



County of San Diego
Stormwater Quality Management Plan (SWQMP)
For Priority Development Projects (PDPs)

Use for all PDPs (see Storm Water Intake Form, Part 4)



Project Information		Development type ☐ New development ☒ Redevelopment	
Project Name	Mapleview Residential		
Project Address	12830 Mapleview St, Lakeside CA 92040		
Assessor's Parcel # (APN)	390-048-20-00		
Permit # / Record ID	TBD		
Project category (select one)	☐ Commercial ☐ Minor subdivision*		
	☐ Industrial ☐ Major subdivision*		
	☐ Single family residential lot ☒ Multi-family residential*		
*If residential, is a Homeowners Association (HOA) proposed? ☒ Yes ☐ No			

Project Applicant / Project Proponent			
Name	Bassam Fatouhi		
Address	12828 & 12830 Mapleview St, Lakeside CA 92040		
Phone	619-315-6599	Email:	bassamfatouhi@gmail.com

SWQMP Preparer			
Name	Bashar G. Najar		
Company (if applicable)	Najars Engineering		
Address	10769 Woodside Ave, Suite 204, Santee, CA 92071		
Phone	619-971-7514	Email:	Bashar@najars.com
PE Number (if applicable)	78159		

Preparer's Certification	
I understand that the County of San Diego has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the County of San Diego BMP Design Manual. The BMP Design Manual is a design manual for compliance with local County of San Diego Watershed Protection Ordinance (Sections 67.801 et seq.) and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2013-0001, as amended by Order No. R9-2015-0001 and Order No. R9-2015-0100) requirements for storm water management. This SWQMP is intended to comply with applicable requirements of the BMP Design Manual. I certify that it 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 SWQMP by County staff is confined to a review and does not relieve me as the person in charge of overseeing the selection and design of storm water BMPs for this project, of my responsibilities for project design.	
Signature	Date September 19, 2022

COUNTY ACCEPTED	
SWQMP Approved By:	Approval Date:
* NOTE* Approval does not constitute compliance with regulatory requirements.	

Scope of SWQMP Submittal (Required)

Select the option that describes the scope of this SWQMP Submittal. Document your selection as indicated.

SWQMP Scope

- ☒ **a. SWQMP addresses the entire project**
- ☐ **b. SWQMP implements requirements of an earlier master SWQMP submittal**
- ☐ **c. First of multiple SWQMP submittals**

Required Documentation

No additional documentation.

Include a copy of the previous submittal as **Attachment 4**.

Identify below the elements addressed in this submittal and in future submittals.

(1) Elements addressed in current submittal (streets, common areas, first project phase, etc.):

Proposed 11-unit multi-family residential unit and associated parking lot and driveways aprons.

(2) Elements to be addressed in future submittal(s) (individual lots, future project phases, etc.):

Submittal Record: List the dates of SWQMP and plan submittals and updates. Briefly describe key changes from previous versions. If responding to plan check comments, note this in the entry and attach the responses as applicable.

No.	Date	Summary of Changes
Preliminary Design / Planning / CEQA		
1	9/19/2022	Initial Submittal
2	Date	Summary of Change
3	Date	Summary of Change
No.	Date	Summary of Change
Final Design		
1	Date	Initial Submittal
2	Date	Summary of Change
3	Date	Summary of Change
No.	Date	Summary of Change
Plan Changes		
1	Date	Initial Submittal
2	Date	Summary of Change
3	Date	Summary of Change
No.	Date	Summary of Change

General Directions

Note: These directions may be omitted from the print version of the SWQMP submittal.

① Scope of SWQMP Submittal and Submittal Record (inside front cover)

Use the **Submittal Scope** table to document the scope of activities covered under this SWQMP Form. Select one of the three options presented.

- **SWQMP addresses the entire project.** If this SWQMP form addresses the entire project from start to finish, additional documentation of the project scope is not required.
- **SWQMP implements requirements of an earlier master SWQMP submittal.** If this SWQMP Form implements requirements identified in an earlier master SWQMP Form, documentation of those earlier requirements must be provided. Include a copy of the previous submittal as **Attachment 4**.
- **First of multiple SWQMP submittals.** If this is the first of multiple SWQMP submittals, use the spaces provided under Part c to identify and briefly describe which project elements are addressed in this submittal and which ones will be addressed in future submittals. For example, this PDP addresses only streets and roads, but individual lots will be documented in future submittals.

Use the **Submittal Record** table to list the dates of any updates to the SWQMP or construction plans. Briefly describe key changes from previous versions. If responding to plan check comments, note this in the entry and attach the responses as applicable.

② PDP SWQMP Submittal Checklist

The checklist on Page 1 summarizes the tables and attachments to be included with this PDP SWQMP submittal. It should be filled out after completing the remainder of the form. Tables and attachments with boxes already checked (☑) are required for all projects. All tables are required. The applicability of attachments not already checked will be identified during the completion of this form.

③ Attachment 1: Stormwater Intake Form

Submit a copy of your completed **Storm Water Intake Form** as **Attachment 1**.

④ Tables 1, 2, and 3: Baseline Site Design and Source Control BMPs

Table 1 Completion: Complete **Table 1** to document existing and proposed site features and the BMPs to be implemented for them. All BMPs must be implemented **where applicable and feasible**. Applicability is generally assumed if a feature exists or is proposed.

Table 2 Completion: **Table 2** is not required for Small Residential Projects. Applicants should check the box at the top of the table to confirm it does not apply.

Small Residential Projects are those requiring *either*: a Building Permit, Minor Residential Grading Permit, or Site Plan Permit for a single family home; *or* a Tentative Parcel Map Permit for up to 4 single family homes and a remainder parcel.

All other projects must complete **Table 2** to identify applicable requirements for documenting pollutant-generating sources/ features and source control BMPs.

BMPs must be implemented for **Table 1** and **2** features **where feasible**. Leaving the box for a BMP unchecked means it will not be implemented (either partially or fully) either because it is inapplicable or infeasible. Explanations must be provided in **Table 3**. Tables 1 and 2 both provide specific instructions on when explanations are required.

⑤ Attachment 5: Existing Site and Drainage Description

Complete **Attachment 5** to provide a description of (1) the existing pre-development condition of the site, and (2) existing and proposed drainage conditions for the site. If required, include a copy of the site Drainage Study with Attachment 5.

⑥ Structural Performance Standards

Determine which Structural Performance Standards apply to the PDP, where they apply, and which compliance strategies you will use to satisfy them. Record your selections in **Table 4** as follows.

Table 4, Part A.1, Selection of Standards: First select the standards that apply to the project.

- *Pollutant control plus hydromodification* Select if the PDP is not exempt from hydromodification management requirements. It must satisfy both the Pollutant Control Performance Standard (BMPDM Section 2.2) and the Hydromodification Management Performance Standard (BMPDM Section 2.3).
- *Pollutant control only* Select if the PDP is exempt from hydromodification management requirements per BMPDM Section 6.1. Document the exemption in **Attachment 9**.

Table 4, Part A.2, Application of Standards: Next indicate where on the site the standards apply.

- If this is a **New Development Project**, the standards apply to all impervious surfaces on the site.
- If this is a **Redevelopment Project**, their applicability will depend on the ratio of created or replaced impervious areas to existing impervious areas (see BMPDM Section 1.7). Complete the calculations in the table to determine your obligation. The **percent (%) impervious created or replaced (c)** is determined by dividing the **impervious area created or replaced (b)** by the **existing impervious area (a)** and multiplying the result by 100.
 - **If c is 50% or more:** The standards apply to all impervious surfaces on the site (a + b).
 - **If c is less than 50%:** The standards apply only to created or replaced impervious surfaces (b only).

Table 4, Part B.1: Summary of Required Attachments (1 through 5)

Use this part of the table to summarize which of Attachments 1 through 5 will be included with the SWQMP submittal. If you are completing an **electronic version** of this form, your selections will be automatically recorded based on your previous input. If you are completing a **hard copy** of this form, you must manually select Attachments 3 and 4 as applicable (see pages 4 and 6). Note that Attachments 1, 2, and 5 are required for all projects.

Table 4, Part B.2: Selection of Compliance Strategies

Complete Part B.2 to document which compliance options will be used to satisfy the applicable standards for the site. Before doing so, you must determine which option will be used for each DMA. The following four potential design options are presented in detail in BMPDM Chapters 5 and 6.

1. **Self-mitigating DMAs** (BMPDM Section 5.2.1)
2. **De Minimis DMAs** (BMPDM Section 5.2.2)
3. **Self-retaining DMAs** (BMPDM Section 5.2.3)
4. **Structural BMPs**
 - Pollutant Control BMPs (BMPDM Sections 5.4)
 - Hydromodification BMPs (BMPDM Chapter 6)
 - Alternative Compliance Project (BMPDM Section 1.8)

Only one compliance option may be used per individual DMA. Regardless of which option is selected for any DMA, it must fully satisfy the applicable standard(s) determined in Part A.1.

On the left side of Part B, check the applicable boxes for each compliance option to be used.

⑦ **Summary of Additional Required Attachments (6 through 12)**

You must complete and submit each attachment identified for the compliance options selected. Applicable attachments are listed to the right of each compliance option. If you are completing an **electronic version** of this form, the required attachments for each design option will automatically be selected when you choose the compliance option. As noted above, these selections will also be recorded on the PDP SWQMP Submittal Checklist (Page 1). If you are completing a **hard copy** of this form, you will need to manually check the boxes for each applicable attachment on both pages.

Note that Attachment 9 (Critical Coarse Sediment Yield Areas) is required for all PDPs. If the PDP is exempt from hydromodification requirements, the exemption must be documented in Attachment 9.

⑧ **Table 5: Critical Coarse Sediment Yield Area Requirements**

Complete **Table 5** to select a compliance pathway for addressing Critical Coarse Sediment Yield Area (CCSYA) requirements for the PDP. See BMPDM Appendix H for additional description of requirements and options. Document Table 5 selections, including hydromodification management exemptions, in **Attachment 9**.

⑨ **Tables 6 and 7: Temporary Construction Phase BMPs**

Complete **Table 6** to document the minimum construction BMPs to be implemented for the project. Each BMP must be implemented **where applicable and feasible**. At least one BMP must be selected for each construction activity listed in the table (except Erosion Control for Disturbed Slopes, which requires one BMP per season).

If applicable, use **Table 7** to describe why BMPs not selected in Table 6 are either infeasible or are only partially feasible. Justifications must be provided for all construction activity types for which NO BMPs were selected. If requested by County staff, also justify why specific individual BMPs were not selected.

⑩ **Attachment 2: DMA Exhibits and Construction Plans**

Exhibits and construction plan sets incorporating all applicable site features, activities, and BMPs identified in **Tables 1, 2, and 6** must be submitted as **Attachment 2 (DMA Exhibits and Construction Plan Sheets)**. See the Attachment 2 cover sheet for additional instructions.

PDP SWQMP Submittal Checklist

SWQMP Tables: All of the tables below must be completed.

☒ Table 1: Baseline BMPs for Existing and Proposed Site Features	Page 2
☒ Table 2: Baseline BMPs for Pollutant-generating Sources	Page 3
☒ Table 3: Explanations and Justifications for Table 1 and 2 Baseline BMPs	Page 4
☒ Table 4: DMA Structural Compliance Strategies and Documentation	Page 5
☒ Table 5: Critical Coarse Sediment Yield Area (CCSYA) Requirements	Page 6
☒ Table 6: Minimum Construction Stormwater BMPs	Page 7
☒ Table 7: Explanations and Justifications for Construction Phase BMPs	Page 8

SWQMP Attachments¹: Use the checklist below to identify which attachments will be included with this submittal. Attachments with boxes already checked (☒) are required for all projects. The applicability of other attachments will be determined upon completing this form.

- ☒ Attachment 1: Storm Water Intake Form
- ☒ Attachment 2: DMA Exhibits and Construction Plan Sheets
- ☐ Attachment 3: Reserved for Future Use
- ☐ Attachment 4: Previous SWQMP Submittals
- ☒ Attachment 5: Existing Site and Drainage Description
- ☒ Attachment 6: Documentation of DMAs without Structural BMPs
- ☒ Attachment 7: Documentation of DMAs with Structural Pollutant Control BMPs
- ☒ Attachment 8: Documentation of DMAs with Structural Hydromodification Management BMPs
- ☒ Attachment 9: Management of Critical Coarse Sediment Yield Areas
- ☒ Attachment 10: BMP Installation Verification Form
- ☒ Attachment 11: BMP Maintenance Agreements and Plans
- ☐ Attachment 12: Documentation of Alternative Compliance Projects (ACPs)

After completing the remainder of this form, check the applicable SWQMP Attachment boxes to summarize your selections.

¹ All SWQMP Attachments are available at www.sandiego.gov/stormwater under the Development Resources tab, Submittal Templates.

Table 1 – Baseline BMPs for Existing and Proposed Site Features

A. BMPs for Existing Natural Site Features (See Fact Sheet BL-1)			
1. Check the boxes below for each existing feature on the site.	2. Select the BMPs to be implemented for each identified feature. Explain why any BMP not selected is infeasible in Table 3.		
☐ Natural waterbodies ☐ Natural storage reservoirs & drainage corridors ☐ Natural areas, soils, & vegetation (incl. trees) Conserve natural features (SD-G) ☐ ☐ ☐ Provide buffers around waterbodies (SD-H) ☐ --- ---			
B. BMPs for Common Impervious Outdoor Site Features (See Fact Sheet BL-2)			
1. Check the boxes below for each proposed feature.	2. Select the BMPs to be implemented for each proposed feature. If neither BMP SD-B nor SD-I is selected for a feature, explain why both BMPs are infeasible in Table 3.		
☐ Streets and roads ☒ Sidewalks & walkways ☒ Parking areas & lots ☐ Driveways ☐ Patios, decks, & courtyards ☐ Hardcourt recreation areas ☐ Other: a. Direct runoff to pervious areas (SD-B) ☐ ☒ ☐ ☐ ☐ ☐ ☐ b. Construct surfaces from permeable materials (SD-I) ☐ ☐ ☐ ☐ ☐ ☐ ☐ c. Minimize the size of impervious areas ☒ Check this box to confirm that all impervious areas on the site will be minimized where feasible. <i>If this box is not checked, identify the surfaces that cannot be minimized in Table 3, and explain why it is infeasible to do so.</i>			
C. ☒ BMPs for Rooftop Areas: Check this box if rooftop areas are proposed and select at least one BMP below. (See Fact Sheet BL-3)			
<i>If no BMPs are selected, explain why they are infeasible in Table 3.</i>			
1. Direct runoff to pervious areas (SD-B) ☒	2. Install green roofs (SD-C) ☐	3. Install rain barrels (SD-E) ☐	
D. ☒ BMPs for Landscaped Areas: Check this box if landscaping is proposed and select at least one BMP below. (See Fact Sheet BL-4)			
<i>If no BMPs are selected, explain why they are infeasible in Table 3.</i>			
1. Sustainable Landscaping (SD-K) ☒			

Note: All features and BMPs must be shown on applicable construction plans. See applicable Fact Sheets in Appendix C of the BMP Design Manual for additional information.

Note: Use Table 3 to explain BMP infeasibility or inapplicability, or to describe features or BMPs not listed in this table. Additional explanation may be required by the County.

Table 2 – Baseline BMPs for Pollutant-generating Sources

☒ If this is a **Small Residential Project**, check this box and skip the rest of this table.

A. Management of Stormwater Discharges

1. Identify all proposed outdoor work areas below (☐ Check here if none are proposed)	2. Which BMPs will be used to prevent materials from contacting rainfall or runoff? (See Fact Sheet BL-5) (Select all feasible BMPs for each work area ²)			3. Where will runoff from the work area be routed? (See Fact Sheet BL-6) (Select one or more option for each work area)			
	Overhead covering (rooftops, etc.) (SC-A)	Separation of flows from adjacent areas (berms, etc.) (SC-B)	Wind protection (screens, etc.) (SC-C)	Sanitary sewer ³ (SC-D)	Containment system (SC-E)	Stormwater S-BMP or SSD-BMP ⁴	Other ⁵
☒ Trash & Refuse Storage	☒	☒	☒	☐	☐	☒	☐
☐ Materials & Equipment Storage	☐	☐	☐	☐	☐	☐	☐
☐ Loading & Unloading	☐	☐	---	☐	☐	☐	☐
☐ Fueling	☐	☐	---	☐	☐	☐	☐
☐ Maintenance & Repair	☐	☐	---	☐	☐	☐	☐
☐ Vehicle & Equipment Cleaning	☐	☐	---	☐	☐	☐	☐
☐ Other:	☐	☐	---	☐	☐	☐	☐

B. Prevention of Non-stormwater Discharges (See Fact Sheet BL-7)

Select one option for each feature below:

• Storm drain inlets and catch basins ...	☐ are not proposed	☐ will be labeled with stenciling or signage to discourage dumping (SC-F)
• Educational BMP Signage ...	☐ are not proposed	☐ will be labeled with educational signage for BMP (SC-G)
• Interior work surfaces, floor drains, & sumps ...	☐ are not proposed	☐ will not discharge directly or indirectly to the MS4 or receiving waters
• Drain lines (e.g., air conditioning, boiler, etc.) ...	☐ are not proposed	☐ will not discharge directly or indirectly to the MS4 or receiving waters
• Fire sprinkler test water ...	☐ are not proposed	☐ will not discharge directly or indirectly to the MS4 or receiving waters

Note: All outdoor features and BMPs in this table must be shown on applicable construction plans. See applicable Fact Sheets in Appendix C of the BMP Design Manual for additional information.

Note: Use Table 3 to explain BMP infeasibility or inapplicability, or to describe features or BMPs not listed in this table. Additional explanation may be required by the County.

² Each BMP is required where feasible. If none are selected for any feature, explain why they are infeasible in Table 3.

³ Separate wastewater agency approvals may be required.

⁴ Structural Treatment Control BMPs (S-BMPs) and Significant Site Design BMPs (SSD-BMPs) may not receive discharges from work areas that concentrate pollutants in a manner that will impair their functioning. Discharges from the proposed work area must also be included in DCV calculations for the applicable BMP.

⁵ Describe other proposed options for managing stormwater discharges in Table 3.

Table 3 – Explanations and Justifications for Table 1 and 2 Baseline BMPs

☐ Check here if no explanations or justifications for Table 1 or 2 BMPs are required.		
• Required Justifications: Provide explanations of BMP inapplicability and/or infeasibility as indicated per Tables 1 and 2. • If Requested: Justify why specific BMPs will not be implemented or will only be partially implemented. • Additional Explanation: Describe any proposed features and/or BMPs not listed in Tables 1 or 2.		
BMP-Feature Combination		Explanation
Feature	Feature	Explanation
BMP	BMP	
Feature	Feature	Explanation
BMP	BMP	
Feature	Feature	Explanation
BMP	BMP	
Feature	Feature	Explanation
BMP	BMP	
Feature	Feature	Explanation
BMP	BMP	
Feature	Feature	Explanation
BMP	BMP	
Feature	Feature	Explanation
BMP	BMP	
Feature	Feature	Explanation
BMP	BMP	

Table 4: DMA Structural Compliance Strategies and Documentation

Part A – Selection and Application Structural Performance Standards							
1. Selection of Standards (select one; see BMPDM Section 6.1) ☒ a. Pollutant control + hydromodification ☐ b. Pollutant control only (project is exempt from hydromodification requirements)							
2. Application of Structural Performance Standards (select one; see BMPDM Section 1.7) ☐ New Development Projects: Standards apply to <u>all</u> impervious surfaces. ☒ Redevelopment Projects: Complete the calculations below. Select <u>the</u> applicable scenario based on the results.							
a. Existing impervious area (ft²)		b. Impervious area created / replaced (ft²)		c. % Impervious created / replaced [(b/a)*100]			
6,525		17,510		268%			
☒ <i>Scenario 1: c is 50% or more:</i> Performance standards apply to all impervious surfaces (a + b). ☐ <i>Scenario 2: c is less than 50%:</i> Performance standards apply only to created or replaced impervious surfaces (b only).							
Part B – Compliance Strategies and Required Attachments							
1. Complete and submit each of the applicable attachments on the right.	Att. 1	Att. 2	Att. 3	Att. 4	Att. 5		
	Storm Water Intake Form ☒	DMA Exhibits and Construction Plan Sheets ☒	N/A ☐	Previous SWQMP Submittals (see inside cover) ☐	Existing Site and Drainage Description ☒		
2. Indicate each compliance strategy below that will be used for one or more DMAs on the site. ☐ Self-mitigating DMAs (BMPDM Section 5.2.1) ☐ De Minimis DMAs (BMPDM Section 5.2.2) ☐ Self-retaining DMAs (BMPDM Section 5.2.3)	Att. 6	Att. 7	Att. 8	Att. 9	Att. 10	Att. 11	Att. 12
	DMAs without Structural BMPs	DMAs w/ Structural Pollutant Control BMPs	DMAs w/ Structural Hydromod. BMPs	Critical Coarse Sediment Yield Areas	BMP Installation Verification Form	Maintenance Agreements/ Plans	Alternative Compliance Projects
	☐			☐			
	☐			☐			
	☐			☐	☐		
Structural BMPs (select all that apply)							
☒ Pollutant Control BMPs (BMPDM Section 5.4)		☒		☒	☒	☒	
☒ Hydromodification Control BMPs (BMPDM Chapter 6)			☒	☒	☒	☒	
☐ Alternative Compliance Project (BMPDM Section 1.8)				☐	☐	☐	☐
☒ Please check this box after you complete this list. Corresponding attachments will be automatically selected on the right.							

- Attachments 1, 2, and 5 are required for all projects.

Table 5: Critical Coarse Sediment Yield Area (CCSYA) Requirements

○ Identify one applicable compliance pathway for the PDP below. ○ Document your selection in Attachment 9.
A. Hydromodification Management Exemption (BMPDM Sections 1.6 and 6.1)
☐ PDP is Exempt from Hydromodification Management Requirements Select if hydromodification management exemption was selected in Table 4 Part A.1.
B. Watershed Management Area (WMAA) Mapping (BMPDM Appendix H.1.1.2)
☒ WMAA mapping demonstrates the following: a. <5% of potential onsite CCYSAs will be impacted (built on or obstructed) b. All potential upstream offsite CCYSAs will be bypassed
C. Resource Protection Ordinance (RPO) Methods (BMPDM Appendix H.1.1.1)
☐ RPO Scenario 1: PDP is subject to and in compliance with RPO requirements a. Project requires one or more discretionary permits (RPO applicability is confirmed during discretionary review) b. Onsite AND upstream offsite CCSYAs will be avoided and/or bypassed ☒ RPO Scenario 2: PDP is entirely exempt/not subject to RPO requirements⁶ a. Project does not require discretionary permits b. Project will bypass all upstream offsite CCSYAs (no requirements for onsite CCSYAs)
D. No Net Impact Analysis (BMPDM Appendix H.4)
☒ Project demonstrates no net impact to receiving waters

⁶ Does not include PDPs utilizing exemption(s) via RPO Section 86.604(e)(2)(cc) or 86.604(e)(3).

Table 6 –Minimum Construction Stormwater BMPs

Minimum Required BMPs by Activity Type		References	
Select all applicable activities and at least one BMP for each.		Caltrans ⁷	County of San Diego
☒ Erosion Control for Disturbed Slopes (choose at least 1 per season)			
☐ Vegetation Stabilization Planting ⁸ (Summer)		SS-2, SS-4	
☒ Hydraulic Stabilization Hydroseeding (Summer)		SS-4	
☐ Bonded Fiber Matrix or Stabilized Fiber Matrix ⁹ (Winter)		SS-3	
☐ Physical Stabilization Erosion Control Blanket (Winter)		SS-7	
☒ Erosion control for disturbed flat areas (slope < 5%)			
☒ County Standard Lot Perimeter Protection Detail		SC-2	PDS 659 ¹⁰
☐ Use of Item A erosion control measures on flat areas		SS-3, SS-4, SS-7	
☐ County Standard Desilting Basin (must treat all site runoff)		SC-2	PDS 660 ¹¹
☐ Mulch, straw, wood chips, soil application		SS-6, SS-8	
☐ Energy dissipation (required to control velocity for concentrated runoff or dewatering discharge)			
☐ Energy Dissipater Outlet Protection		SS-10	RSD D-40 ¹²
☒ Sediment control for all disturbed areas			
☒ Silt Fence		SC-1	
☒ Fiber Rolls (Straw Wattles)		SC-5	
☒ Gravel & Sand Bags		SC-6, SC-8	
☐ Dewatering Filtration		NS-2	
☐ Storm Drain Inlet Protection		SC-10	
☐ Engineered Desilting Basin (sized for 10-year flow)		SC-2	
☒ Preventing offsite tracking of sediment			
☒ Stabilized Construction Entrance		TC-1	
☐ Construction Road Stabilization		TC-2	
☐ Entrance/Exit Tire Wash		TC-3	
☐ Entrance/Exit Inspection & Cleaning Facility		TC-1	
☒ Street Sweeping and Vacuuming		SC-7	
☒ Materials Management			
☒ Material Delivery & Storage		WM-1	
☒ Spill Prevention and Control		WM-4	
☒ Waste Management¹³			
☒ Waste Management Concrete Waste Management		WM-8	
☒ Solid Waste Management		WM-5	
☒ Sanitary Waste Management		WM-9	
☒ Hazardous Waste Management		WM-6	

⁷ See Caltrans 2017 Construction Site Best Management Practices (BMP) Manual available at:

<https://dot.ca.gov/programs/construction/storm-water-and-water-pollution-control/manuals-and-handbooks>

⁸ Planting or Hydroseeding may be installed between May 1st and August 15th. Slope irrigation must be in place and operable for slopes >3 feet. Vegetation must be watered and established prior to October 1st. A contingency physical BMP must be implemented by August 15th if vegetation is not established by that date. If landscaping is proposed, erosion control measures must also be used while landscaping is being established. Established vegetation must have a subsurface mat of intertwined mature roots with a uniform vegetative coverage of 70 percent of the natural vegetative coverage or more on all disturbed areas.

⁹ All slopes over three feet must have established vegetative cover prior to final permit approval.

¹⁰ County PDS 659. Standard Lot Perimeter Protection Design System (Bldg. Division)

¹¹ County PDS 660. County Standard Desilting Basin for Disturbed Areas of 1 Acre or Less Bldg. Division

¹² Regional Standard Drawing D-40 – Rip Rap Energy Dissipater (also acceptable for velocity reduction)

¹³ Applicants are responsible to apply appropriate BMPs for specific wastes (e.g., BMP WM-8 for concrete).

Table 7 – Explanations and Justifications for Construction Phase BMPs

☒ Check here if no explanations or justifications for Table 6 BMPs are required.		
Justifications for Table 6 Temporary Construction Phase BMPs • Required Justifications: Justify all construction activity types for which NO BMPs were selected. • If Requested: Justify why specific individual BMPs were not selected. • Additional Explanation: Describe any proposed features and/or BMPs not listed in Table 6.		
Activity Type / BMP		Explanation
Activity Type	Activity Type	Explanation
BMP	BMP	
Activity Type	Activity Type	Explanation
BMP	BMP	
Activity Type	Activity Type	Explanation
BMP	BMP	
Activity Type	Activity Type	Explanation
BMP	BMP	
Activity Type	Activity Type	Explanation
BMP	BMP	
Activity Type	Activity Type	Explanation
BMP	BMP	
Activity Type	Activity Type	Explanation
BMP	BMP	
Activity Type	Activity Type	Explanation
BMP	BMP	



County of San Diego
Stormwater Quality Management Plan (SWQMP)
Attachment 1: Storm Water Intake Form for All Permit Applications

This form establishes Stormwater Quality Management Plan (SWQMP) requirements for Development Projects per Sections 67.809 and 67.811 of the County of San Diego Watershed Protection Ordinance (WPO). See **Storm Water Intake Form Instructions** for additional guidance and explanation of terms.

Part 1. Project Information			
Project Name:	Mapleview Residential		
Record ID (Permit) No(s):			
Assessor's Parcel No(s):	390-048-20-00		
Street Address (or Intersection):	12830 Mapleview,		
City, State, Zip:	Lakeside, CA 92040		
Part 2. Applicant / Project Proponent Information			
Name:	Bassam Fatouhi		
Company:			
Street Address:	12828 & 12830 Mapleview Street		
City, State, Zip:	Lakeside, CA 92040		
Phone Number	619-315-6599		
Email:	bassamfatouhi@gmail.com		
Part 3. Required Information for All Development Projects			
(A)	1. Existing (pre-development) impervious surfaces (ft²)	2. Created or replaced impervious surfaces (ft²)	3. Total disturbed area (acres or ft²)
	6,525	17,510	22,860
(B)	☐ Check here and provide a WDID# if this project is subject to the California Construction General Permit (Order No. 2009-0009-DWQ) ¹		WDID # (if issued)

For County Use Only	Reviewed By:	Review Date:
☐ Standard SWQMP	☐ PDP SWQMP	☐ Green Streets PDP Exemption SWQMP

¹ Available at: https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html

Part 4. Priority Classification & SWQMP Form Selection**(A) If your project is the following ... (select one)****(B) You must complete ...**☐ **Standard Project****→ Standard SWQMP Form**

- ☐ a. Project is East of the Pacific/Salton Sea Divide
- ☐ b. None of the PDP criteria below applies

☒ **Priority Development Project (PDP)****→ PDP SWQMP Form**

- ☐ 1. Project is part of an existing PDP, OR
- ☒ 2. Project does any of the following:
- ☒ a. Creates or replaces a total of 10,000 ft² or more of impervious surface
 - ☒ b. Creates or replaces a combined total of 5,000 ft² or more of impervious surface within one or more of the following uses: (1) parking lots; (2) streets, roads, highways, freeways, and/or driveways; (3) restaurants; and (4) hillsides
 - ☐ c. Creates or replaces a combined total of 5,000 ft² or more of impervious surface within one or more of the following uses: (1) automotive repair shops; and (2) retail gasoline outlets
 - ☐ d. Discharges directly to an Environmentally Sensitive Area (ESA) AND creates or replaces 2,500 ft² or more of impervious surface
 - ☐ e. Disturbs one or more acres of land (43,560 ft²) and is expected to generate pollutants post-construction
 - ☐ f. Is a redevelopment project that creates or replaces 5,000 ft² or more of impervious surface on a site already having at least 10,000 ft² of impervious surface

☐ **Green Streets PDP Exemption²****→ Green Streets PDP Exemption SWQMP Form****Part 5. Applicant Signature***I have reviewed the information in this form, and it is true and correct to the best of my knowledge.*

Applicant / Project Proponent Signature:

Date:

- **Upon completion** submit this form to the County.
- **If requested**, attach supporting documentation to justify selections made or exemptions claimed.
- **If this is a PDP that is part of a larger existing PDP**, you will be required to attach a copy of the existing SWQMP to the newer SWQMP submittal.

² **Green Streets PDP Exemption Projects** are those claiming exemption from PDP classification per WPO Section 67.811(b)(2) because they consist exclusively of *either* 1) development of new sidewalks, bike lanes, and/or trails; or 2) improvements to existing roads, sidewalks, bike lanes, and/or trails.



County of San Diego
Stormwater Quality Management Plan (SWQMP)
Attachment 2: DMA Exhibits and Construction Plans

2.0 General Requirements

- Attachment 2 consolidates exhibits and plans required for the entire project.
- Complete the table below to indicate which sub-attachments are included with the submittal. Sub-attachments that are not applicable can be excluded from the submittal.
- Unless otherwise stated, features and BMPs identified and described in each corresponding Attachment (6 through 9) must be shown on applicable DMA Exhibits and construction plans submitted for the project.

Sub-attachments	Requirement
☒ 2.1: DMA Exhibits	All PDPs
☐ 2.2: Individual Structural BMP DMA Mapbook	PDPs with structural BMPs
☐ 2.3: Construction Plan Sets	All projects

2.1 DMA Exhibits

- DMA Exhibits must show all DMAs on the project site. Exhibits must include all applicable features identified in applicable SWQMP attachments.
- Exhibits may be prepared individually for the BMPs associated with each applicable SWQMP Attachment (6, 7, 8, and/or 9) or combined into one or more consolidated exhibits.
- Use this checklist to ensure required information is included on each exhibit (copy as needed).

DMA Exhibit ID #:		
A. Features required for all exhibits		
1. Existing Site Features		
☒ Underlying hydrologic soil group (A, B, C, D)	☒ Topography and impervious areas	
☐ Approximate depth to groundwater	☒ Existing drainage network, directions, and offsite connections	
☐ Natural hydrologic features		
2. Drainage Management Area (DMA) Information		
☐ Proposed drainage network, directions, and offsite connections	☒ DMA boundaries, ID numbers, areas, and type (structural BMP, de minimis, etc.)	
3. Proposed Site Changes, Features, and BMPs		
☐ Proposed demolition and grading	To Submit at Final Design	
☐ Group 1, 2, and 3 Features ¹	☐ Construction BMPs ²	
☐ Group 4 Features	☐ Baseline source control BMPs	
☐ Baseline source control BMPs		
B. Proposed Features and BMPs Specific to Individual SWQMP Attachments³		
☒ Attachment 6	☐ SSD-BMP impervious dispersion areas	
	☒ SSD-BMP tree wells	
☒ Attachment 7	☒ Structural pollutant control BMPs	
☒ Attachment 8	☒ Structural hydromodification management BMPs	
	☒ Point(s) of Compliance (POC) for hydromodification management	
	☒ Proposed drainage boundary and drainage area to each POC	
☐ Attachment 9	☐ Onsite CCSYAs	☐ Bypass of onsite CCSYAs
		☐ Bypass of upstream offsite CCSYAs

¹ Group 1-4 features and baseline BMPs from PDP SWQMP Tables 2 and 3.

² Minimum Construction Stormwater BMPs from PDP SWQMP Table 7.

³ Identify the location, ID numbers, type, and size/detail of BMPs.

2.2 Individual Structural BMP DMA Mapbook

- Use this page as a cover sheet for the Structural DMA Mapbook.
- An individual Structural DMA Mapbook must be submitted for any project site with one or more structural BMPs. One Mapbook is required for each unique subsequent owner with responsibility for maintenance of a Structural BMP. Mapbook exhibits will be incorporated as exhibits in Stormwater Maintenance Agreements (SWMAs) and Maintenance Notifications (MNs). See Attachment 11 for additional information on maintenance agreements. If the Mapbook has been provided for each subsequent owner in Attachment 11, they are not required here.
- Place each map on 8.5"x11" paper.
- Show at a minimum the DMA, Structural BMP, Assessor's parcel boundaries with parcel numbers, and any existing hydrologic features within the DMA.

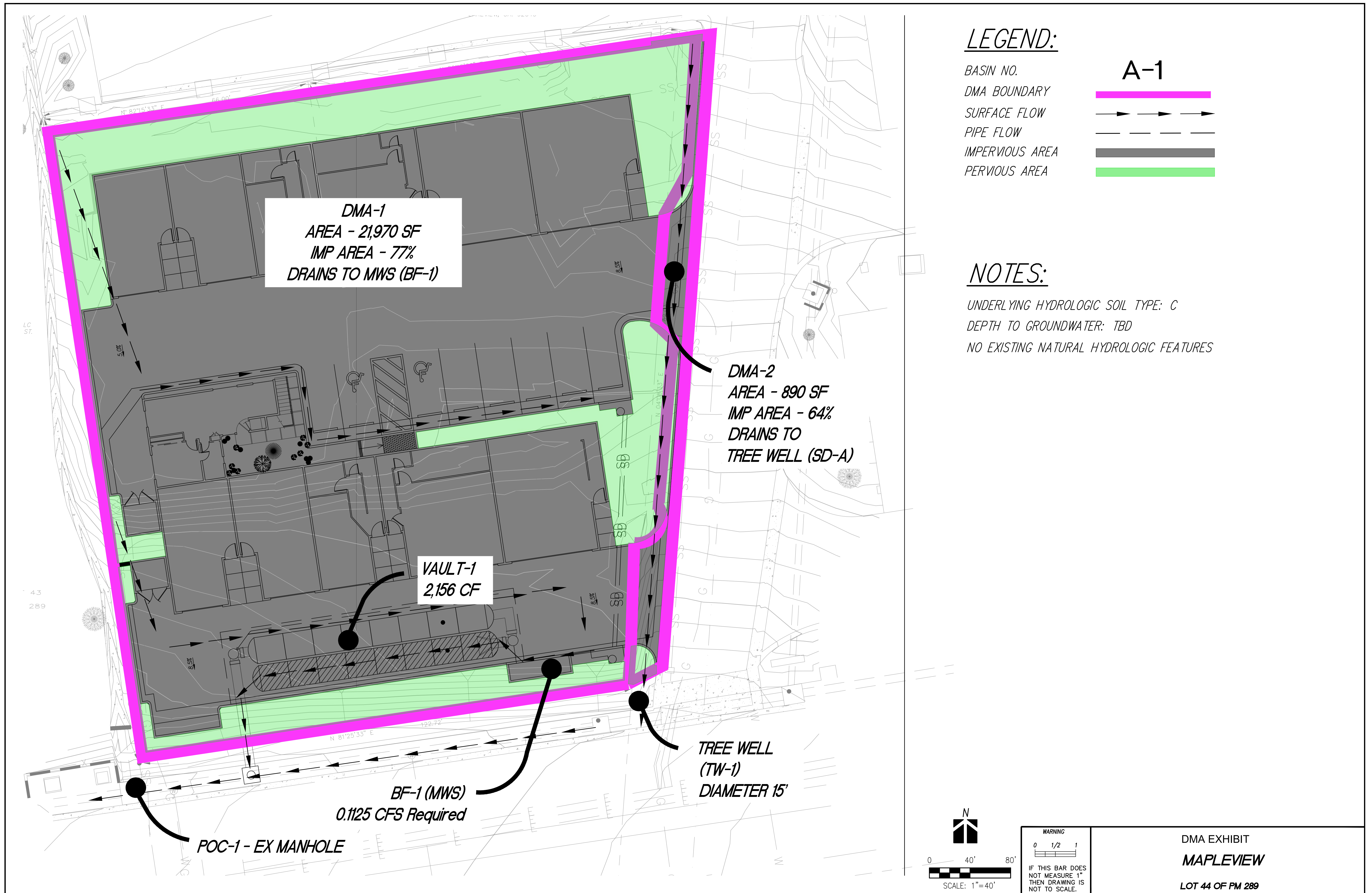
☐	<u>All Mapbooks are attached</u>
☐	<u>All Mapbooks are in Attachment 11</u>

2.3 Construction Plan Sets

- DMAs, features, and BMPs identified and described in this attachment must also be shown on all applicable construction and landscape plans.
- As applicable, plan sheets must identify:
 - All features and BMPs identified in Sub-attachment 2.1 (DMA Exhibits).
 - The additional information listed below.
- Use this checklist to ensure required information is included on each plan (copy as needed).

Plan Type
Required Information⁴
☐ Structural BMP(s) and Significant Site Design BMPs (if applicable) with ID numbers. ☐ 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) and Significant Site Design BMPs (if applicable). ☐ Signage indicating the location and boundary of structural BMP(s) as required by County 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). ☐ 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 (if available) 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 manufacturer model number must be provided. Photocopies of general brochures are not acceptable. ☐ Include all source control and site design measures described in the SWQMP. ☐ Include all construction BMPs described in the SWQMP.

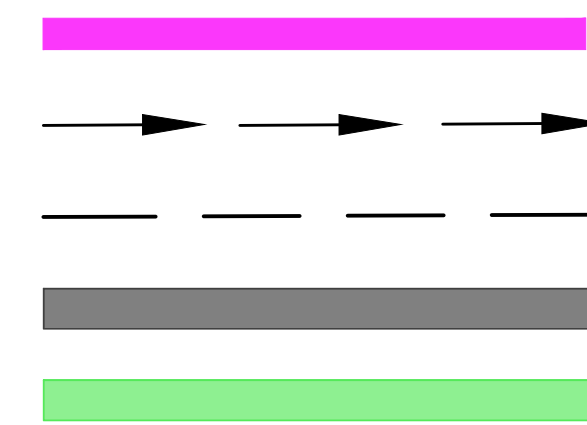
⁴ For Building Permit Applications, refer to Form PDS 272,
<https://www.sandiegocounty.gov/content/dam/sdc/pds/docs/pds272.pdf>



LEGEND:

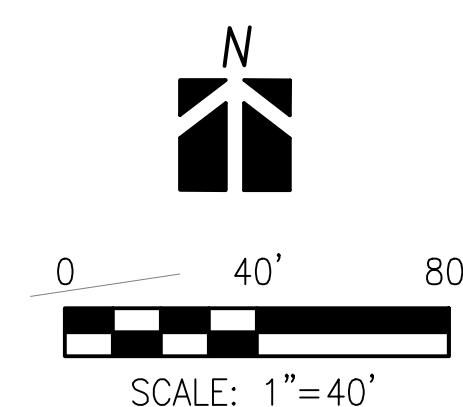
BASIN NO.
DMA BOUNDARY
SURFACE FLOW
PIPE FLOW
IMPERVIOUS AREA
PERVIOUS AREA

A-1



NOTES:

UNDERLYING HYDROLOGIC SOIL TYPE: C
DEPTH TO GROUNDWATER: TBD
NO EXISTING NATURAL HYDROLOGIC FEATURES



WARNING
0 1/2 1
IF THIS BAR DOES
NOT MEASURE 1"
THEN DRAWING IS
NOT TO SCALE.

DMA EXHIBIT
MAPLEVIEW
LOT 44 OF PM 289

Hydrologic Soil Group—San Diego County Area, California



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

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

Soil Rating Lines

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

Soil Rating Points

-  A
-  A/D
-  B
-  B/D

-  C
-  C/D
-  D
-  Not rated or not available

Water Features

-  Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

-  Aerial Photography

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 16, Sep 13, 2021

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

Date(s) aerial images were photographed: Mar 24, 2022—Apr 29, 2022

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
RaC	Ramona sandy loam, 5 to 9 percent slopes	C	0.6	100.0%
Totals for Area of Interest			0.6	100.0%

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



County of San Diego
Stormwater Quality Management Plan (SWQMP)
Attachment 5: Site and Drainage Description

5.0 General Requirements

- Each Priority Development Project (PDP) must provide a description of existing site conditions and proposed changes to them, including changes to topography and drainage.
- Has a **Drainage Report** has been prepared for the PDP?

☒ **Yes**

- Review of the Drainage Report must be concurrent with the PDP SWQMP.
- Include the summary page of the Drainage Report with this cover page, and provide the following information:

Title: Drainage Plan for Mapleview Residential

Prepared By: Najars Engineering

Date: September 19, 2022

- Do not complete the rest of this attachment (also exclude these additional pages from your submittal). Additional documentation of site and drainage conditions is not required unless requested by County staff.

☐ **No** -- Complete and submit the remainder of this attachment below.

DRAINAGE REPORT
FOR
MAPLEVIEW RESIDENTIAL
LAKESIDE, CALIFORNIA
APN# 390-048-20-00
PROJECT NUMBER: TBD

September 19, 2022

Prepared By:

NAJARS Engineering
10769 Woodside Ave, Suite 204
Santee, CA 92071
(619) 971-7514

Declaration of Responsible Charge:

I hereby declare that I am the engineer of work for this project. That I have exercised responsible charge over the design of the project as defined in section 6703 of the business and professions code, and that the design is consistent with current standards.

I understand that the check of project drawings and specifications by the County of San Diego is confined to a review only and does not relieve me, as engineer of work, of my responsibilities for project design.

Bashar G. Najar R.C.E. 78159

Date

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LIST OF APPENDICES

Appendix A: FEMA/FIRM Map

Appendix B: County of San Diego Hydrology Manual Excerpts

Appendix C: Hydrology Calculations & Exhibits

Appendix D: Hydraulic Calculations (Storm Drains)

Appendix D: Hydraulic Calculations (100-year Peak Flow Attenuation)

1.0 GENEARL PROJECT INFORMATION

1.1 Project Site Information

Project Name: Maplevue Residential

Total Analyzed Area: 22,860sf (0.52ac)

Total Area of Disturbance: 22,860sf (0.52ac)

Project Address: 12830 Maplevue St, Lakeside, CA 92040

Latitude/Longitude: 32.864330, -116.915611

Flood Plain Status:

Per FEMA Panel 06073C1656G, the flood map for this project and is located outside of the 1% and 0.2% annual chance floodplains. No floodplain issues are anticipated for this Project.

1.2 Project Description

This storm drain report has been prepared as part of the major grading permit submittal requirements for the development of the Maplevue Residence project. The proposed improvements include a multi-family residential facility with associated hardscape and landscaping. The project is bounded by Maplevue Street to the south, and multi-family residence to the east, west and north of the property in Lakeside California (See Figure 1, Vicinity Map). Total site area is approximately 22,860sf (0.52ac).



Figure 2 – Vicinity Map N.T.S.

1.3 Existing Conditions

The current project site consists of a two single-family residence (to be demolished), associated hardscape (demolish portion of the deteriorated asphalt pavement driveway), and landscaping (remove portion associated with limit of disturbance). The site has two (2) discharge location that eventually meet up and confluence in an existing storm drain system southwest of the site (POC-1). The runoff from the larger westerly sub-basin (EX-1) subbasin of the site surface flows to a concrete brow ditch located on the neighboring property to the west. Where flow is then conveyed into the existing storm drain system through a headwall. The second, smaller sub-basin is named EX-2, it drains south to an existing inlet located in Maplevue Street. The flow then conflues with the flow from PR-1 at an existing manhole southwest of the site. This confluence point is called POC-1.

1.4 Proposed Conditions

The proposed development includes the demolition of the existing two single-family residences, associated hardscape and landscaping to create a larger pad for a new multi-family residence, associated hardscape and landscaping. Surface runoff from the westerly two sub-basins (PR-1 & PR-2) is conveyed by curb and gutters to two (2) proposed inlets. The proposed storm drain system then conveys stormwater to a proprietary treatment BMP and underground detention facility located on the south side of the lot. The detention facility discharges directly into the existing storm drain system under Mapleview Street. The easterly sub-basin (PR-3) drains south toward an existing inlet located in Mapleview Street. The flow then confluences with the flow from PR-1 & PR-2 at a proposed manhole southwest of the site. This confluence point is the same as the existing condition and is called POC-1.

1.5 Water Quality

The Project is considered a Priority Development Project (PDP) per the thresholds listed in the County's BMP Design Manual. Hydromodification (HMP) and treatment requirements are met by the project, the details of which can be viewed under the Project's PDP SWQMP.

The County has a conjunctive use requirement for facilities designed to meet more than one stormwater requirement. As such, HMP volumes and depths will be considered in the 100-year peak flow attenuation analysis.

1.6 Floodplain

The Project is located outside of the 1% and 0.2% annual chance floodplains per FIRM Map Panel 06073C1656G. This zone is outside of a floodway or 100-year floodplain. The FIRMette can be viewed in Appendix A.

2.0 DESIGN CRITERIA

2.1 Methodology

This drainage report has been prepared in accordance with current County of San Diego regulations and procedures. All proposed pipes, catch basins, curbs and gutters, were designed to intercept and convey the 100-year storm. The Modified Rational Method was used to compute the anticipated runoff. See Calculation Tables and appendices for design calculations. The following references have been used in preparation of this report:

- (1) San Diego County Hydrology Manual, June 2003.
- (2) San Diego County Hydraulic Design Manual, September 2014.
- (3) NRCS TR-55 Manual, June 1986.
- (4) County of San Diego D.P.W. Procedure Manual for the Preparation and Checking of Street Improvement and Grading Plans, December 1998.
- (5) Handbook of Hydraulics, E.F. Brater & H.W. King, 6th Ed., 1976.
- (6) Open Channel Hydraulics, V.T. Chow, 1959.

2.2 The Rational Method

The Rational Method was used to determine the 100-year design storm for the total project site for both the existing and proposed condition. This analysis was conducted to determine the increase in 100-year peak flow rate due to the increase in impervious area. This value will be used to design an attenuation facility.

The RM formula estimates the peak rate of runoff at any location in a watershed as a function of the drainage area (A), runoff coefficient (C), and rainfall intensity (I) for a duration equal to the time of concentration (TC) which is the time required for water to flow from the most remote point of the basin to the location being analyzed.

$$Q = CIA$$

Where:

Q = Peak discharge, cfs

C = runoff coefficient, proportion of the rainfall that runs off the surface

I = average rainfall intensity for a duration equal to the Time of Concentration for the area, inches per hour

A = drainage area contribution to the design location, acres

Runoff Coefficient:

Table 3-1 from the San Diego County Hydrology Manual SDCHM, (See Appendix B) lists the estimated runoff coefficients for urban areas.

The runoff coefficients are based on land use and soil type. Soil type is determined from the Soil Hydrologic Soil Map (from the USGS Web Soil Survey, See Appendix C). Soil type 'D' will be used. Natural areas (pervious) will use a $C=0.35$, while developed area (impervious) will use a $C=0.90$

"C" is calculated by tabulating the weighted value of the pervious and impervious areas for each drainage basin. The weighted "C" value can then be determined for each drainage and is used for the existing and proposed comparison for the total project site.

An inflated C value of 0.9 was used to determine a conservative max flow rate for the proposed pipes and curb inlet.

Rainfall Intensity:

The rainfall intensity (I) is the rainfall in inches per hour (in/hr) for a duration equal to the Time of Concentration for a selected storm frequency. The rainfall intensity can be determined from Figure 3-2 *Intensity-Duration Design Chart* and Isopluvial maps (Found in Appendix B).

$$I = 7.44 * P_6 * D^{-0.645}$$

Where:

I = Intensity (in/hr)

P_6 = 6-hour precipitation (in)

D = Duration (min)

Area:

The project area and flow paths for both the existing and proposed Rational Method comparison can be viewed in Appendix C. The drainage areas used to generate a maximum flow rate for hydraulic design of the storm drain and curb inlet can be viewed in Appendix D.

Time of Concentration:

The Time of Concentration (T_c) is the time required for runoff to flow from the most remote part of the drainage area to the point of interest. The T_c is composed of two components: initial time of concentration (T_i) and travel time (T_t). Methods of computation for T_i and T_t are discussed below. For the rational Method, the T_c at any point within the drainage area is given by:

$$T_c = T_i + T_t$$

The T_i is the time required for runoff to travel across the surface of the most remote subarea in the study. The initial time of concentration for the project for both the existing and proposed condition was found using Table 3-2 of the SDCHM *Maximum Overland Flow Length & Initial Time of Concentration*. The project is considered an “office professions/commercial,” land use and the sheet flow slope is 0.5%.

The T_t is the time required for the runoff to flow in a watercourse (e.g., swale, channel, gutter, pipe) or series of watercourses from the initial subarea to the point of interest. The travel time for the existing condition was determined using Figure 3-7 of the NRSC TR-55 Manual *Average Velocities for Estimating Travel Time for Shallow Concentrated Flow*. This method was used to determine the velocity of the storm water flowing over the existing paved surface.

Figure 3-7 of the SDCHM *Manning's Equation Nomograph* was used to determine the velocity of storm water traveling through the proposed PVC pipe system. This velocity was then used to determine the travel time for the proposed condition.

If the computed T_c is less than 5 minutes, use 5 minutes for computing the peak discharge.

2.3 Pipe Hydraulics

The proposed pipe network was analyzed with Autodesk's *Hydraflow Storm Sewers Extension* to confirm that they met the County's standards per section 3.2.1 of the San Diego County Hydraulic Design Manual (HDM):

- a. Storm drains conveying flow within the right-of-way of a public road, or across a public road (i.e., across the centerline of a roadway) shall have the capacity to convey the peak discharge from a 100-year design event.
- b. The conduit shall convey the design flow with the hydraulic grade line (HGL) maintaining a minimum freeboard of 1.0 ft below the ground surface or gutter flow line during the design event.

The pipe hydraulic calculations can be found in Appendix D.

2.5 Detention Calcs

Stage-storage-discharge calculations were performed using The Autodesk's *Hydraflow Hydrographs Extension*. The software allows users to create hydrographs and route them through detention structures.

The proposed 100-year peak flow hydrograph was created using the County's *Rick Rat Hydro* Program. Rational method data was inputted into the program and a hydrograph was generated. This hydrograph was manually inputted into *Hydraflow Hydrographs Extension* and routed through the bioretention basin. into the program using the software's rational method hydrograph generator.

Due to the County's conjunctive use requirement, the detention analysis must only consider volume and height above the hydromodification (HMP) volume. The HMP volume and depth are 2,165 cubic feet and 1.5 feet respectively. The HMP analysis was conducted using the County's *BMP Sizing Spreadsheet*, which can be viewed in the Project's SWQMP.

The 100-year peak flow attenuation calculations and vault dimensions can be found in Appendix E.

3.0 Results and Conclusion

3.1 Hydrology

The Project proposes an increase of 10,756sf of impervious area and a subsequent increase in 100-year peak flow runoff at discharge point 1 (POC-1) of 1.37cfs. A summary of these results by drainage area ID and discharge location can be viewed in Table 1 and Table 2 below.

Table 1: Hydrology Analysis - 100-year Storm Event							
Existing Condition							
Drainage Basin Name	Area (Sf)	Area (Ac)	C	Tc (min)	P6	I (in/hr)	Q100 (cfs)
EX-1	22,005	0.51	0.51	6.0	2.9	6.79	1.75
EX-2	855	0.02	0.79	5.0	2.9	7.64	0.12
Total (POC-1)							1.87
Proposed Condition							
PR-1	13,260	0.30	0.82	5.0	2.9	7.64	1.90
PR-2	8,710	0.20	0.81	5.0	2.9	7.64	1.23
PR-3	890	0.02	0.73	5.0	2.9	7.64	0.10
Total (POC-1)							3.25

Table 2: Summary Table			
Point of Compliance	Existing Q100 (cfs)	Proposed Q100 Unmitigated (cfs)	Proposed Q100 Mitigated (cfs)
POC-1	1.87	3.25	0.82

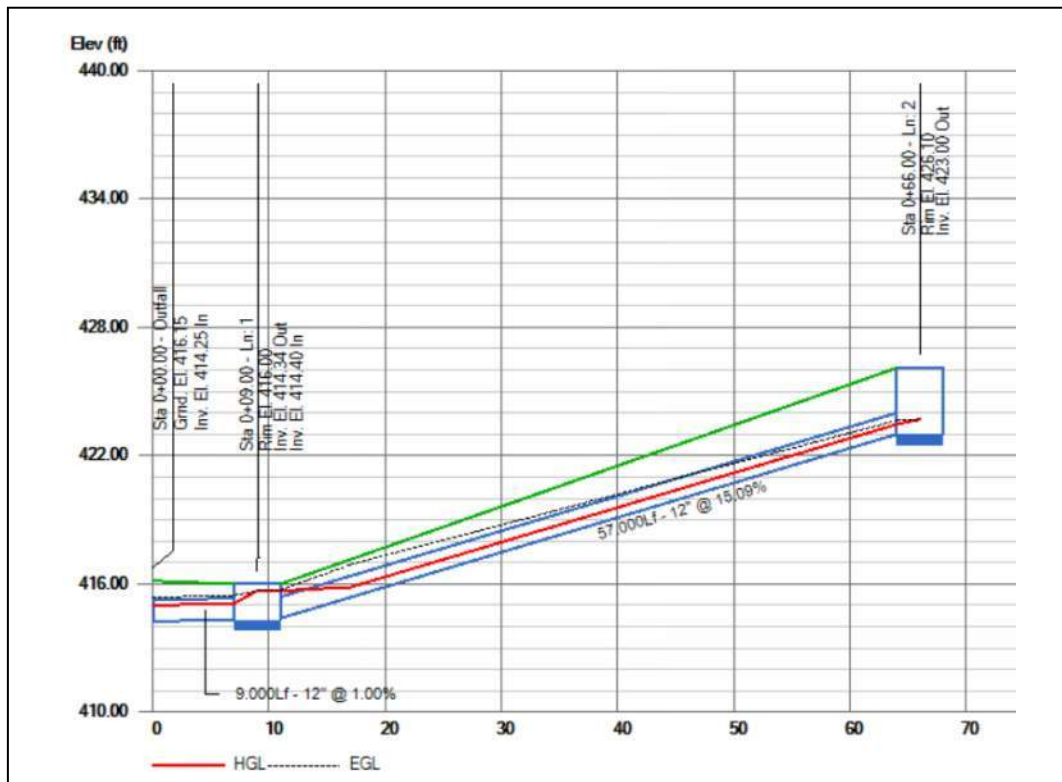


Figure 3: Storm Drain Profile – SD-1

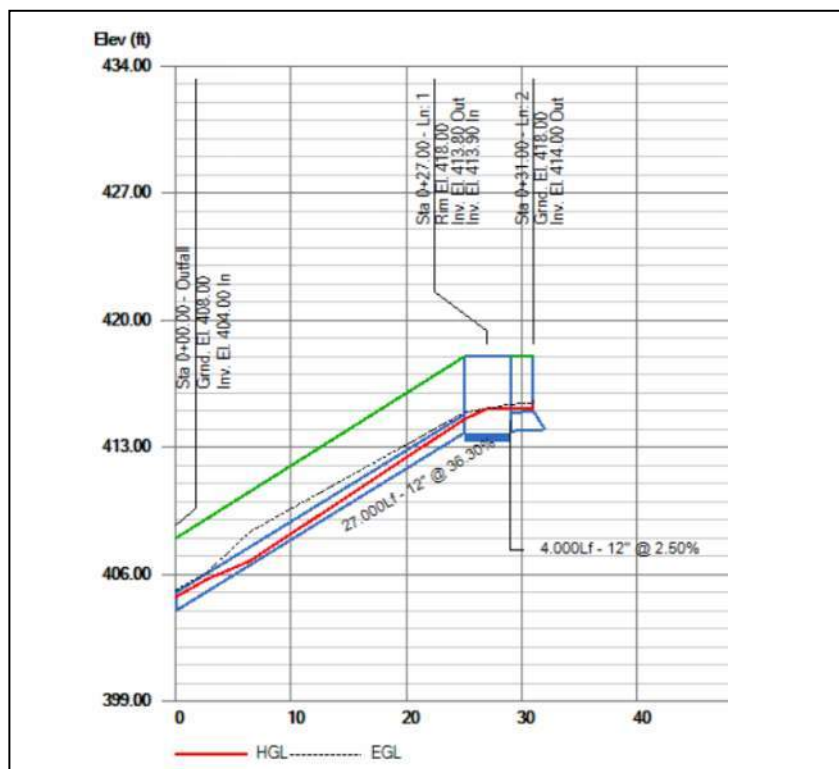


Figure 4: Storm Drain Profile – SD-2

3.3 Detention Analysis

The project increases the 100-year peak flow rate at the southwesterly discharge location (POC-1) from 1.87 cfs (existing) to 3.25 cfs (proposed); which is an increase of 1.38 cfs.

A 100-year flow attenuation structure was designed to attenuate the 100-year peak flow from sub-basins PR-1 & PR-2; from 3.13 cfs down to 0.72 cfs. The peak 100-year inflow hydrograph generated from *RickRat Hydro*, shows a total volume of 4,383 cubic feet. See Appendix E and figure 5 below.

The peak flow from PR-3 is smaller than the existing sub-basin (EX-2) and no attenuation is required. The flow from this sub-basin is allowed to discharge into the existing curb inlet within Mapview.

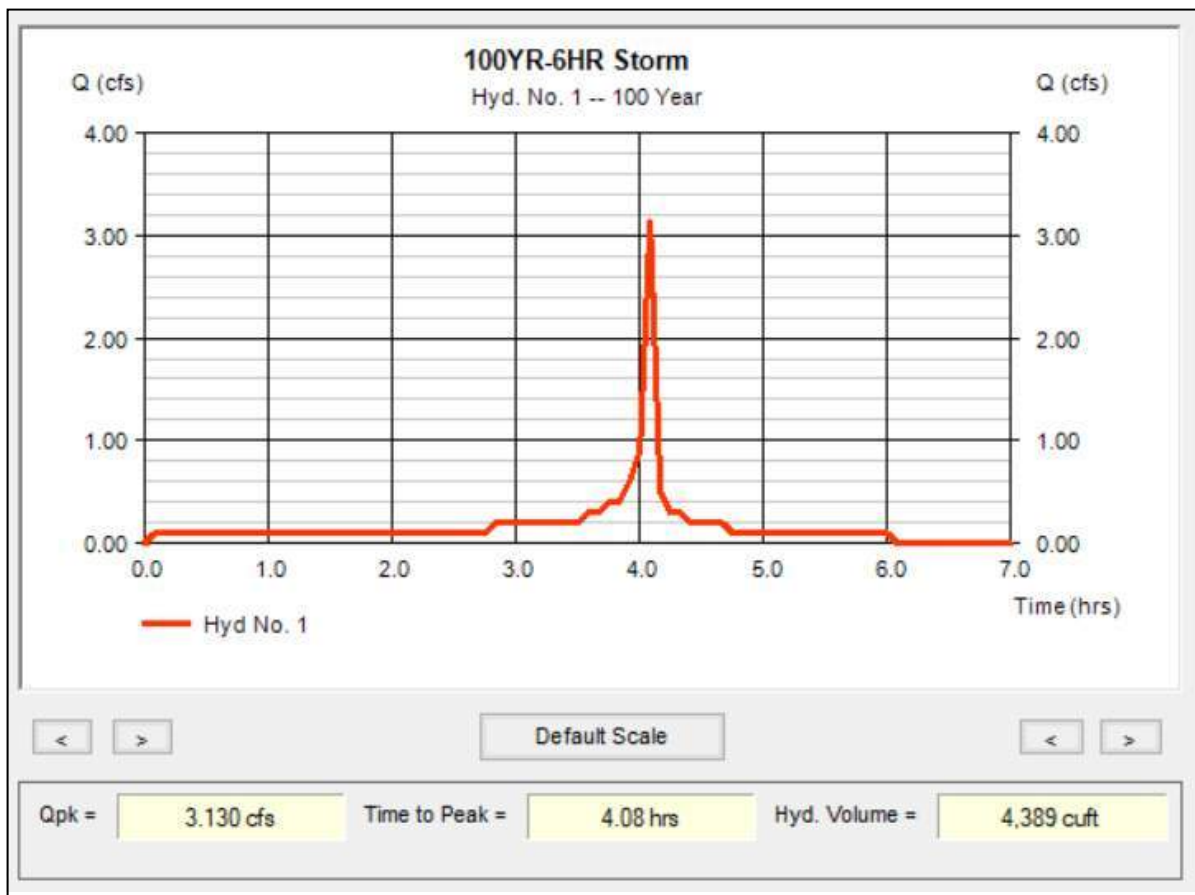


Figure 5: Unmitigated 100-year Inflow Hydrograph

Per the County's *Conjunctive Use Facilities for Stormwater Management and Flood Control* (January 1, 2021), the treatment and hydromodification ponding layer were excluded from the 100-year peak flow attenuation analysis. A stage-storage-discharge model was created using *Hydraflow Hydrograph Extensions*. The underground storage vaults' highest HMP depth was used as the datum for the "bottom," of the basin and all

volume/depth below this point was excluded from the analysis. This effectively isolated the volume and ponding layer for 100-year peak flow attenuation analysis.

The relevant elevations and design information for the proposed underground storage vault can be viewed in Table 3 and Figure 6 below.

Table 3: 100-year Flow Attenuation Design Information			
Approx. Elevation	Stage (ft)	Storage (cf)	Structure Note
414	0	0	Top of HMP Layer
415.5	1.5	3,100	T.G. of 24" x 24" riser
416	2	4,190	Top of Freeboard

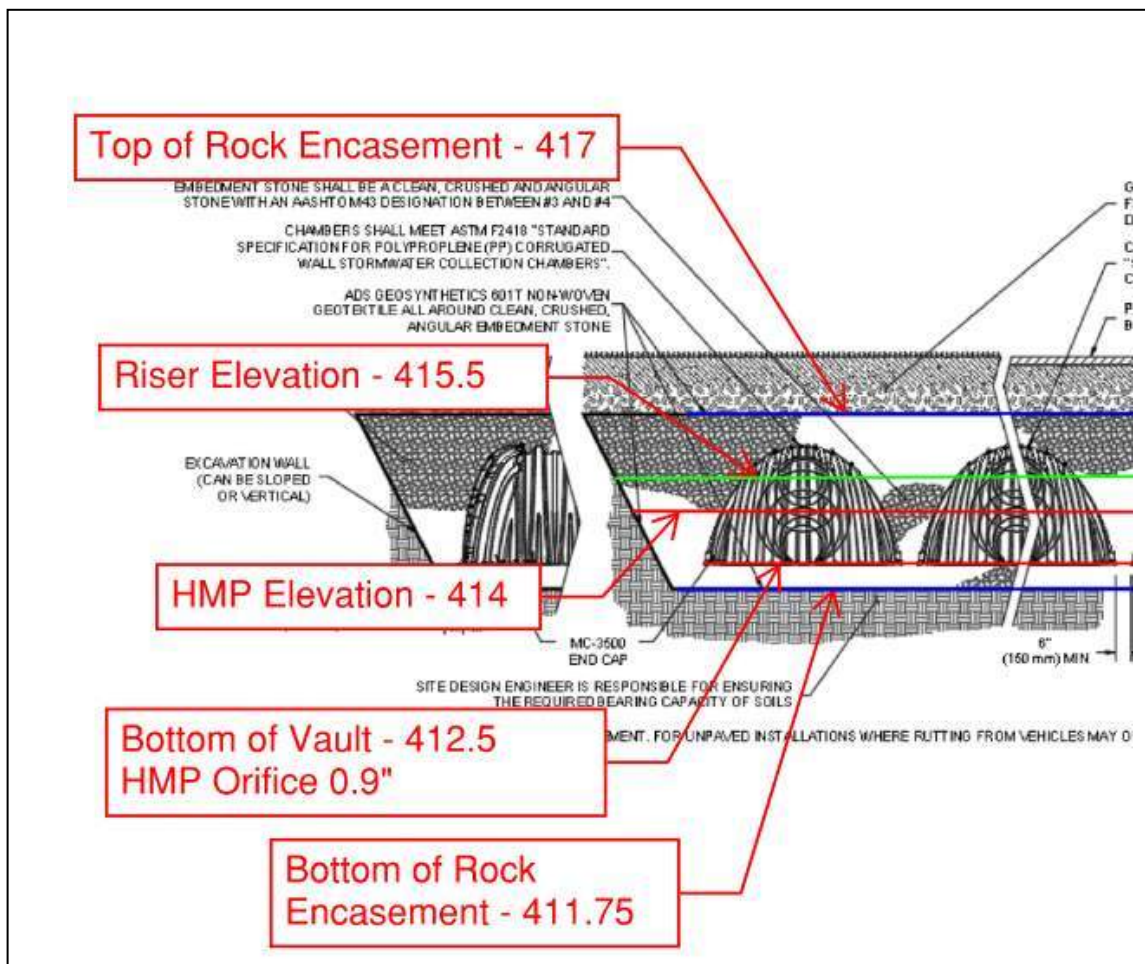


Figure 6: Bioretention - Conjunctive Use Detail

The inflow peak 100-year hydrograph (3.13 cfs) was routed through the bioretention basin and attenuated to a basin outflow of 0.70 cfs. This vault outflow combines with driveway flow from PR-3 to be 0.82 cfs, which is less than the existing condition flow rate of 1.87 cfs.

The results of the analysis can be viewed in Figure 7. Detailed *Hydraflow* outputs can be viewed in Appendix E.

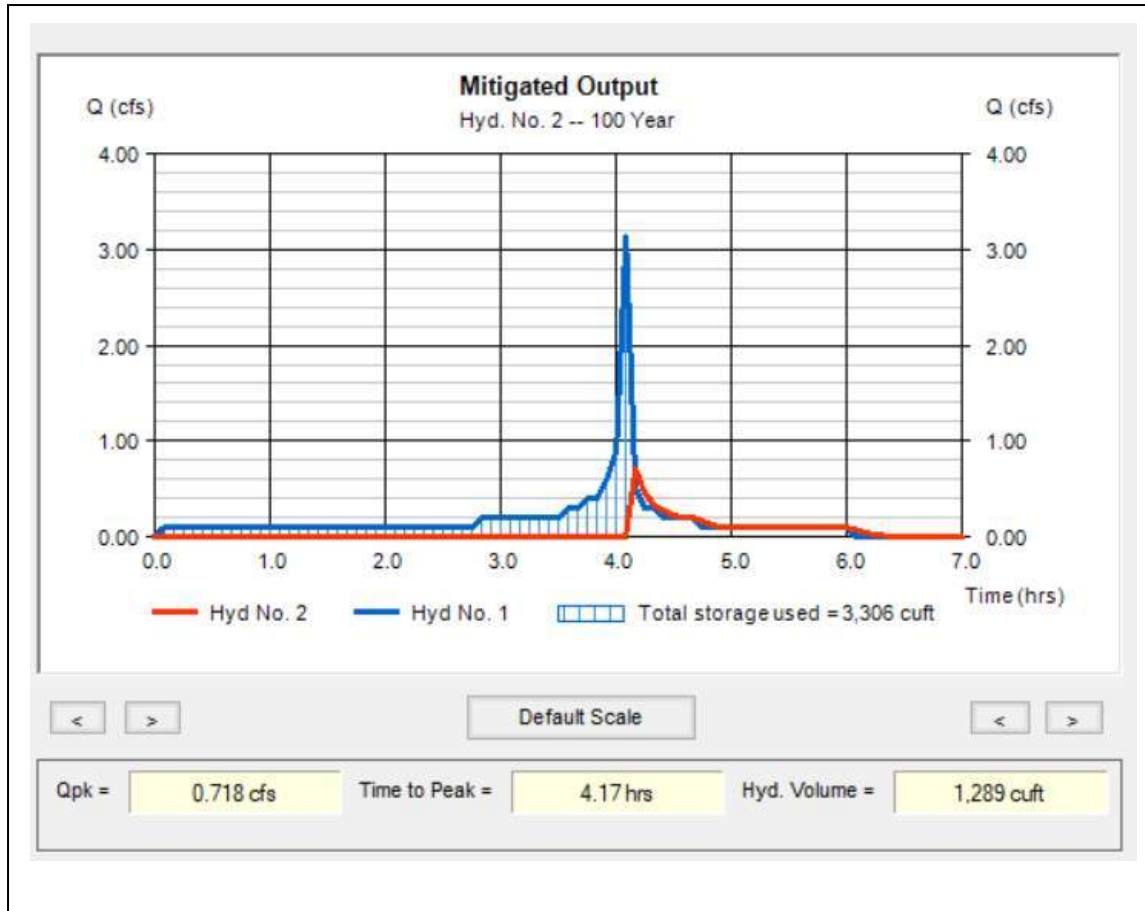


Figure 7: Mitigated 100-year Outflow Hydrograph

3.4 Conclusion

The project will increase the 100-year peak flow rate at the southeast corner of the site (POC-1). The proposed ADS vault system will detain the 100-year peak flow to a level below the existing condition. The project's proposed storm drain system is sized to convey the 100-year peak flow rate safely to the existing discharge point. The Project will not have any negative impacts on surrounding properties or the County's storm drain system.



County of San Diego
Stormwater Quality Management Plan (SWQMP)
Attachment 6: Documentation of DMAs without Structural BMPs

6.0 General Requirements

- Use this attachment to document all proposed (1) self-mitigating, (2) de minimis, and (3) self-retaining DMAs. Indicate under “DMA Compliance Option” below which design options will be used to satisfy structural performance requirements for one or more DMA.

DMA Compliance Option	Required Sub-attachments or Printouts	BMPDM Design Resources
☐ Self-mitigating	Sub-attachment 6.1	BMPDM Section 5.2.1
☐ De minimis	Sub-attachment 6.2	BMPDM Section 5.2.2
☒ Self-retaining ¹ <u>SSD-BMP Type(s)</u> ☐ Impervious Area Dispersion ☒ Tree Wells	- Sub-attachment 6.3 - DCV calculations from SSD-BMP tool - Dispersion Areas calculations from SSD-BMP tool - DCV calculations from SSD-BMP tool - Tree Well calculations from SSD-BMP tool	- BMPDM Section 5.2.3 (all options) - Fact Sheet SD-B (Appendix E.8) - Appendix I - Fact Sheet SD-A (Appendix E.7) - Appendix I

- Submit this cover page and all “Required Sub-attachments or Printouts” listed for each selected DMA compliance option.
- See the BMPDM sections and appendices listed under “BMPDM Design Resources” for additional explanation of design requirements. Each constructed feature must fully satisfy the requirements described in these resources, and any other guidance identified by the County.
- DMA Exhibits and Construction Plans:** DMAs, features, and BMPs identified and described in this attachment must be shown on DMA Exhibits and all applicable construction plans submitted for the project. See Attachment 2 for additional instruction on exhibits and plans.

¹ If “Self-retaining” is selected, also choose the types of Significant Site Design BMPs (SSD-BMPs) to be used. SSD-BMPs are Site Design BMPs that are sized and constructed to fully satisfy all applicable Structural Performance Standards for a DMA.

6.3.1 Self-retaining DMAs with Impervious Dispersion Areas

Impervious area dispersion (dispersion) refers to the practice of effectively disconnecting impervious areas from directly draining to the storm drain system by routing runoff from impervious areas such as rooftops (through downspout disconnection), walkways, and driveways onto the surface of adjacent pervious areas. The intent is to slow runoff discharges and reduce volumes. Dispersion with partial or full infiltration results in significant volume reduction by means of infiltration and evapotranspiration. When adequately sized, dispersion can also be used to satisfy both the pollutant control and hydromodification management structural performance standards for a DMA.

- Each self-retaining DMA with impervious area dispersion must fully satisfy all design requirements and restrictions described in BMPDM Section 5.2.3, Fact Sheet SD-B: Impervious Area Dispersion, and any other guidance or instruction identified by the County.
- Documentation of compliance with all applicable conditions must be submitted with this sub-attachment using the ***Summary Sheet for DMAs with Impervious Area Dispersion*** on the next page. One version of this Summary Sheet must be completed for each applicable DMA.
- Applicants are responsible to comply with all other applicable requirements, regardless of whether they are included in the summary sheet.
- The following applies if the dispersion area is **native soil** (SD-B in Appendix E):
 - For pollutant control only, the DMA is considered self-retaining if the impervious to pervious ratio is:
 - 2:1 when the pervious area is composed of Hydrologic Soil Group A
 - 1:1 when the pervious area is composed of Hydrologic Soil Group B
- The following applies if the dispersion area includes **amended soil** (SD-B in Appendix E):
 - DMAs using impervious area dispersion can be considered to meet both pollutant control and hydromodification flow control requirements if the impervious to pervious area ratio is 1:1 or less and all other design requirements of SD-B are satisfied, including 11 inches of amended soil.

6.3.2 Self-retaining DMAs with Tree Wells

Trees wells can provide a variety of benefits such as interception and increased infiltration of rainfall, reduced erosion, energy conservation, air quality improvement, and aesthetic enhancement. They can also be used to satisfy both pollutant control and hydromodification management performance standards for a DMA.

- Each self-retaining DMA with tree wells must fully satisfy all design requirements and restrictions described in BMPDM Section 5.2.3, Fact Sheet SD-A: Tree Wells, and any other guidance or instruction identified by the County.
- For pollutant control only, the DMA must retain the entire DCV. For hydromodification management, an additional volume must be retained in accordance with the sizing requirements presented in the DCV multiplier table in Fact Sheet SD-A.
- Documentation of compliance with applicable conditions must be submitted using the **Summary Sheet for Self-retaining DMAs with Tree Wells** on the next page. One version of this Summary Sheet must be completed for each applicable DMA.
- If both pollutant control and hydromodification standards apply, the soil depth of all tree wells in the DMA must be selected before determining the Required Retention Volume (RRV). Each tree well must be constructed to the selected depth. For pollutant control only, tree wells within a DMA may be constructed to different soil depths.
- In most cases tree wells must use Amended Soil per Fact Sheet SD-F. However, Structural Soil is required in some cases (e.g., placing the tree well next to a curb). See **Structural Requirements for Confined Tree Well Soil Volume** in Fact Sheet SD-A for additional explanation. If applicable, list the DMAs and Tree Well #s below for all tree wells requiring Structural Soil.

DMA #	Tree Wells Requiring Structural Soil (list Tree Well #s)
2	TW-1 (15' diameter tree canopy with 30" deep soil)

- The Design Capture Volume (DCV) must be known for each DMA in order to determine the volume to be mitigated by the tree wells. Instructions for DCV calculation are provided in BMPDM Appendix I.1. An automated version of Worksheet I.1 (Calculation of Design Capture Volume) is available at www.sandiegocounty.gov/stormwater under the Development Resources tab.

Summary Sheet for Self-retaining DMAs with Tree Wells

Attach Printouts from SSD-BMP tool below

- DCV calculations from SSD-BMP tool
- Tree Wells calculations from SSD-BMP tool

Automated Worksheet B.1: Calculation of Design Capture Volume (V2.0)

Category	#	Description	<i>ii</i>	Units
Standard Drainage Basin Inputs	1	Drainage Basin ID or Name	2	unitless
	2	85th Percentile 24-hr Storm Depth	0.50	inches
	3	Impervious Surfaces <u>Not Directed to Dispersion Area</u> (C=0.90)	570	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)	320	sq-ft
	9	Natural Type D Soil <u>Not Serving as Dispersion Area</u> (C=0.30)		sq-ft
Dispersion Area, Tree Well & Rain Barrel Inputs (Optional)	10	Does Tributary Incorporate Dispersion, Tree Wells, and/or Rain Barrels?	Yes	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	1	#
	19	Average Mature Tree Canopy Diameter	15	ft
	20	Number of Rain Barrels Proposed per SD-E		#
	21	Average Rain Barrel Size		gal
Initial Runoff Factor Calculation	22	Total Tributary Area	890	sq-ft
	23	Initial Runoff Factor for Standard Drainage Areas	0.66	unitless
	24	Initial Runoff Factor for Dispersed & Dispersion Areas	0.00	unitless
	25	Initial Weighted Runoff Factor	0.66	unitless
	26	Initial Design Capture Volume	24	cubic-feet
Dispersion Area Adjustments	27	Total Impervious Area Dispersed to Pervious Surface	0	sq-ft
	28	Total Pervious Dispersion Area	0	sq-ft
	29	Ratio of Dispersed Impervious Area to Pervious Dispersion Area	n/a	ratio
	30	Adjustment Factor for Dispersed & Dispersion Areas	1.00	ratio
	31	Runoff Factor After Dispersion Techniques	0.66	unitless
	32	Design Capture Volume After Dispersion Techniques	24	cubic-feet
Tree & Barrel Adjustments	33	Total Tree Well Volume Reduction	100	cubic-feet
	34	Total Rain Barrel Volume Reduction	0	cubic-feet
Results	35	Final Adjusted Runoff Factor	0.00	unitless
	36	Final Effective Tributary Area	0	sq-ft
	37	Initial Design Capture Volume Retained by Site Design Elements	100	cubic-feet
	38	Final Design Capture Volume Tributary to BMP	0	cubic-feet
No Warning Messages				

- c. Calculate the Required Retention Volume (DCV x DCV Multiplier). Calculate the RRV by multiplying the DCV by the DCV Multiplier. This is the volume of runoff that must be offset by the Tree Well Credit Volume. Repeat this process for each DMA.

Minimum Tree Well Soil Depth (inches)	Hydrologic Soil Group				DCV Multiplier
	A	B	C	D (Default)	
30"	1.60	2.20	2.50	2.90	
36"	1.80	2.47	2.83	3.17	
42"	2.00	2.73	3.17	3.43	
48"	2.20	3.00	3.50	3.70	

DCV Multiplier Table

$$\text{RRV: } 24 \text{ CF} \times 2.50 = 60 \text{ CF}$$

$$\text{Tree Credit Volume} = 100 \text{ CF}$$

2. **Determine how much volume you have.** The Tree Well Credit Volume is the volume of runoff retention in cubic feet per tree (ft³/tree) to be provided by each tree well (or group) in the DMA. Together retain a volume that is equal to or greater than the RRV for the DMA.

The volume credited for each tree well is based on the mature canopy diameter of the tree species selected. Any species listed below can be used in a tree well so long as it meets all other applicable restrictions and requirements for the project area. Native and drought tolerant species are required where feasible.

	Botanical Name	Common Name	Mature Height (ft)	Mature Canopy Diameter (ft)	Credit Volume per Tree (ft ³)
1	<i>Ceanothus 'Ray Hartman'</i>	California Mountain Lillac	30	10	40
2	<i>Pittosporum Phillyraeoides</i>	Willow Pittosporum	25	15	100
3	<i>Salix Lasiolepis</i>	Arroyo Willow	25		
4	<i>Adiantum</i>	...	20		



County of San Diego
Stormwater Quality Management Plan (SWQMP)
Attachment 7: Documentation of DMAs with Structural Pollutant Control BMPs

7.0 General Requirements

- Submit this cover page and all required Sub-attachments for all structural BMPs proposed for the project.
- See the BMPDM sections and appendices listed under “BMPDM Design Resources” in the table below for additional explanation of design requirements. Constructed features must fully satisfy the requirements described in these resources, and any other guidance identified by the County.
- PDPs subject to hydromodification management requirements must also implement structural BMPs for flow control for hydromodification management. Completion of SWQMP Attachment 8 is also required for these BMPs.
- DMA Exhibits and Construction Plans: DMAs, features, and BMPs identified and described in this attachment must be shown on DMA Exhibits and all applicable construction plans submitted for the project. See Attachment 2 for additional instruction on exhibits and plans.
- Structural BMP Certification. All structural BMPs documented this attachment and in Attachment 8 must be certified by a registered engineer in Sub-attachment 7.1.
- Structural BMP Verification. Structural BMP installation must be verified by the County at the completion of construction. Applicants must complete an Installation Verification Form (Attachment 10).

Sub-attachments (check all that are completed)	Requirement	BMPDM Design Resources
☒ 7.1: Preparer’s Certification	Required	• N/A
☒ 7.2: Structural BMP Strategy	Required	• BMPDM Sections 5.1., 5.3, 5.4, and Chapter 6 • BMPDM Appendix E (pages E-78 through E-210)
☒ 7.3: Structural BMP Checklist(s)	Required	
☒ 7.4: Stormwater Pollutant Control Worksheet Calculations	Required	• BMPDM Appendix B
☐ 7.5: Identification and Narrative of Receiving Water and Pollutants of Concern	Required if flow-thru BMPs are proposed	• N/A

7.1 Engineer of Work Certification for Structural BMPs

Project Name Mapleview Residential
Permit Application Number TBD

CERTIFICATION

I hereby declare that I am the Engineer in Responsible Charge of design of structural 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 County of San Diego BMP Design Manual, which is a design manual for compliance with local County of San Diego Watershed Protection Ordinance (Sections 67.801 et seq.) 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 County of San Diego has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the BMP Design Manual.

I certify that this PDP 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 County staff is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of structural storm water BMPs for this project, of my responsibilities for their design.

☒ In addition to the structural pollutant control BMPs described in this attachment, this certification applies to the Structural Hydromodification Management BMPs described in Attachment 8 (check if applicable).

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

Bashar G. Najar

Print Name

Najars Engineering

Company

9-19-2022

Date

Engineer's Seal:

7.2 Structural BMP Strategy

7.2.1 Narrative Strategy (Continue description on subsequent pages as necessary)

Describe the general strategy for structural BMP implementation at the project site. For pollutant control BMPs, your description must address the key points outlined in Section 5.1 of the BMP Design Manual, and the type of BMPs selected. For projects requiring hydromodification flow control BMPs, indicate whether pollutant control and flow control BMPs are integrated or separate.

A majority of the site is collected with a private storm drain system and conveyed to a proprietary biofiltration device (Modular Wetland System or similar).

Step 1: Determine DCV

Step 2: Determine Retention Requirements

Harvest & Use is not feasible as the structure is not a 9 story residential
Infiltration may be feasible pending Geotech review and infiltration testing
Required retention is 103 CF

Step 3: Determine BMP Performance

Standard bioretention/biofiltration basins are not applicable to this site due to the need for parking.

Proprietary biofiltration will be utilized instead.

C Value = 0.75

Area = 21,970 SF = 0.50 Ac

$Q = 0.50 \text{ Ac} \times 0.2 \text{ in/hr} \times 0.75 = 0.075 \text{ cfs}$

$0.075 \text{ cfs} \times 1.5 = 0.1125 \text{ cfs}$

A modular wetland system (or similar) will be sized at final design to accommodate 0.1125 cfs and provide for required retention of 103 CF.

- List and provide the information requested below for all pollutant control and hydromodification management BMPs proposed for the project.
- For each BMP listed, complete the Structural BMP Checklist on the next page. Copy the Checklist as many times as needed.

Copy and Paste table here for additional BMPs

County of San Diego SWQMP Sub-attachment 7.2 (Structural BMP Strategy) Page 7.2-2
Template Date: January 03, 2019 Preparation Date: 9/18/2022

7.3 Structural BMP Checklist (Complete once for each proposed structural BMP)

Structural BMP ID #	BF-1	Permit # and Sheet #	TBD
BMP Type			
Infiltration ☐ Infiltration basin (INF-1) ☐ Bioretention (INF-2) ☐ Permeable pavement (INF-3)		Harvest and Use ☐ Cistern (HU-1)	
Unlined Biofiltration ☐ Biofiltration with partial retention (PR-1)		Flow-thru Treatment (describe below) ☐ With prior lawful approval to meet earlier PDP requirements ☐ Pre-treatment/forebay for an onsite retention or biofiltration BMP ² ☐ With alternative compliance	
Lined Biofiltration ☐ Biofiltration (BF-1) ☐ Nutrient Sensitive Media Design (BF-2) ☒ Proprietary Biofiltration (BF-3)		Hydromodification Management³ ☐ Detention pond or vault ☐ Other (describe below)	
BMP Purpose			
☒ Pollutant control only ☐ Hydromodification control only ☐ Combined pollutant control and hydromodification		☐ Pre-treatment/forebay for another BMP ☐ Other (describe below)	
BMP Verification (See BMPDM Section 8.3)			
Provide name and contact information for the party responsible to sign BMP verification forms			
BMP Ownership and Maintenance (See BMPDM Section 7.3 and Attachment 11)			
BMP Maintenance Category	Cat. 1 ☐	Cat. 2 ☐	Cat. 3 ☐
			Cat. 4 ☐
Final owner of BMP	☒ HOA ☐ Property Owner ☐ County ☐ Other (describe):		
Maintenance of BMP into perpetuity	☒ HOA ☐ Property Owner ☐ County ☐ Other (describe):		
Discussion (As needed; Continue on subsequent pages as necessary)			

² Indicate which onsite retention or biofiltration BMP the pre-treatment/forebay serves.

³ Hydromodification Management BMPs must be accompanied by BMPs that provide pollutant control.

7.4 Storm Water Pollutant Control Worksheet Calculations

- Use this page as a cover sheet for the submittal of any required worksheets below.
- Complete the checklist to identify which BMPDM Appendix B (Storm Water Pollutant Control Hydrologic Calculations and Sizing Methods) worksheets are included with this attachment.
- See BMPDM Appendix B for an explanation of the applicability of individual worksheets and detailed guidance on their completion.

Worksheet	Requirement
☒ Worksheet B.1 Calculation of Design Capture Volume (DCV)	Required
☒ Worksheet B.2 Retention Requirements	Required
☒ Worksheet B.3 BMP Performance	Required
☐ Worksheet B.4 Major Maintenance Intervals for Reduced-sized BMPs	If applicable
☒ Other worksheets	As required

7.5 Identification and Narrative of Receiving Water and Pollutants of Concern

- Complete this sub-attachment *only if flow-thru treatment BMPs are implemented onsite* in lieu of retention or biofiltration BMPs. Unless excepted because of a Prior Lawful Approval⁴, PDPs must also participate in an alternative compliance program⁵.

A. General Description 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). Stormwater from the site is collected with a public storm drain system that discharges into an earthen channel that parallels the north side of Maple Street. This channel eventually discharges into the San Diego River and then the Pacific Ocean.			
B. Water Body Impairments and Priorities List any 303(d) impaired water bodies ⁶ 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 Diego River (Upper)	Nutrients, Heavy Metals, Oxygen Demanding Substance, Bacteria	Nutrients, Heavy Metals, Oxygen Demanding Substance, Bacteria	
San Diego River (Lower)			
C. Identification of Project Site Pollutants Identify pollutants expected from the project site based on all proposed use(s) of the site (see BMP Design Manual Appendix J.5)			
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	☐	☐	☐

⁴ See BMPDM Appendix L: Prior Lawful Approval Requirements and Guidance.

⁵ See SWQMP Attachment 12 (Alternative Compliance Projects) and BMPDM Appendix J (Offsite Alternative Compliance Requirements and Guidance).

⁶ The current list of Section 303(d) impaired water bodies can be found at:

https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml

Automated Worksheet B.1: Calculation of Design Capture Volume (V2.0)

Category	#	Description	<i>i</i>	Units
Standard Drainage Basin Inputs	1	Drainage Basin ID or Name	1	unitless
	2	85th Percentile 24-hr Storm Depth	0.50	inches
	3	Impervious Surfaces <u>Not Directed to Dispersion Area</u> (C=0.90)	16,940	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)	5,030	sq-ft
	9	Natural Type D Soil <u>Not Serving as Dispersion Area</u> (C=0.30)		sq-ft
Dispersion Area, Tree Well & Rain Barrel Inputs (Optional)	10	Does Tributary Incorporate Dispersion, Tree Wells, and/or Rain Barrels?	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		#
	19	Average Mature Tree Canopy Diameter		ft
	20	Number of Rain Barrels Proposed per SD-E		#
21	Average Rain Barrel Size		gal	
Initial Runoff Factor Calculation	22	Total Tributary Area	21,970	sq-ft
	23	Initial Runoff Factor for Standard Drainage Areas	0.75	unitless
	24	Initial Runoff Factor for Dispersed & Dispersion Areas	0.00	unitless
	25	Initial Weighted Runoff Factor	0.75	unitless
	26	Initial Design Capture Volume	687	cubic-feet
Dispersion Area Adjustments	27	Total Impervious Area Dispersed to Pervious Surface	0	sq-ft
	28	Total Pervious Dispersion Area	0	sq-ft
	29	Ratio of Dispersed Impervious Area to Pervious Dispersion Area	n/a	ratio
	30	Adjustment Factor for Dispersed & Dispersion Areas	1.00	ratio
	31	Runoff Factor After Dispersion Techniques	0.75	unitless
	32	Design Capture Volume After Dispersion Techniques	687	cubic-feet
Tree & Barrel Adjustments	33	Total Tree Well Volume Reduction	0	cubic-feet
	34	Total Rain Barrel Volume Reduction	0	cubic-feet
Results	35	Final Adjusted Runoff Factor	0.75	unitless
	36	Final Effective Tributary Area	16,478	sq-ft
	37	Initial Design Capture Volume Retained by Site Design Elements	0	cubic-feet
	38	Final Design Capture Volume Tributary to BMP	687	cubic-feet
No Warning Messages				

Automated Worksheet B.2: Retention Requirements (V2.0)

Category	#	Description	<i>i</i>	Units
Basic Analysis	1	Drainage Basin ID or Name	1	unitless
	2	85th Percentile Rainfall Depth	0.50	inches
	3	Predominant NRCS Soil Type Within BMP Location	C	unitless
	4	Is proposed BMP location Restricted or Unrestricted for Infiltration Activities?	Unrestricted	unitless
	5	Nature of Restriction	n/a	unitless
	6	Do Minimum Retention Requirements Apply to this Project?	Yes	yes/no
	7	Are Habitable Structures Greater than 9 Stories Proposed?	No	yes/no
Advanced Analysis	8	Has Geotechnical Engineer Performed an Infiltration Analysis?	No	yes/no
	9	Design Infiltration Rate Recommended by Geotechnical Engineer		in/hr
Result	10	Design Infiltration Rate Used To Determine Retention Requirements	0.100	in/hr
	11	Percent of Average Annual Runoff that Must be Retained within DMA	22.2%	percentage
	12	Fraction of DCV Requiring Retention	0.15	ratio
	13	Required Retention Volume	103	cubic-feet

No Warning Messages

Automated Worksheet B.3: BMP Performance (V2.0)

Category	#	Description	i	Units
BMP Inputs	1	Drainage Basin ID or Name	1	sq-ft
	2	Design Infiltration Rate Recommended	0.100	in/hr
	3	Design Capture Volume Tributary to BMP	687	cubic-feet
	4	Is BMP Vegetated or Unvegetated?	Unvegetated	unitless
	5	Is BMP Impermeably Lined or Unlined?	Lined	unitless
	6	Does BMP Have an Underdrain?	No Underdrain	unitless
	7	Does BMP Utilize Standard or Specialized Media?		unitless
	8	Provided Surface Area		sq-ft
	9	Provided Surface Ponding Depth		inches
	10	Provided Soil Media Thickness		inches
	11	Provided Gravel Thickness (Total Thickness)		inches
	12	Underdrain Offset		inches
	13	Diameter of Underdrain or Hydromod Orifice (Select Smallest)		inches
	14	Specialized Soil Media Filtration Rate		in/hr
	15	Specialized Soil Media Pore Space for Retention		unitless
	16	Specialized Soil Media Pore Space for Biofiltration		unitless
	17	Specialized Gravel Media Pore Space		unitless
Retention Calculations	18	Volume Infiltrated Over 6 Hour Storm	0	cubic-feet
	19	Ponding Pore Space Available for Retention	1.00	unitless
	20	Soil Media Pore Space Available for Retention	0.05	unitless
	21	Gravel Pore Space Available for Retention (Above Underdrain)	0.40	unitless
	22	Gravel Pore Space Available for Retention (Below Underdrain)	0.40	unitless
	23	Effective Retention Depth	0.00	inches
	24	Fraction of DCV Retained (Independent of Drawdown Time)	0.00	ratio
	25	Calculated Retention Storage Drawdown Time	0	hours
	26	Efficacy of Retention Processes	0.00	ratio
	27	Volume Retained by BMP (Considering Drawdown Time)	0	cubic-feet
Biofiltration Calculations	28	Design Capture Volume Remaining for Biofiltration	687	cubic-feet
	29	Max Hydromod Flow Rate through Underdrain	0.0000	cfs
	30	Max Soil Filtration Rate Allowed by Underdrain Orifice	0.00	in/hr
	31	Soil Media Filtration Rate per Specifications	5.00	in/hr
	32	Soil Media Filtration Rate to be used for Sizing	0.00	in/hr
	33	Depth Biofiltered Over 6 Hour Storm	0.00	inches
	34	Ponding Pore Space Available for Biofiltration	0.00	unitless
	35	Soil Media Pore Space Available for Biofiltration	0.35	unitless
	36	Gravel Pore Space Available for Biofiltration (Above Underdrain)	0.00	unitless
	37	Effective Depth of Biofiltration Storage	0.00	inches
	38	Drawdown Time for Surface Ponding	>120	hours
	39	Drawdown Time for Effective Biofiltration Depth	n/a	hours
	40	Total Depth Biofiltered	0.00	inches
	41	Option 1 - Biofilter 1.50 DCV: Target Volume	1,031	cubic-feet
	42	Option 1 - Provided Biofiltration Volume	0	cubic-feet
	43	Option 2 - Store 0.75 DCV: Target Volume	515	cubic-feet
	44	Option 2 - Provided Storage Volume	0	cubic-feet
	45	Portion of Biofiltration Performance Standard Satisfied	0.00	ratio
Result	46	Do Site Design Elements and BMPs Satisfy Annual Retention Requirements?	No	yes/no
	47	Overall Portion of Performance Standard Satisfied (BMP Efficacy Factor)	0.00	ratio
	48	Deficit of Effectively Treated Stormwater	-687	cubic-feet

Attention!

-Vegetated BMPs with surface ponding drawdown times over 24 hours must be certified by a landscape architect or agronomist. All BMPs must

-Minimum annual retention criteria are not satisfied for each individual drainage area. Implement additional site design elements, increase

-This BMP does not fully satisfy the performance standards for pollutant control for the drainage area.

Proprietary Biofiltration is proposed - flow through calcs have been used.

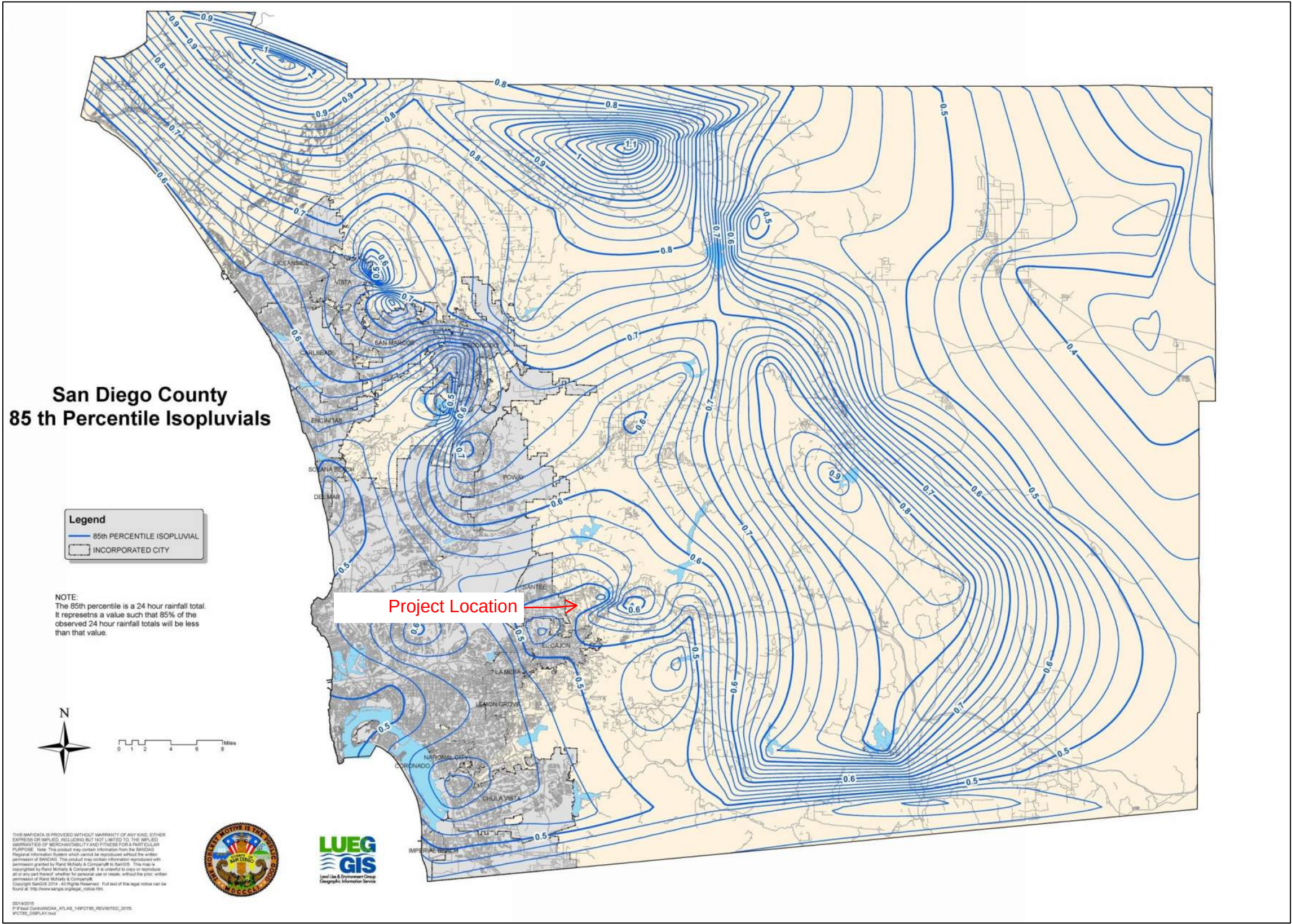


Figure B.1-1: 85th Percentile 24-hour Isopluvial Map



8.0 General Requirements

- Completion of this attachment is required for all PDPs subject to hydromodification management requirements (see PDP SWQMP Form Table 5). Do not submit this attachment if exempt from Hydromodification Management requirements. Document the PDP exemption in Attachment 9.
- Submit this cover page and all required Sub-attachments for all structural hydromodification management BMPs proposed for the project.
- Constructed features must fully satisfy the requirements described in applicable BMPDM sections and appendices, and any other guidance identified by the County.
- DMA Exhibits and Construction Plans: DMAs, features, and BMPs identified and described in this attachment must be shown on DMA Exhibits and all applicable construction plans submitted for the project. See Attachment 2 for additional instruction on exhibits and plans.
- Structural BMP Certification. All structural hydromodification management BMPs documented this attachment must be certified by a registered engineer in Attachment 7, Sub-attachment 7.1.
- Structural BMP Verification. BMP installation must be verified by the County at the completion of construction. Applicants must complete an Installation Verification Form (Attachment 10).

Sub-attachments (check all that are completed)
☒ 8.1: Flow Control Facility Design (required) ¹ Submit using ☒ the Sub-attachment 8.1 cover sheet provided, or ☐ as a separate stand-alone document labeled Sub-attachment 8.1.
☒ 8.2: Hydromodification Management Points of Compliance (required) Complete the table provided in Sub-attachment 8.2.
8.3: Geomorphic Assessment of Receiving Channels 1. Has a geomorphic assessment been performed for the receiving channel(s)? ☒ No, the low flow threshold is 0.1Q ₂ (default low flow threshold) ☐ Yes (provide the information below): Low flow threshold: ☐ 0.1Q ₂ ☐ 0.3Q ₂ ☐ 0.5Q ₂ Title: Date: Preparer: Submit using ☐ the Sub-attachment 8.3 cover sheet provided, or ☐ as a separate stand-alone document labeled Sub-attachment 8.3.
8.4: Vector Control Plan (required if BMPs will not drain in less than 96 hours) ☐ Included with this attachment ☒ Not required

¹ Including Structural BMP Drawdown Calculations and Overflow Design Summary. See BMPDM Chapter 6 and Appendix G for additional design guidance.

8.1 Flow Control Facility Design

Insert Flow Control Facility Design behind this cover page or submit as a separate stand-alone document labeled Sub-attachment 8.1.

DMA-1 HMP strategy uses an underground ADS vault to detain the stormwater for HMP purposes. The vault has been sized using the County BMP Sizing Spreadsheet (sizing factors). A copy of the spreadsheet is included under this Attachment

DMA-2 HMP strategy is to utilize a Tree Well (SD-A) to provide treatment and HMP mitigation. The DCV for the DMA is 24 cf and a multiplier of 2.50 for C soils with a 30" tree well depth for a total RRV of 60 cf. A tree with a 15' canopy diameter will provide 100 cf of volume credit.

8.2 Hydromodification Management Points of Compliance

- List and describe all points of compliance (POCs) for flow control for hydromodification management.
- For each POC, provide a POC identification name or number, and a receiving channel identification name or number correlating to the project's HMP Exhibit (see Attachment 2).

POC name or #	Channel name or #	POC Description
POC-1	Existing Manhole	Existing Manhole located just offsite of the southwesterly corner of the subject property.

BMP Sizing Spreadsheet V3.1

Project Name:	Keyvani Residence
Project Applicant:	Madjid Keyvani
Jurisdiction:	City of San Diego
Parcel (APN):	307-060-97-00
Hydrologic Unit:	906.1
Rain Gauge:	Oceanside
Total Project Area (sf):	13,325
Channel Susceptibility:	High

BMP Sizing Spreadsheet V3.1			
Project Name:	Keyvani Residence	Hydrologic Unit:	906.1
Project Applicant:	Madjid Keyvani	Rain Gauge:	Oceanside
Jurisdiction:	City of San Diego	Total Project Area:	13,325
Parcel (APN):	307-060-97-00	Low Flow Threshold:	0.1Q2
BMP Name:	Vault-1	BMP Type:	Cistern
BMP Native Soil Type:	D	BMP Infiltration Rate (in/hr):	NA

Areas Draining to BMP						HMP Sizing Factors	Minimum BMP Size
DMA Name	Area (sf)	Pre Project Soil Type	Pre-Project Slope	Post Project Surface Type	Area Weighted Runoff Factor (Table G.2-1) ¹	Volume	Volume (CF)
DMA 1 - Impervious	17,510	D	Moderate	Mixed	1.0	0.12	2101
DMA 1 - Landscape	5,350	D	Moderate	Landscape	0.1	0.12	64
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
BMP Tributary Area	22,860						
						Minimum BMP Size	2165
						Proposed BMP Size*	2165
Standard Cistern Depth (Overflow Elevation)						3.5	ft
Provided Cistern Depth (Overflow Elevation)						1.5	ft
Minimum Required Cistern Footprint						1444	CF

* Assumes standard configuration

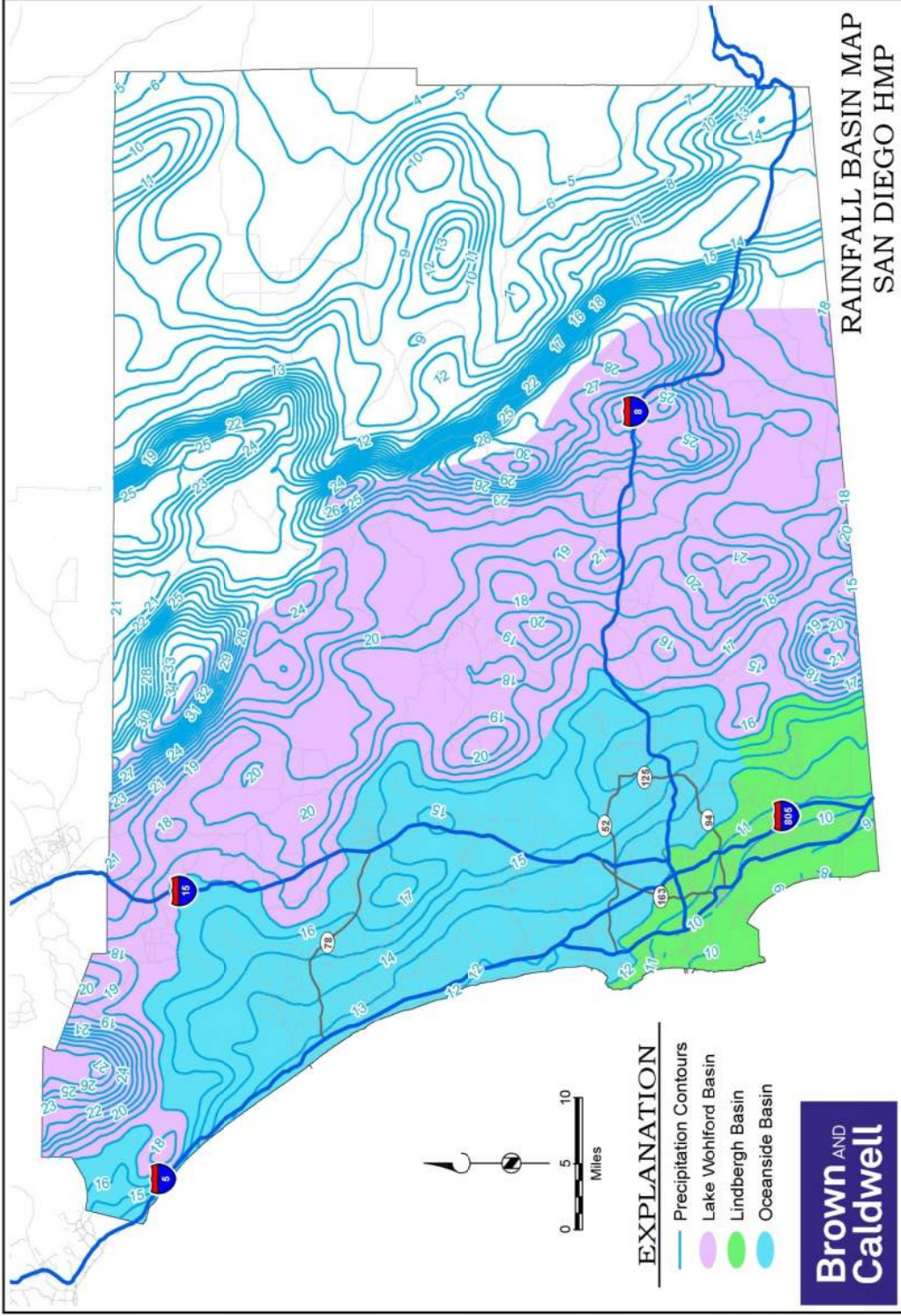
Notes:

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

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

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

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





County of San Diego Stormwater Quality Management Plan (SWQMP)
Attachment 9: Management of Critical Coarse Sediment Yield Areas

9.0 General Requirements

- Complete the table below to indicate which compliance pathway was selected in PDP SWQMP Table 6. Include the corresponding sub-attachment with your SWQMP submittal. Other sub-attachments do not need to be included.
- See the BMPDM sections and appendices listed under “BMPDM Design Resources” for additional explanation of design requirements. Constructed features must fully satisfy the requirements described in these resources, and any other guidance identified by the County.
- DMA Exhibits and Construction Plans: CCSYAs and applicable BMPs identified and described in this attachment must be shown on DMA Exhibits and all applicable construction plans submitted for the project. See Attachment 2 for additional instruction on exhibits and plans.

Sub-attachments	BMPDM Design Resources
☐ 9.1: Documentation of Hydromodification Management Exemption¹	Section 1.6
☒ 9.2: Watershed Management Area Analysis (WMAA) Mapping¹	Appendix H.1.1.2
☐ 9.3: Resource Protection Ordinance (RPO) Methods	Appendix H.1.1.1
☐ 9.4: No Net Impact Analysis	Appendix H.4

¹ The San Diego County Regional comprehensive WMAA mapping data can be found on the Project Clean Water website here: http://www.projectcleanwater.org/download/wmaa_attc_data/

9.2 Watershed Management Area Analysis (WMAA) Mapping (BMPDM Appendix H.1.1.2)

Watershed Management Area Analysis (WMAA) mapping is a simple way to screen projects to determine the presence of onsite or offsite upstream Potential Critical Coarse Sediment Yield Areas (PCCSYAs). The San Diego County Regional WMAA mapping data can be found on the Project Clean Water website here: http://www.projectcleanwater.org/download/wmaa_attc_data/.³

- Based on the WMAA map and the proposed project design, demonstrate below that both of the following conditions apply to the PDP:
 - (a) Less than 5% of PCCSYAs will be impacted (built on or obstructed) by the PDP, and
 - (b) All upstream offsite PCCSYAs will be bypassed (see BMPDM Appendix H.3).

A. Mapping Results -- At a minimum, show: (1) the project footprint, (2) areas of proposed development, (3) impacted onsite PCCSYAs, (4) offsite tributary areas⁴, and (5) bypass of upstream offsite PCCSYAs.



³ Applicants may refine initial mapping results using options identified in BMPDM Appendix H.1.2.

⁴ Tributary areas must be shown to demonstrate that upstream offsite PCCSYAs do not exist. If bypassing these areas, only the bypass should be shown.

B. Explanation -- Provide documentation as needed to demonstrate that (1) impacts to PCCSYAs are below 5%, and (2) upstream offsite PCCYSAs are effectively bypassed. Add pages as necessary.

There are no CCS on site and the CCSYA upstream of the subject lot is conveyed around the site by an existing brow ditch. No impacts to CCSYA.