APPENDIX 3.1.4-2

Priority Development Project SWQMP

City of Escondido
PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

Escondido Country Club
[INSERT RECORD ID (PERMIT) NUMBERS]

[INSERT PROJECT ADDRESS]
Escondido, California 92026

ASSESSOR'S PARCEL NUMBER(S):
22449101, 22449005, 22443103, 22443004,
22443102, 22443101, 22449006, 22421105,
22421112, 22421115, 22423043, 22423036,
22421053, and 22481128

ENGINEER OF WORK:

Brendan Hastie, R.C.E. # 65809, EXP. 09/17

PREPARED FOR:

Mr. Jason Han
New Urban West, Inc.
1733 Ocean Avenue, Suite 350
Santa Monica, California 90401
(310) 394-3379

PDP SWQMP PREPARED BY:

Rick Engineering Company
5620 Friars Road
San Diego, California 92110
(619)291-0707

DATE OF SWQMP:
March 16, 2017

PLANS PREPARED BY:
Tim Murphy
5620 Friars Road
San Diego, California 92110
(619) 291-0707

SWQMP APPROVED BY:
[FOR CITY STAFF ONLY]

APPROVAL DATE:

ESCONDIDO
City of Choice

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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

PDP SWQMP PREPARER'S CERTIFICATION PAGE

Project Name: Escondido Country Club
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

_____
Print Name

_____
Company

_____
Date

Engineer's Seal:

SUBMITTAL RECORD

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

Preliminary Design / Planning / CEQA

Submittal Number	Date	Summary of Changes
1	3/16/2017	Initial Submittal
2		
3		
4		

Final Design

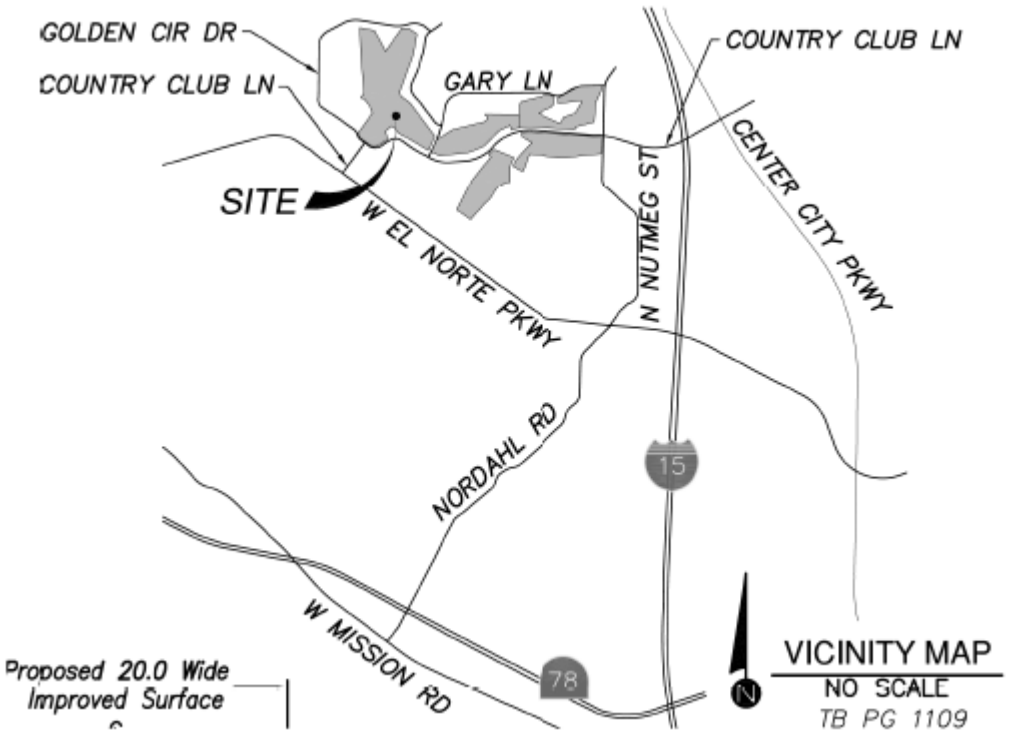
Submittal Number	Date	Summary of Changes
1		Initial Submittal
2		
3		
4		

Plan Changes

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

PROJECT VICINITY MAP

Project Name: Escondido Country Club
Record ID:



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

Project Summary Information	
Project Name	Escondido Country Club
Project Address	
Assessor's Parcel Number(s)	22449101, 22449005, 22443103, 22443004, 22443102, 22443101, 22449006, 22421105, 22421112, 22421115, 22423043, 22423036, 22421053, 22481128
Permit Application Number	
Project Watershed (Hydrologic Unit)	Select One: **X** Carlsbad 904 San Dieguito 905
Parcel Area (total area of Assessor's Parcel(s) associated with the project)	111.1_ Acres (4839516 Square Feet)
Area to be disturbed by the project (Project Area)	111.1 Acres (4,839,516 Square Feet)
Project Proposed Impervious Area (subset of Project Area)	50.3 Acres (2,191,068 Square Feet)
Project Proposed Pervious Area (subset of Project Area)	60.8 Acres (2,648,448 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): X New Development ☐ Redevelopment[1]
The total proposed newly created or replaced impervious area is: 2,191,068 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

Is the project in any of the following categories, (a) through (f)?			
Yes X	No ☐	(a)	New development projects that create 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☐	No X	(b)	Redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☐	No X	(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 X	No ☐	(d)	New or redevelopment projects that create and/or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharging directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands). *Note: ESAs are areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Board and San Diego Water Board; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and San Diego Water Board; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees.*
Yes ☐	No X	(e)	New development projects, or redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface, that support one or more of the following uses: (i) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. (ii) Retail gasoline outlets (RGOs). This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.

Yes ☐	No **X**	(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: (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. (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.
Yes ☐	No **X**	(f)	New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction. *Note: See Storm Water Design Manual Section 1.4.2 for additional guidance.*

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).

X 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: _____ ft^2 (A)
The total proposed newly created or replaced impervious area is _____ ft^2 (B)
Percent impervious surface created or replaced (B/A)*100: _____%
The percent impervious surface created or replaced is (select one based on the above calculation):

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

OR

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

Step 1.1: Storm Water Quality Management Plan requirements

Step	Answer	Progression
Is the project a Standard Project, Priority Development Project (PDP), or exception to PDP definitions? To answer this item, complete Step 1 Project Type Determination Checklist on Pages 1 and 2, and see PDP exemption information below. For further guidance, see Section 1.4 of the Storm Water Design Manual *in its entirety*.	☐ Standard Project	Standard Project requirements apply, including Standard Project SWQMP. **Complete Form I-1.**
	X PDP ☐ PDP with ACP	Standard and PDP requirements apply, including PDP SWQMP. **SWQMP Required.** If participating in offsite alternative compliance, **complete Step 6.3 and an ACP SWQMP.**
	☐ PDP Exemption	**Go to Step 1.2 below.**

Step 1.2: Exemption to PDP definitions

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

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).

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

Step 3.1: Description of Existing Site Condition

Current Status of the Site (select all that apply):

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

Description / Additional Information:
The project site is currently a golf course and includes a Club house.

Existing Land Cover Includes (select all that apply and provide each area on site):

X Vegetative Cover 107.6 Acres (4,687,056 Square Feet)
☐Non-Vegetated Pervious Areas _____Acres (_____Square Feet)
X Impervious Areas 3.5 Acres (152,460 Square Feet)

Description / Additional Information:
The project site is currently a golf course and includes a Club house.

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

☐NRCS Type A
☐NRCS Type B
☐NRCS Type C
X NRCS Type D

Approximate Depth to Groundwater (GW) (or N/A for no infiltration BMPs):

X GW Depth < 5 feet
☐5 feet < GW Depth < 10 feet
☐10 feet < GW Depth < 20 feet
X GW Depth > 20 feet

Depth to GW varies; refer to project's Geotechnical report.

Existing Natural Hydrologic Features (select all that apply):

☐Watercourses
☐Seeps
☐Springs
☐Wetlands
X None
☐Other

Description / Additional Information:

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:

The project site is currently a golf course with the only existing impervious area being centralized around the existing club house. The club house is located at the Tee-intersection of Country Club Lane and Golden Circle Drive. The site generally drains in a southwest direction. There is no existing onsite storm drain; however, there are a series of ditches that convey flow into water features, offsite storm drain, or culverts.

Step 3.3: Description of Proposed Site Development

Project Description / Proposed Land Use and/or Activities:
The proposed project will convert the existing golf course into single family residential homes. The project will include buildings, roads, sidewalks, biofiltration BMPs, vegetated channels, and onsite storm drain.

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

Proposed impervious features include buildings, roadways, and sidewalks. Buildings include a clubhouse and residential buildings.

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

Proposed pervious areas include biofiltration BMPs, landscaping in residential areas, and a channel that will convey stormwater from/through the site.

Does the project include grading and changes to site topography?

X Yes

☐No

Description / Additional Information:

The project includes grading in order to make the project feasible. Drainage patterns will remain similar to pre-project conditions. In areas where drainage patterns are changed, detention is provided in order to mimic existing conditions. Overall, the site will discharge in the same locations as in the existing condition.

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	107.6	60.8	57%
Pervious (non-vegetated)	0	0	0%
Impervious	3.5	50.3	1437%

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)?

x 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 proposed site will include an on-site storm drain system that will discharge into one (1) of ten (10) proposed biofiltration BMPs prior to discharging into a proposed vegetated channel that ultimately conveys stormwater offsite. All of the proposed biofiltration BMPs are designed for water quality and hydromodification management plan (HMP) requirements. Eight (8) of the ten (10) BMPs are designed to provide 100-year detention in order to route post-project peak discharges back to pre-project conditions for the site as a whole. For more information regarding drainage patterns and hydrologic/hydraulic calculations refer to the project's drainage study.

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).

x On-site storm drain inlets
☐Interior floor drains and elevator shaft sump pumps
☐Interior parking garages
☐Need for future indoor & structural pest control
x Landscape/Outdoor Pesticide Use
☐Pools, spas, ponds, decorative fountains, and other water features
☐Food service
☐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
x Miscellaneous Drain or Wash Water
x Plazas, sidewalks, and parking lots
☐Other (provide description)

Description / Additional Information:

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

Describe flow path of storm water from the project site discharge location(s), through urban storm conveyance systems as applicable, to receiving creeks, rivers, and lagoons as applicable, and ultimate discharge to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable):
The project generally drains towards the southwest and discharges into a series of existing offsite channels and storm drain. Storm water from the project is then conveyed via storm drain and culverts before discharging into San Marcos Creek. San Marcos Creek discharges into San Marcos Lake, and ultimately into Batiquitos Lagoon, before discharging into the Pacific Ocean.

List any 303(d) impaired water bodies[2] within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies:

303(d) Impaired Water Body	Pollutant(s)/Stressor(s)	TMDLs / WQIP Highest Priority Pollutant
San Marcos Creek	Nutrients	Nutrients

Identification of Project Site Pollutants*

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

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

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

[2] The current list of Section 303(d) impaired water bodies can be found at http://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/#impaired

Step 3.7: Hydromodification Management Requirements

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

X 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 WMAA[3] for the watershed in which the project resides.

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

The ten (10) proposed biofiltration BMPs are designed to meet the Hydromodification Management Plan (HMP) requirements. For preliminary purposes, the HMP volume was assumed to be 1.5 times the Design Capture Volume (DCV). The 1.5xDCV assumption is based on previous sizing from similar projects using continuous simulation (EPA SWMM). HMP sizing and outlet-works will be refined during final engineering and will include an EPA SWMM model.

[3]The 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: http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=248

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

X 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:

PCCSYAs are not present within the limits of the project. Refer to Attachment 2 of this PDP SWQMP for an exhibit showing the limits of the project relative to the regionally identified PCCSYAs.

Step 3.7.2: Flow Control for Post-Project Runoff*

***This Section only required if hydromodification management requirements apply**
List and describe point(s) of compliance (POCs) for flow control for hydromodification management (see Section 6.3.1). For each POC, provide a POC identification name or number correlating to the project's HMP Exhibit and a receiving channel identification name or number correlating to the project's HMP Exhibit. The project includes four (4) POCs. Refer to Attachment 1D for locations of the POCs relative to the project area.
Has a geomorphic assessment been performed for the receiving channel(s)? **X** No, the low flow threshold is 0.1Q2 (default low flow threshold) ☐Yes, the result is the low flow threshold is 0.1Q2 ☐Yes, the result is the low flow threshold is 0.3Q2 ☐Yes, the result is the low flow threshold is 0.5Q2 *If a geomorphic assessment has been performed, provide title, date, and preparer:* *Discussion / Additional Information: (optional)*

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.

The project has existing stormwater infrastructure (i.e., storm drain and channels) that the project is discharging into; therefore, detention is being provided in order to route post-project peak discharge rates back to pre-project conditions. Refer the project's Drainage Study for more information regarding detention.

Optional Additional Information or Continuation of Previous Sections As Needed *This space provided for additional information or continuation of information from previous sections as needed.*

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

Source Control BMPs

All development projects must implement source control BMPs 4.2.1 through 4.2.6 where applicable and feasible. See Chapter 4.2 and Appendix E of the City Storm Water Design Manual for information to implement source control BMPs shown in this checklist. The following checklists serve as guides only. Mark what elements are included in your project. See Storm Water Design Manual Chapter 4 and Appendix E for more information on determining appropriate BMPs for your project.

Answer each category below pursuant to the following:

- "Yes" means the project will implement the source control BMP as described in Chapter 4.2 and/or Appendix E of the City Storm Water Design Manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas). Discussion / justification must be provided.

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

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

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

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

Site Design BMPs			
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. Answer each category below pursuant to the following: • "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	X Yes	☐No	☐N/A
□ Maintain existing drainage patterns *Discussion / justification if SD-1 not implemented:*			
SD-2 Conserve Natural Areas, Soils, and Vegetation	X Yes	☐No	☐N/A
□ Preserve trees (see Zoning Code Art. 55 Grading & Erosion Control; Art. 62 Landscape Regulations) □ Avoid sensitive areas such as wetlands and waterways *Discussion / justification if SD-2 not implemented:*			
SD-3 Minimize Impervious Area	X Yes	☐No	☐N/A
□ Install parking and driving aisles to minimum width required to meet standards *Discussion / justification if SD-3 not implemented:*			

SD-4 Minimize Soil Compaction	X Yes	☐No	☐N/A
□ Avoid compaction in planned landscaped spaces □ Till and amend soil for improved infiltration capacity *Discussion / justification if SD-4 not implemented:*			
SD-5 Impervious Area Dispersion	X Yes	☐No	☐N/A
□ Drain rooftops, roads or sidewalks into adjacent landscape areas □ Drain impervious surfaces through pervious areas *Discussion / justification if SD-5 not implemented:*			
SD-6 Runoff Collection	☐Yes		
Discussion / justification if SD-6 not implemented:	X Yes	☐No	☐N/A
SD-7 Landscaping with Native or Drought Tolerant Species			
Discussion / justification if SD-7 not implemented:	X Yes	☐No	☐N/A
SD-8 Harvesting and Using Precipitation			
Discussion / justification if SD-8 not implemented: Stormwater will be managed within proposed biofiltration BMPs and will be subject to treatment, HMP, and Detention requirements.	☐Yes	X No	☐N/A

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

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

The proposed site will include an on-site storm drain system that will discharge into one (1) of ten (10) proposed biofiltration BMPs prior to discharging into a proposed vegetated channel that ultimately conveys stormwater offsite. All of the proposed biofiltration BMPs are designed for water quality and hydromodification management plan (HMP) requirements. Eight (8) of the ten (10) BMPs are designed to provide 100-year detention in order to route post-project peak discharges back to pre-project conditions for the site as a whole. For more information regarding drainage patterns and hydrologic/hydraulic calculations refer to the project's drainage study.

The project includes an area that, due to site constraints, cannot be conveyed into one (1) of the ten (10) biofiltration BMPs; therefore, this area will include modular wetlands systems to treat stormwater. Refer to Attachment 1D for the identification of this area.

(Continue on following page as necessary.)

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)

Anticipated frontage and offsite street improvements will be addressed using green street elements as outlined in the City of Escondido's BMP Design Manual. Green Street components will be addressed during final engineering.

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP 1A	
Construction Plan Sheet No.	
Type of structural BMP: ☐Retention by harvest and use (HU-1) ☐Retention by infiltration basin (INF-1) ☐Retention by bioretention (INF-2) ☐Retention by permeable pavement (INF-3) ☐Partial retention by biofiltration with partial retention (PR-1) X Biofiltration (BF-1) ☐Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐Detention pond or vault for hydromodification management ☐Other (describe in discussion section below)	
Purpose: ☐Pollutant control only ☐Hydromodification control only X Combined pollutant control and hydromodification control ☐Pre-treatment/forebay for another structural BMP X 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)	Rick Engineering Company
Who will be the final owner of this BMP?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Who will maintain this BMP into perpetuity?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Discussion (as needed): *(Continue on subsequent pages as necessary)*	BMP 1A will include pollutant control (PC), HMP, and Detention components.

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP 1B	
Construction Plan Sheet No.	
Type of structural BMP: ☐Retention by harvest and use (HU-1) ☐Retention by infiltration basin (INF-1) ☐Retention by bioretention (INF-2) ☐Retention by permeable pavement (INF-3) ☐Partial retention by biofiltration with partial retention (PR-1) X Biofiltration (BF-1) ☐Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐Detention pond or vault for hydromodification management ☐Other (describe in discussion section below)	
Purpose: ☐Pollutant control only ☐Hydromodification control only X Combined pollutant control and hydromodification control ☐Pre-treatment/forebay for another structural BMP X 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)	Rick Engineering Company
Who will be the final owner of this BMP?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Who will maintain this BMP into perpetuity?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Discussion (as needed): *(Continue on subsequent pages as necessary)*	BMP will include pollutant control (PC), HMP, and Detention components.

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP 1C	
Construction Plan Sheet No.	
Type of structural BMP: ☐Retention by harvest and use (HU-1) ☐Retention by infiltration basin (INF-1) ☐Retention by bioretention (INF-2) ☐Retention by permeable pavement (INF-3) ☐Partial retention by biofiltration with partial retention (PR-1) X Biofiltration (BF-1) ☐Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐Detention pond or vault for hydromodification management ☐Other (describe in discussion section below)	
Purpose: ☐Pollutant control only ☐Hydromodification control only X Combined pollutant control and hydromodification control ☐Pre-treatment/forebay for another structural BMP X 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)	Rick Engineering Company
Who will be the final owner of this BMP?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Who will maintain this BMP into perpetuity?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Discussion (as needed): *(Continue on subsequent pages as necessary)*	BMP will include pollutant control (PC), HMP, and Detention components.

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP 1D	
Construction Plan Sheet No.	
Type of structural BMP: ☐Retention by harvest and use (HU-1) ☐Retention by infiltration basin (INF-1) ☐Retention by bioretention (INF-2) ☐Retention by permeable pavement (INF-3) ☐Partial retention by biofiltration with partial retention (PR-1) X Biofiltration (BF-1) ☐Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐Detention pond or vault for hydromodification management ☐Other (describe in discussion section below)	
Purpose: ☐Pollutant control only ☐Hydromodification control only X Combined pollutant control and hydromodification control ☐Pre-treatment/forebay for another structural BMP ☐Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms (See Section 8.2.3.2 of the Storm Water Design Manual)	Rick Engineering Company
Who will be the final owner of this BMP?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Who will maintain this BMP into perpetuity?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Discussion (as needed): *(Continue on subsequent pages as necessary)*	

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP 1E	
Construction Plan Sheet No.	
Type of structural BMP: ☐Retention by harvest and use (HU-1) ☐Retention by infiltration basin (INF-1) ☐Retention by bioretention (INF-2) ☐Retention by permeable pavement (INF-3) ☐Partial retention by biofiltration with partial retention (PR-1) X Biofiltration (BF-1) ☐Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐Detention pond or vault for hydromodification management ☐Other (describe in discussion section below)	
Purpose: ☐Pollutant control only ☐Hydromodification control only X Combined pollutant control and hydromodification control ☐Pre-treatment/forebay for another structural BMP ☐Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms (See Section 8.2.3.2 of the Storm Water Design Manual)	Rick Engineering Company
Who will be the final owner of this BMP?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Who will maintain this BMP into perpetuity?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Discussion (as needed): *(Continue on subsequent pages as necessary)*	

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP 2	
Construction Plan Sheet No.	
Type of structural BMP: ☐Retention by harvest and use (HU-1) ☐Retention by infiltration basin (INF-1) ☐Retention by bioretention (INF-2) ☐Retention by permeable pavement (INF-3) ☐Partial retention by biofiltration with partial retention (PR-1) X Biofiltration (BF-1) ☐Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐Detention pond or vault for hydromodification management ☐Other (describe in discussion section below)	
Purpose: ☐Pollutant control only ☐Hydromodification control only X Combined pollutant control and hydromodification control ☐Pre-treatment/forebay for another structural BMP X 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)	Rick Engineering Company
Who will be the final owner of this BMP?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Who will maintain this BMP into perpetuity?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Discussion (as needed): *(Continue on subsequent pages as necessary)*	BMP will include pollutant control (PC), HMP, and Detention components.

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP 3	
Construction Plan Sheet No.	
Type of structural BMP: ☐Retention by harvest and use (HU-1) ☐Retention by infiltration basin (INF-1) ☐Retention by bioretention (INF-2) ☐Retention by permeable pavement (INF-3) ☐Partial retention by biofiltration with partial retention (PR-1) X Biofiltration (BF-1) ☐Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐Detention pond or vault for hydromodification management ☐Other (describe in discussion section below)	
Purpose: ☐Pollutant control only ☐Hydromodification control only X Combined pollutant control and hydromodification control ☐Pre-treatment/forebay for another structural BMP X 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)	Rick Engineering Company
Who will be the final owner of this BMP?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Who will maintain this BMP into perpetuity?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Discussion (as needed): *(Continue on subsequent pages as necessary)*	BMP will include pollutant control (PC), HMP, and Detention components.

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP 4	
Construction Plan Sheet No.	
Type of structural BMP: ☐Retention by harvest and use (HU-1) ☐Retention by infiltration basin (INF-1) ☐Retention by bioretention (INF-2) ☐Retention by permeable pavement (INF-3) ☐Partial retention by biofiltration with partial retention (PR-1) X Biofiltration (BF-1) ☐Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐Detention pond or vault for hydromodification management ☐Other (describe in discussion section below)	
Purpose: ☐Pollutant control only ☐Hydromodification control only X Combined pollutant control and hydromodification control ☐Pre-treatment/forebay for another structural BMP X 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)	Rick Engineering Company
Who will be the final owner of this BMP?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Who will maintain this BMP into perpetuity?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Discussion (as needed): *(Continue on subsequent pages as necessary)*	BMP will include pollutant control (PC), HMP, and Detention components.

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP 5A	
Construction Plan Sheet No.	
Type of structural BMP: ☐Retention by harvest and use (HU-1) ☐Retention by infiltration basin (INF-1) ☐Retention by bioretention (INF-2) ☐Retention by permeable pavement (INF-3) ☐Partial retention by biofiltration with partial retention (PR-1) X Biofiltration (BF-1) ☐Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐Detention pond or vault for hydromodification management ☐Other (describe in discussion section below)	
Purpose: ☐Pollutant control only ☐Hydromodification control only X Combined pollutant control and hydromodification control ☐Pre-treatment/forebay for another structural BMP X 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)	Rick Engineering Company
Who will be the final owner of this BMP?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Who will maintain this BMP into perpetuity?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Discussion (as needed): *(Continue on subsequent pages as necessary)*	BMP will include pollutant control (PC), HMP, and Detention components.

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP 5B	
Construction Plan Sheet No.	
Type of structural BMP: ☐Retention by harvest and use (HU-1) ☐Retention by infiltration basin (INF-1) ☐Retention by bioretention (INF-2) ☐Retention by permeable pavement (INF-3) ☐Partial retention by biofiltration with partial retention (PR-1) X Biofiltration (BF-1) ☐Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐Detention pond or vault for hydromodification management ☐Other (describe in discussion section below)	
Purpose: ☐Pollutant control only ☐Hydromodification control only X Combined pollutant control and hydromodification control ☐Pre-treatment/forebay for another structural BMP X 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)	Rick Engineering Company
Who will be the final owner of this BMP?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Who will maintain this BMP into perpetuity?	☐HOA ☐Property Owner ☐City ☐Other (describe)
Discussion (as needed): *(Continue on subsequent pages as necessary)*	BMP will include pollutant control (PC), HMP, and Detention components.

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? ☐Yes ☐No	Will your ACP project be completed prior to the completion of the PDP? ☐Yes ☐No
Does your ACP account for all Deficits generated by the PDP? ☐Yes ☐No (PDP and/or ACP must be redesigned to account for all deficits generated by the PDP.)	What is the difference between your PDP debits and ACP Credits? *(ACP Credits -Total PDP Debits = Total Earned Credits)

ATTACHMENT 1

BACKUP FOR PDP POLLUTANT CONTROL BMPS

This is the cover sheet for Attachment 1.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 1a	Storm Water Pollutant Control Worksheet Calculations -Worksheet B.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)	X 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.	☐Included ☐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.	☐Included ☐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.	X Included
Attachment 1e	Individual Structural BMP DMA Mapbook (Required) -Place each map on 8.5”x11” paper. -Show at a minimum the DMA, Structural BMP, and any existing hydrologic features within the DMA.	☐Included

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Escondido Country Club
J-7762A
3/7/2017

Water Quality - TC-BMP Sizing Calculations

														Simple Sizing Method for Biofiltration BMPs - Required									Simple Sizing Method for Biofiltration BMPs - Required					
													Target DCV	Partial Retention									BMP Parameters					
DMA/BMP Name	BMP Type	Drainage Management Area (acres)	Drainage Management Area (ft^2)	% Impervious	Impervious Area (ft^2)	Pervious Area (ft^2)	Impervious Area Type	Pervious Area Type	Runoff Factor for Impervious Area [3]	Runoff Factor for Pervious Area [3,4]	Effective Impervious Area (ft^2)	24-hour 85th Percentile Precipitation (inches)	DCV (ft^3)	Remaining DCV after Implementing Retention BMPs (ft^3) (1)	Infiltration Rate (for Partial Infiltration)[5] (2)	Allowable Drawdown Time for Aggreagate Storage Below the Underdrain (hrs) (3)	Depth of Runoff that can be Infiltrated (in) (4)	Porosity for Gravel (5)	Required Depth of Gravel Below Underdrain (in) (6)	Assumed Surface area of the Biofiltration BMP (ft^2) (7)	Media Retained Pore Space (in/in) (8)	Volume Retained by BMP (ft^3) (9)	Remaining DCV (ft^3) (10)	Water Quality Ponding Depth (ft) (11)	HMP Ponding Depth (ft)	Biofiltration Soil Layer (ft) (12)	Gravel Layer (ft) (13)	Porosity for Bioretention Soil (14)	Media Filtration rate to be used for sizing (in/hr) (15)
1A	Biofiltration	18.70	814,572	63%	509,652	304,920	Concrete or Asphalt	Natural (D Soil)	0.9	0.30	550,163	0.68	31,176	31,176	0.00	0	0	0.40	3	25,848	0.1	5,170	26,006	0.50	1.50	2.0	1.00	0.20	5
1B	Biofiltration	13.30	579,348	58%	335,412	243,936	Concrete or Asphalt	Natural (D Soil)	0.9	0.30	375,052	0.68	21,253	21,253	0.00	0	0	0.40	3	21,400	0.1	4,280	16,973	0.50	1.00	2.0	1.00	0.20	5
1C	Biofiltration	2.50	108,900	80%	87,120	21,780	Concrete or Asphalt	Natural (D Soil)	0.9	0.30	84,942	0.68	4,813	4,813	0.00	0	0	0.40	3	5,950	0.1	1,190	3,623	0.50	0.50	2.0	1.00	0.20	5
1D	Biofiltration	3.60	156,816	81%	126,324	30,492	Concrete or Asphalt	Natural (D Soil)	0.9	0.30	122,839	0.68	6,961	6,961	0.00	0	0	0.40	3	8,000	0.1	1,600	5,361	0.50	0.75	2.0	1.00	0.20	5
1E	Biofiltration	1.40	60,984	79%	47,916	13,068	Concrete or Asphalt	Natural (D Soil)	0.9	0.30	47,045	0.68	2,666	2,666	0.00	0	0	0.40	3	1,600	0.1	320	2,346	0.50	1.50	2.0	1.00	0.20	5
2	Biofiltration	9.20	400,752	50%	200,376	200,376	Concrete or Asphalt	Natural (D Soil)	0.9	0.30	240,451	0.68	13,626	13,626	0.00	0	0	0.40	3	13,000	0.1	2,600	11,026	0.50	1.50	2.0	1.00	0.20	5
3 (A&B)	Biofiltration	11.20	487,872	54%	265,716	222,156	Concrete or Asphalt	Natural (D Soil)	0.9	0.30	305,791	0.68	17,328	17,328	0.00	0	0	0.40	3	14,000	0.1	2,800	14,528	0.50	1.50	2.0	1.00	0.20	5
4	Biofiltration	12.40	540,144	56%	300,564	239,580	Concrete or Asphalt	Natural (D Soil)	0.9	0.30	342,382	0.68	19,402	19,402	0.00	0	0	0.40	3	16,000	0.1	3,200	16,202	0.50	1.50	2.0	1.00	0.20	5
5A	Biofiltration	4.50	196,020	42%	82,764	113,256	Concrete or Asphalt	Natural (D Soil)	0.9	0.30	108,464	0.68	6,146	6,146	0.00	0	0	0.40	3	8,600	0.1	1,720	4,426	0.50	1.50	2.0	1.00	0.20	5
5B	Biofiltration	11.00	479,160	49%	235,224	243,936	Concrete or Asphalt	Natural (D Soil)	0.9	0.30	284,882	0.68	16,143	16,143	0.00	0	0	0.40	3	11,800	0.1	2,360	13,783	0.50	1.50	2.0	1.00	0.20	5

Match Line: See Page 2

Notes:
1. Values shown in paranthesis (1) designate the row number equivalent to Worksheet B. 5-1 " Simple Sizing Method for Biofiltration BMPs" from the City of Escondido's BMP Manual (February 2016)
2. The required and provided Water Quality volumes are based on the 2013 MS4 permit and the February 2016 Escondido BMP Design Manual Manual.
3 Runoff Factors for pervious and impervious areas were determined from Table B. 1-1: " Runoff Factors for Surface Draining to BMPs - Pollutant Control BMPs" from the City of Escondido's BMP Design Manual (February 2016)
4. Although some portions of the impervious areas within the site will be composed of Biofiltration BMPs (Amended , mulched soils or landscape), Runoff Factors for pervious areas were assumed to be "Natural".
Using the "Natural" surface designation for the entire pervious area provides a more conservative result.
5. Infiltration rate for partial infiltration was assumed to be Zero (0) for bioretention sizing calculations; however, the bioretention basins will include infiltration with an infiltration rate of 3.5 in/hr per the Geotechnical Engineer's recommendations (Group Delta, "Bioretentino Basin Infiltration Test Results," dated September 30, 2015).
6. DCV for Infiltration was calculated using the City of Escondido's BMP Design Manual (February 2016) Worksheet B.2-1.

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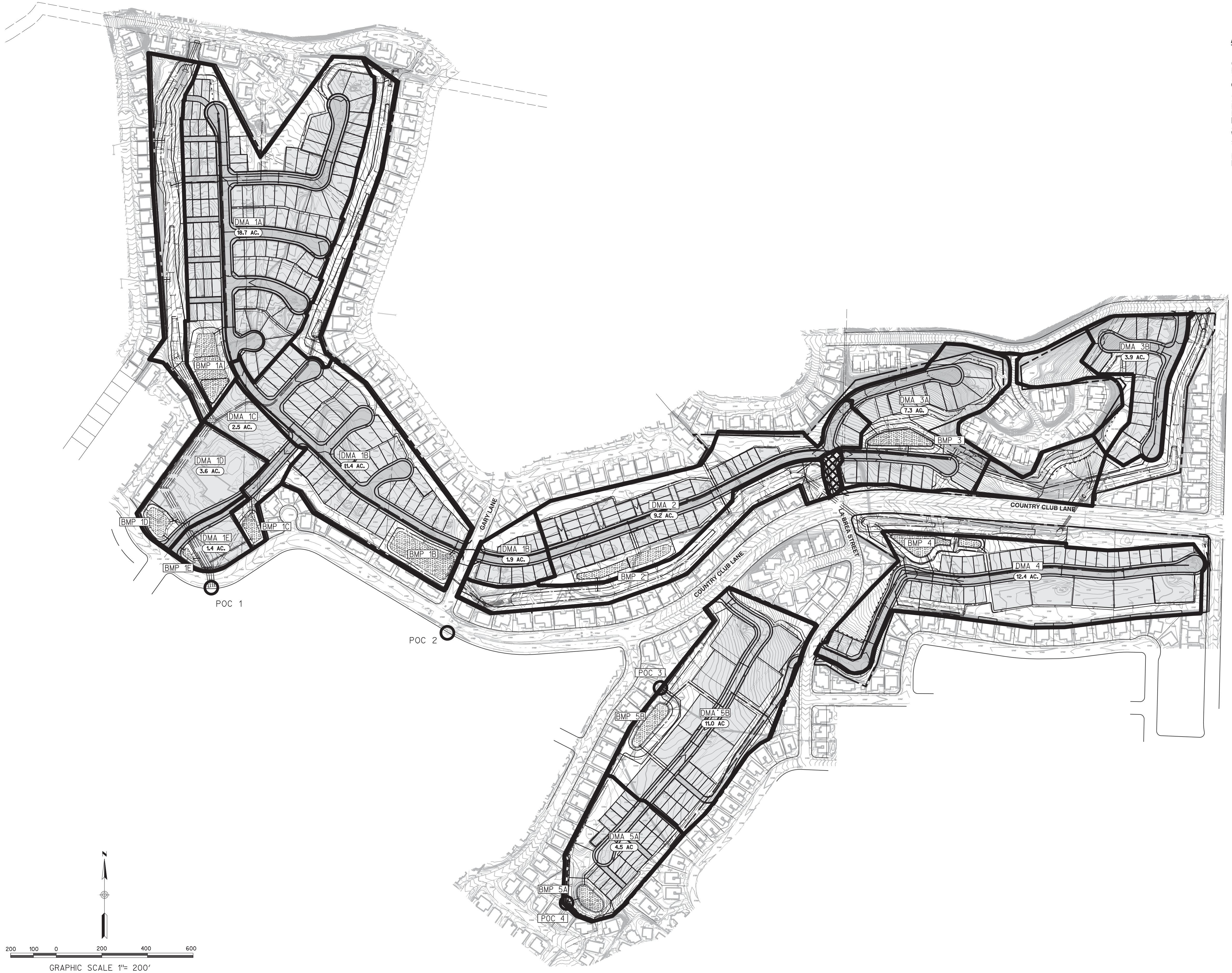
Match Line: See Page 1

			Simple Sizing Method for Biofiltration BMPs - Required												BMP Desing - Provided													
			Baseline Calculations				Option 1 - Biofilter 1.5xDCV		HMP & WQV		Footprint of the BMP				Provided BMP Parameters												Check: Provided Biofiltration Volume >= Required Storage			
DMA/BMP Name	BMP Type	Drainage Management Area (acres)	Allowable Routing (hrs) (16)	Depth Filtered during Storm (in) (17)	Depth of Detention Storage (in) (18)	Total Depth Treated (in) (19)	Required Biofiltered Volume (ft^3) (20)	Required Footprint (ft^2) (21)	Required WQ Storage[2] (ft^3) (22)	Estimated Required HMP Storage (ft^3)	Required Footprint (ft^2) (23)	Area Drainaing to BMP (ft^2) (24)	Adjusted Runoff Factor for Drainage Area (25)	Minimum BMP Footprint (3% Check) (ft^2) (26)	Required BMP Footprint (27)	Provided BMP Footprint (ft^2)	WQ Poinding Surface Area (ft^2)	HMP Ponding Surface Area (ft^2)	Side Slope (H:V)	Surface Ponding Volume (WQ) (ft^3)	Surface Ponding Volume (HMP) (ft^3)	Subsurface Volume (ft^3)	Conveyance (ft)	Freeboard (ft)	Perforated Pipe Dameter (in)	Total Depth (ft)	Provided Water Quality Volume[2] (ft^3)	Adequacy of Provided Water Quality Volume (ft3)	Provided HMP Volume (ft^3)	Adequacy of Provided HMP Volume (ft^3)
1A	Biolfiltration	18.70	6	30	16	46	39009	10266	19505	48,946	37651	814,572	0.68	16505	16505	23,100	24,000	26,280	3	11775	37035	20679	1.00	0.50	8	5.00	32,454	OK	57,714	OK
1B	Biolfiltration	13.30	6	30	16	46	25459	6700	12730	33,367	25667	579,348	0.65	11,252	11,252	21,400	22,000	23,400	3	10850	22400	17,120	1.00	0.50	8	5.00	27,970	OK	39,520	OK
1C	Biolfiltration	2.50	6	30	16	46	5435	1430	2718	7,557	5813	108,900	0.78	2548	2548	5,950	6,000	6,450	3	2987.5	3100	4760	1.00	0.50	8	5.00	7,748	OK	7,860	OK
1D	Biolfiltration	3.60	6	30	16	46	8041	2116	4021	10,929	8407	156,816	0.78	3685	3685	8,000	8,500	8,830	3	4125	6311	6400	1.00	0.50	8	5.00	10,525	OK	12,711	OK
1E	Biolfiltration	1.40	6	30	16	46	3519	926	1759	4,185	3220	60,984	0.77	1411	1411	1,600	1,800	2,400	3	850	3000	1280	1.00	0.50	8	5.00	2,130	OK	4,280	OK
2	Biolfiltration	9.20	6	30	16	46	16538	4352	8269	21,392	16455	400,752	0.60	7214	7214	13,000	14,100	15,800	3	6775	21600	10400	1	0.50	8	5.00	17,175	OK	32,000	OK
3 (A&B)	Biolfiltration	11.20	6	30	16	46	21792	5735	10896	27,205	20927	487,872	0.63	9174	9174	14,000	15,200	17,100	3	7300	23325	11200	1.00	0.50	8	5.00	18,500	OK	34,525	OK
4	Biolfiltration	12.40	6	30	16	46	24302	6395	12151	30,461	23431	540,144	0.63	10271	10271	16,000	17,000	19,900	3	8250	26925	12800	1.00	0.50	8	5.00	21,050	OK	39,725	OK
5A	Biolfiltration	4.50	6	30	16	46	6639	1747	3320	9,650	7423	196,020	0.55	3254	3254	8,600	9,200	10,300	3	4450	14175	6880	1.00	0.50	8	5.00	11,330	OK	21,055	OK
5B	Biolfiltration	11.00	6	30	16	46	20675	5441	10338	25,345	19496	479,160	0.59	8546	8546	11,800	12,600	14,200	3	6100	19500	9440	1.00	0.50	8	5.00	15,540	OK	28,940	OK

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)



NOTES:

1. PER THE PROJECT'S GEOTECHINCAL REPORT, THE DEPTH TO GROUNDWATER VARIED FROM A DEPTH OF 4.5 FEET TO 24 FEET.
2. INFILTRATION BMPS ARE NOT BEING RECOMMENDED BASED ON RECOMMENDATIONS FROM THE GEOTECHNICAL ENGINEER (I.E., DUE TO POOR PERCOLATION CHARACTERISTICS)
3. THE IDENTIFIED "SITE CONSTRAINT" AREA CANNOT FEASIBLY BE TREATED WITHIN PROPOSED BIOFILTRATION BMPS; THEREFORE, MODULAR WETLAND SYSTEMS ARE BEING PROPOSED TO PROVIDE STORMWATER TREATMENT.
4. THE UNDERLYING SOIL IS PRIMARILY HSG "D" BASED ON WEB SOIL SURVEY DATA.
5. ANTICIPATED FRONTAGE AND OFFSITE STREET IMPROVEMENTS WILL BE ADDRESSED USING GREEN STREET ELEMENTS AS OUTLINED IN THE CITY OF ESCONDIDO'S BMP DESIGN MANUAL (FEBRUARY 2016).

LEGEND:

- DMA BOUNDARY
- DMA 1 — DMA ID
- 12.4 AC. — DMA AREA
- BMP 1 — BMP ID
- BIOFILTRATION BMP
- POINT OF COMPLIANCE (POC)
- SITE CONSTRAINT

PDP SWQMP & HMP EXHIBIT FOR ESCONDIDO COUNTRY CLUB

J-7762-A Date: March 16, 2017

RICK ENGINEERING COMPANY
San Diego
5620 FRIARS ROAD
SAN DIEGO, CA 92110
619-291-0707
(FAX) 619-291-4165
rickengineering.com
Riverside - Orange - Sacramento - San Luis Obispo - Phoenix - Tucson - Denver

J-17762-A

Worksheet B.2-1. DCV

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.68	inches
2	Area tributary to BMP (s)	A=	18.7	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.68	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	31,176	cubic-feet

This worksheet is re-created in Rick Engineering's spreadsheet for BMP sizing (See Attachment 1A).

Categorization of Infiltration Feasibility Condition	Form I-5

Part 1 - Full Infiltration Feasibility Screening Criteria

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

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

Provide basis:

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

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

Provide basis:

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

Form I-5			
Criteria	Screening Question	**Yes**	**No**
3	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		
Provide basis: Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		
Provide basis: Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
Part 1 Result*	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2		

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.		

Provide basis:

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.

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.		

Provide basis:

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.

Form I-5			
Criteria	Screening Question	**Yes**	**No**
7	**Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		
Provide basis: Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
8	**Can infiltration be allowed without violating downstream water rights**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		
Provide basis: Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
Part 2 Result*	If all answers from row 5-8 are yes then partial infiltration design is potentially feasible. The feasibility screening category is **Partial Infiltration.** If any answer from row 5-8 is no, then infiltration of any volume is considered to be **infeasible** within the drainage area. The feasibility screening category is **No Infiltration.**		

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

Factor of Safety and Design Infiltration Rate Worksheet	Form I-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: _____

[SEAL]

ATTACHMENT 2

BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES

This is the cover sheet for Attachment 2.

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

Indicate which Items are Included behind this cover sheet:

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

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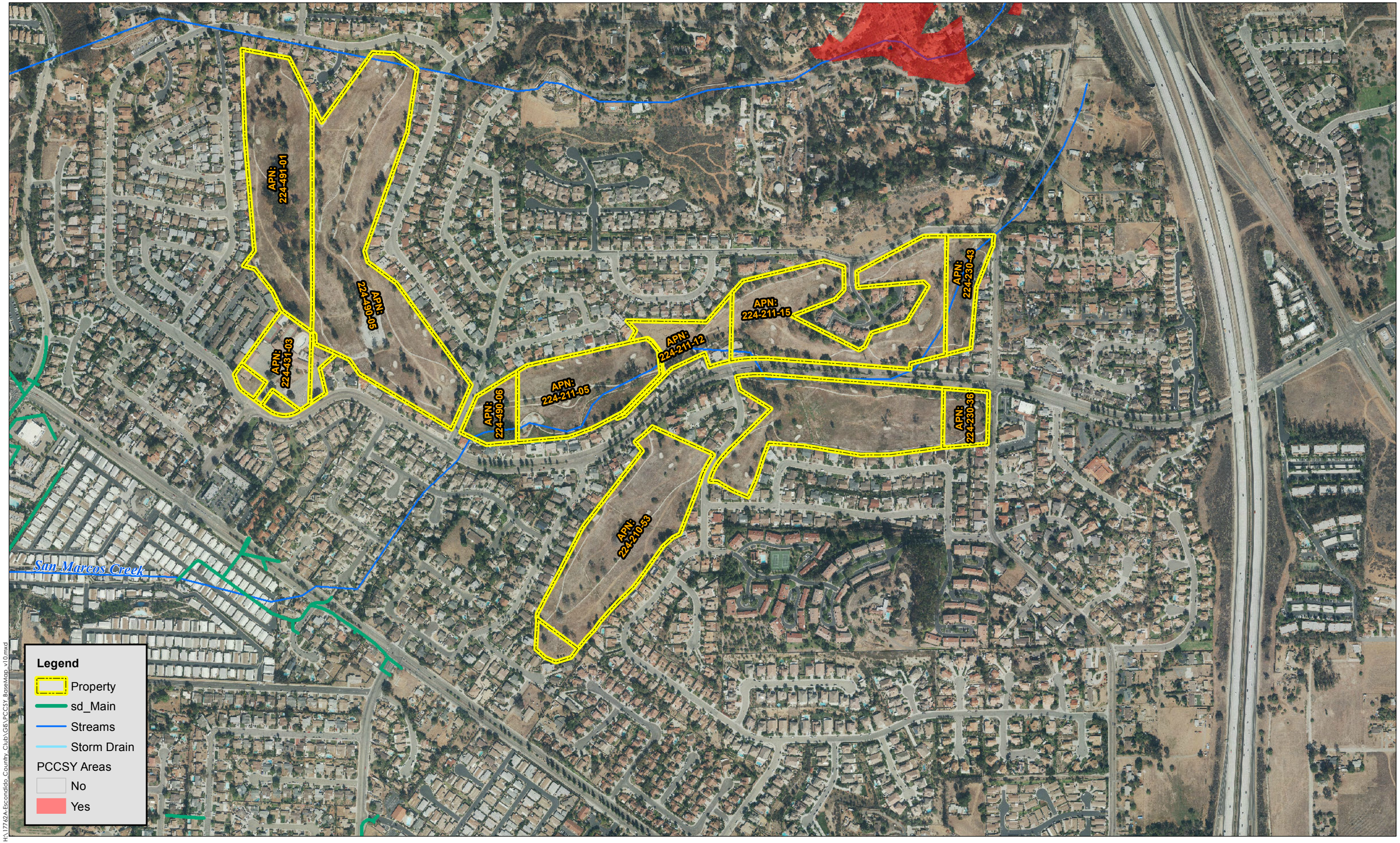

H:\17762A-Escondido Country Club\GIS\PCCSY BaseMap_v10.mxd

RICK ENGINEERING COMPANY

Scale in Feet
0 540 1,080
North

Date of Exhibit: 3/7/2017
SanGIS PCCSY: 03/2015
FEMA NFHL: 04/2016
SanGIS/USGS Aerial Imagery: 11/2014

Escondido Country Club

PCCSY Areas

JN: 17762A

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)

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ATTACHMENT 3

Structural BMP Maintenance Information

This is the cover sheet for Attachment 3.

Indicate which Items are Included behind this cover sheet:

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

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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).

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ATTACHMENT 4

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

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City of Escondido Storm Water Structural BMP Verification Form Page 1 of 4	
Project Summary Information	
Project Name	
Record ID (e.g., grading/improvement plan number)	
Project Address	
Assessor's Parcel Number(s) (APN(s))	
Project Watershed (Complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	
Maintenance Notification / Agreement No.	
Responsible Party for Construction Phase	
Developer's Name	
Address	
Email Address	
Phone Number	
Engineer of Work	
Engineer's Phone Number	
Responsible Party for Ongoing Maintenance	
Owner's Name(s)*	
Address	
Email Address	
Phone Number	
*Note: If a corporation or LLC, provide information for principal partner or Agent for Service of Process. If an HOA, provide information for the Board or property manager at time of project closeout.	

City of Escondido Storm Water Structural BMP Verification Form Page 2 of 4				
Stormwater Structural Pollutant Control & Hydromodification Control BMPs* (List all from SWQMP)				
Description/Type of Structural BMP	**Plan Sheet #**	**Structural BMP ID#**	**Maintenance Agreement Recorded Doc #**	**Revisions**
*All Priority Development Projects (PDPs) require a Structural BMP				

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

City of Escondido Storm Structural BMP Verification Form Page 3 of 4

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

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

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

Please sign your name and seal.

Professional Engineer's Printed Name:

_____

Professional Engineer's Signed Name:

_____

Date: _____

[SEAL]

City of Escondido Storm Water Structural BMP Verification Form Page 4 of 4

CITY - OFFICIAL USE ONLY:

Permit #:_____

City Inspector: _____

Date Project has/expects to close: _____

Date verification received from Engineer of Work (EOW): _____

By signing below, City Inspector concurs that every noted Structural BMP has been installed per plan.

City Inspector's Signature: _____Date: _____

FOR Environmental Programs:

Date Received from Field Engineering:_____

Environmental Programs Submittal Reviewer:_____

Environmental Programs Reviewer concurs that the information provided for the following Structural BMPs is acceptable to enter into the Structural BMP Maintenance verification inventory:

List **acceptable** Structural BMPs:

Environmental Programs Reviewer's Signature: _____

Date: _____

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:

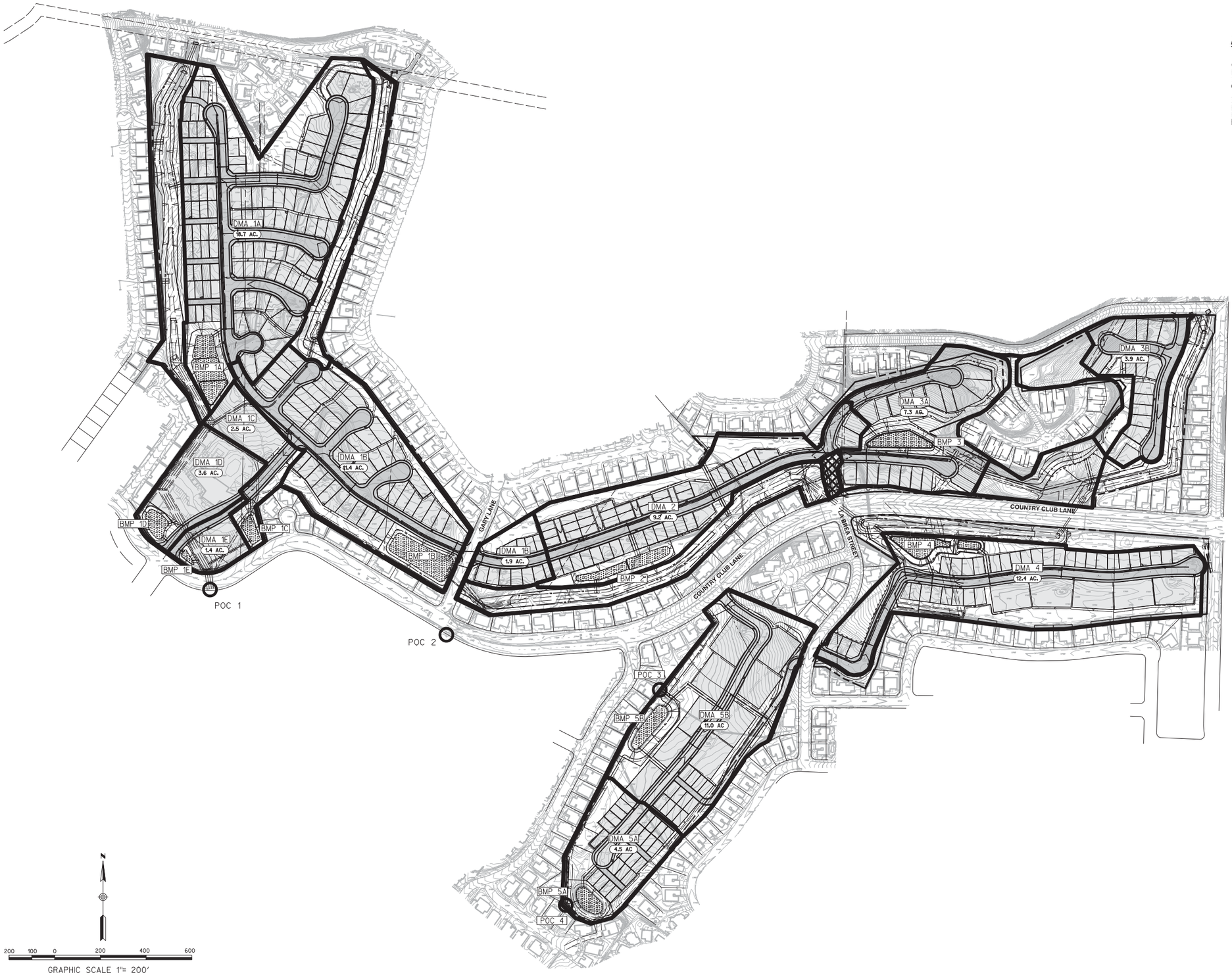
The plans must identify:

- ☐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.**

NOTES:

1. PER THE PROJECT'S GEOTECHINCAL REPORT, THE DEPTH TO GROUNDWATER VARIED FROM A DEPTH OF 4.5 FEET TO 24 FEET.
2. INFILTRATION BMPS ARE NOT BEING RECOMMENDED BASED ON RECOMMENDATIONS FROM THE GEOTECHNICAL ENGINEER (I.E., DUE TO POOR PERCOLATION CHARACTERISTICS)
3. THE IDENTIFIED "SITE CONSTRAINT" AREA CANNOT FEASIBLY BE TREATED WITHIN PROPOSED BIOFILTRATION BMPS. THEREFORE, MODULAR WETLAND SYSTEMS ARE BEING PROPOSED TO PROVIDE STORMWATER TREATMENT.



LEGEND:

- DMA BOUNDARY
- DMA 1 — DMA ID
- 12.4 AC. — DMA AREA
- BMP 1 — BMP ID
- BIOFILTRATION BMP
- POINT OF COMPLIANCE (POC)
- SITE CONSTRAINT

200 100 0 200 400 600

GRAPHIC SCALE 1"= 200'

PDP SWQMP & HMP EXHIBIT FOR ESCONDIDO COUNTRY CLUB

J-7762-A Date: March 7, 2017

RICK ENGINEERING COMPANY
San Diego
5620 FRIARS ROAD
SAN DIEGO, CA 92110
619-291-0707
(FAX) 619-291-4165
rickengineering.com
Riverside · Orange · Sacramento · San Luis Obispo · Phoenix · Tucson · Denver

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