Construction Phase	
Developer's Name	Bussett Architecture
Address	11211 Eagles Creek Court San Diego, CA 92128
Email Address	Pete.bussett@gmail.com
Phone Number	(619) 417-0830
Engineer of Work	
Engineer's Phone Number	
Responsible Party for Ongoing Maintenance	
Owner's Name(s)*	Deborah J. Coon
Address	2324 Miller Ave. Escondido, CA 92029
Email Address	
Phone Number	(760) 737-0393
*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

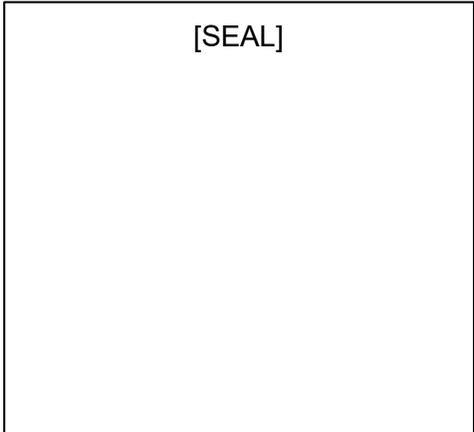
By signing below, I certify that the Structural BMP(s) for this project have been constructed and all BMPs are in substantial conformance with the approved plans and applicable regulations. I understand the City reserves the right to inspect the above BMPs to verify compliance with the approved plans 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: _____



PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

ATTACHMENT 5

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

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 6 Summary of PDP Structural BMPs
- The grading and drainage design shown on the plans must be consistent with the delineation of DMAs shown on the DMA exhibit
- Details and specifications for construction of structural BMP(s)
- Signage indicating the location and boundary of structural BMP(s) as required by 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 4 and 5 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.**