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)

Priority Development Project

Project Information		Development type ☐ New development ☒ Redevelopment
Project Name	San Miguel Fire Station #18	
Project Address	1811 Suncrest Blvd, El Cajon, CA 92021	
Assessor's Parcel # (APN)	509-191-16-00	
Permit # / Record ID	PDS2024-LDGRMJ-30493 & PDS2024-LDPIIP-60151	
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	San Miguel Fire & Rescue	
Address	2850 Via Orange Way, Spring Valley, CA 91978	
Phone	(619) 670-0500	**Email:** info@sanmiguelfire.org

SWQMP Preparer		
Name	Jarrett J. Linn	
Company (if applicable)	Nasland Engineering	
Address	4740 Ruffner St, San Diego, CA 92111	
Phone	858-292-7770	**Email:** jarrettl@nasland.com
PE Number (if applicable)	84231	

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**

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	Required Documentation
☒ ***a. SWQMP addresses the entire project***	No additional documentation.
☐ ***b. SWQMP implements requirements of an earlier master SWQMP submittal***	Include a copy of the previous submittal as **Attachment 4**.
☐ ***c. First of multiple SWQMP submittals***	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.):

(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	01/26/24	Initial Submittal
2	06/06/24	Revised Submittal
3		
Final Design		
1		Initial Submittal
2		
3		
Plan Changes		
1		Initial Submittal
2		
3		

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 Attachments[1]: 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.

	Conserve natural features (SD-G)	Provide buffers around waterbodies (SD-H)
☐ Natural waterbodies	☐	☐
☐ Natural storage reservoirs & drainage corridors	☐	---
☐ Natural areas, soils, & vegetation (incl. trees)	☐	---

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.*

	a. Direct runoff to pervious areas (SD-B)	b. Construct surfaces from permeable materials (SD-I)	c. Minimize the size of impervious areas
☐ Streets and roads	☐	☐	☒ *Check this box to confirm that all impervious areas on the site will be minimized where feasible.*
☒ Sidewalks & walkways	☐	☐	
☒ Parking areas & lots	☐	☐	
☒ Driveways	☐	☐	*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.*
☐ Patios, decks, & courtyards	☐	☐	
☐ Hardcourt recreation areas	☐	☐	
☐ Other:	☐	☐	

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)**

If no BMPs are selected, explain why they are infeasible in Table 3.

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)**

If no BMPs are selected, explain why they are infeasible in Table 3.

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	Sidewalks & Walkways	BMPs are not implemented because all drainage on the site is directed to a concrete swale and then into a modular wetland system to be cleaned of pollutants.
BMP	SD-B & SD-I	
Feature	Parking areas & lots	BMPs are not implemented because all drainage on the site is directed to a concrete swale and then into a modular wetland system to be cleaned of pollutants.
BMP	SD-B & SD-I	
Feature	Driveways	BMPs are not implemented because all drainage on the site is directed to a concrete swale and then into a modular wetland system to be cleaned of pollutants.
BMP	SD-B & SD-I	
Feature	BMPs for rooftop areas	BMPs are not implemented because all drainage on the site is directed to a concrete swale and then into a modular wetland system to be cleaned of pollutants.
BMP		
Feature		
BMP		
Feature		
BMP		
Feature		
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 all impervious surfaces.

☒ **Redevelopment Projects:** Complete the calculations below. Select the applicable scenario based on the results.

a. Existing impervious area (ft²)	b. Impervious area created / replaced (ft²)	c. % Impervious created / replaced [(b/a)*100]
20,016	17,792	88.9

☒ *Scenario 1: c is 50% or more*: Performance standards apply to all impervious surfaces (a + b).

☐ *Scenario 2: c is less than 50%*: 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.*

	Att. 6 DMAs without Structural BMPs	Att. 7 DMAs w/ Structural Pollutant Control BMPs	Att. 8 DMAs w/ Structural Hydromod. BMPs	Att. 9 Critical Coarse Sediment Yield Areas	Att. 10 BMP Installation Verification Form	Att. 11 Maintenance Agreements/ Plans	Att. 12 Alternative Compliance Projects
☐Self-mitigating DMAs (BMPDM Section 5.2.1)	☐			☐			
☐De Minimis DMAs (BMPDM Section 5.2.2)	☐			☐			
☐Self-retaining DMAs (BMPDM Section 5.2.3)	☐			☐	☐		
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)				☐	☐	☐	☐

- *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 requirements**[6]

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 Select all applicable activities and at least one BMP for each.	References 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 Management[13]**		
☒ 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		
BMP		
Activity Type		
BMP		
Activity Type		
BMP		
Activity Type		
BMP		
Activity Type		
BMP		
Activity Type		
BMP		
Activity Type		
BMP		

ATTACHMENT G - STORMWATER QUALITY MANAGEMENT PLAN

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:	San Miguel Fire Station #18
Record ID (Permit) No(s):	PDS2024-LDGRMJ-30493 & PDS2024-LDPIIP-60151
Assessor's Parcel No(s):	509-191-16-00
Street Address (or Intersection):	1811 Suncrest Blvd
City, State, Zip:	El Cajon, CA, 92021

Part 2. Applicant / Project Proponent Information	
Name:	George Tockstein
Company:	San Miguel Fire & Rescue
Street Address:	2850 Via Orange Way
City, State, Zip:	Spring Valley, CA, 91978
Phone Number	(619) 670-0500
Email:	gtockstein@cox.net

Part 3. Required Information for All Development Projects

Ⓐ **1. Existing (pre-development) impervious surfaces (ft²)**	**2. Created or replaced impervious surfaces (ft²)**	**3. Total disturbed area (acres or ft²)**
20,016	17,792	23,410

Ⓑ ☐ 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)**
	N/A

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** ☐ a. Project is East of the Pacific/Salton Sea Divide ☐ b. None of the PDP criteria below applies	➔ **Standard *SWQMP Form***
☐ **Priority Development Project (PDP)** ☐ 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	➔ **PDP *SWQMP Form***
☐ **Green Streets PDP Exemption**[2]	➔ **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.

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 #:	**1**	
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	☒ Construction BMPs[2]	
☒ Group 1, 2, and 3 Features[1]	☒ Baseline source control BMPs	
☒ Group 4 Features	☒ Baseline source control BMPs	
B. Proposed Features and BMPs Specific to Individual SWQMP Attachments[3]		
☐ 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.

DMA	Area (AC)	Area (SF)	Soil Type C	Impervious (SF)	Impervious (%)	Pervious (SF)	Pervious (%)
E-1	1.01	43,917		0	0.0	43917.00	100.0

LEGEND

SOIL TYPE C, NATURAL VEGETATION, MODERATE SLOPE

DIRECTION OF FLOW

DRAINAGE MANAGEMENT AREA

DMA EXHIBIT DETAILS

UNDERLYING HYDROLOGIC SOIL GROUP C

APPROXIMATE DEPTH TO GROUNDWATER: 5 FEET

PRE DEVELOPMENT DMA EXHIBIT

SCALE: 1"=20"

20 0 20 40 60 80

SCALE 1" = 20'

REGISTERED PROFESSIONAL ENGINEER
JAMES JARRETT LINN
No. 84231
EXP. 9-30-25
CIVIL
STATE OF CALIFORNIA

Nasland
Civil Engineering
Surveying
Land Planning
121-138.1
T (858) 292-7770
4740 Ruffner Street
San Diego, CA 92111
nasland.com

COUNTY APPROVED CHANGES

NO.	DESCRIPTION:	APPROVED BY:	DATE:

BENCH MARK

DESCRIPTION: C/L MON ON RIOS CANYON ROAD
C/L MON BRASS DISC SET IN CONC. BELOW SURFACE.
LOCATION: C/L OF RIOS CANYON RD AND MOUNTAIN VIEW RD
RECORD FROM: RECORD OF SURVEY 11252
ELEVATION: 1377.47' DATUM: M.S.L.

PRIVATE CONTRACT

SHEET 1	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	2 SHEETS

PRE DEVELOPMENT DMA EXHIBIT

SAN MIGUEL FIRE STATION #18

CALIFORNIA COORDINATE INDEX 230-1809

APPROVED
DIRECTOR OF PUBLIC WORKS
BY:

ENGINEER OF WORK
JARRETT J. LINN R.C.E. 84231

GRADING PERMIT NO:

GRADING PLAN(S)

			PROPOSED			EXISTING							
DMA	Area (AC)	Area (SF)	BUILDING (SF)	Concrete (SF)	Landscape (SF)	AC (SF)	BUILDING (SF)	DG (SF)	Impervious (SF)	Impervious (%)	Pervious (SF)	Pervious (%)	Treatment Method
1-A	1.01	43,917	4,200	13,059	757	2,806	2,067	21,028	22,132	50.4	21785.00	49.6	BMP 1
1-B	0.11	4,693	0	40	4,653	0	0	0	40	0.9	4653.00	99.1	SELF MITIGATING

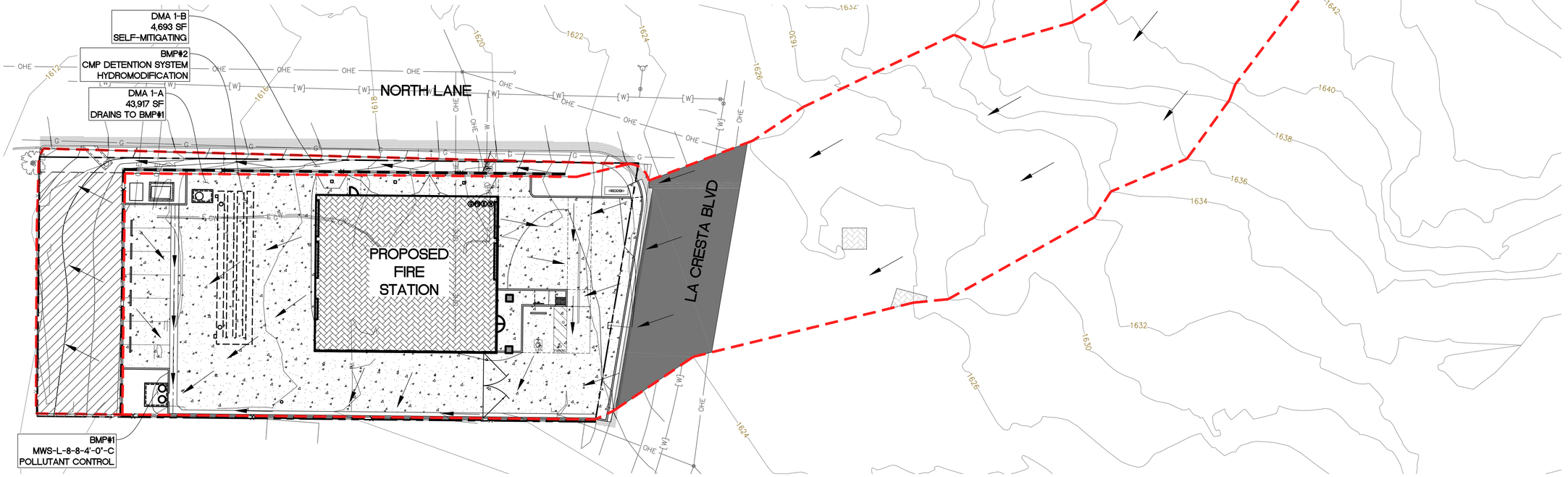
LEGEND

- CONCRETE PAVING
- ASPHALT PAVING
- ROOFING
- EXISTING ASPHALT PAVING
- EXISTING ROOFING
- DIRECTION OF FLOW
- DRAINAGE MANAGEMENT AREA

DMA EXHIBIT DETAILS

UNDERLYING HYDROLOGIC SOIL GROUP C

APPROXIMATE DEPTH TO GROUNDWATER: 5 FEET



POST DMA EXHIBIT

SCALE: 1"=20"

20 0 20 40 60 80

SCALE 1" = 20'

REGISTERED PROFESSIONAL ENGINEER
JAMES JARRETT LINN
No. 84231
EXP. 9-30-25
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San Diego, CA 92111
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COUNTY APPROVED CHANGES

NO.	DESCRIPTION:	APPROVED BY:	DATE:

BENCH MARK

DESCRIPTION: C/L MON ON RIOS CANYON ROAD
C/L MON BRASS DISC SET IN CONC. BELOW SURFACE.
LOCATION: C/L OF RIOS CANYON RD AND MOUNTAIN VIEW RD
RECORD FROM: RECORD OF SURVEY 11252
ELEVATION: 1377.47' DATUM: M.S.L.

PRIVATE CONTRACT

SHEET 2	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	2 SHEETS

POST DMA EXHIBIT

SAN MIGUEL FIRE STATION #18

CALIFORNIA COORDINATE INDEX 230-1809

APPROVED
DIRECTOR OF PUBLIC WORKS
BY:

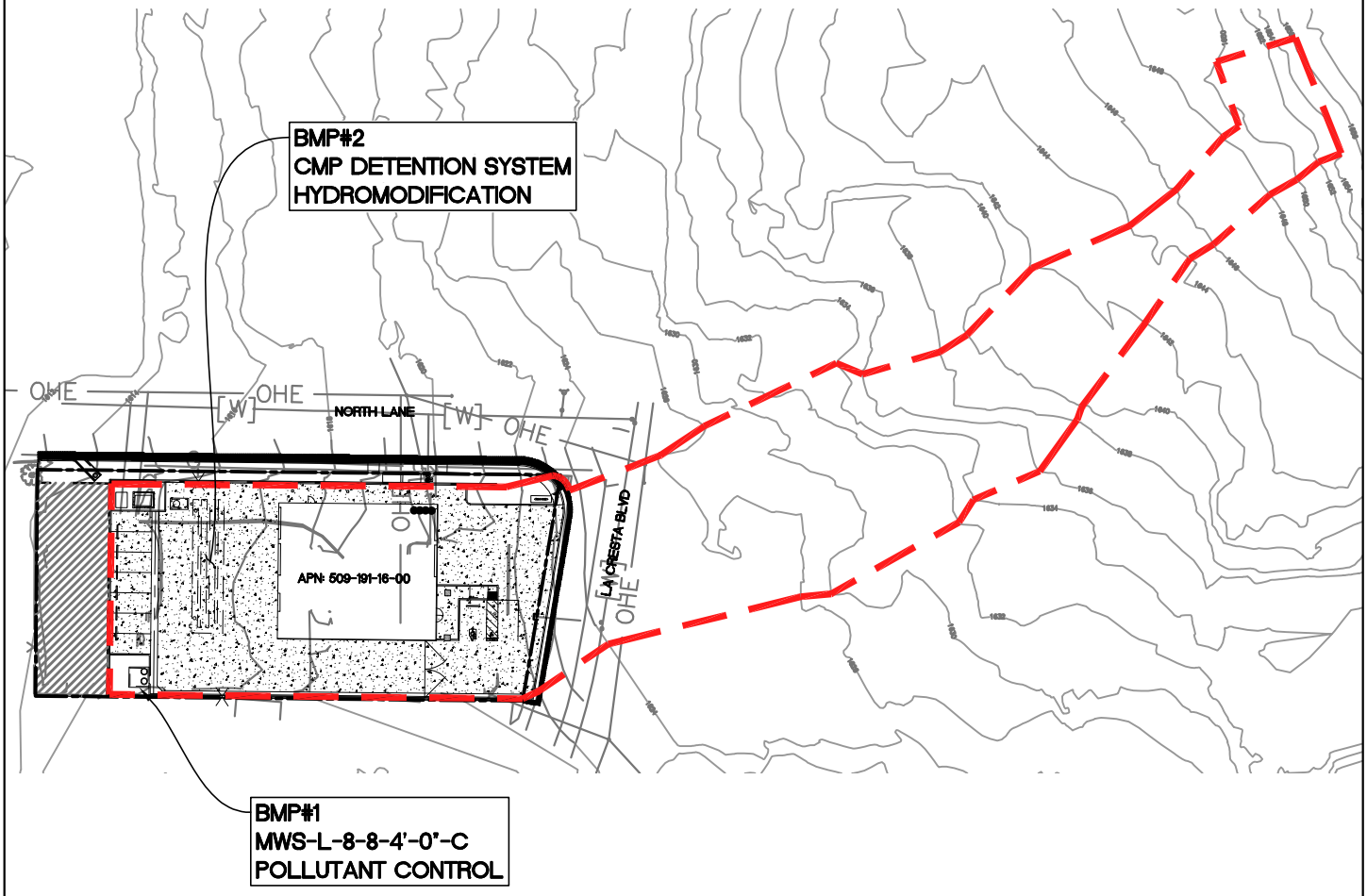
ENGINEER OF WORK
JARRETT J. LINN R.C.E. 84231

GRADING PERMIT NO:

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.

☒	All Mapbooks are attached
☐	All Mapbooks are in Attachment 11



BMP DMA MAPBOOK

SCALE: 1"=80"

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	**PDS2024-LDGRMJ-30438 & PDS2024-LDPIIP-60151**
Required Information[4]	
☒ 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

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 STUDY FOR San Miguel Fire Station #18
Prepared By: Nasland Engineering
Date: June 6th, 2024

  - ○ 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.

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]	• Sub-attachment 6.3	• BMPDM Section 5.2.3 (all options)
SSD-BMP Type(s)		
☐ **Impervious Area Dispersion**	• DCV calculations from SSD-BMP tool • Dispersion Areas calculations from SSD-BMP tool	• Fact Sheet SD-B (Appendix E.8) • Appendix I
☐ **Tree Wells**	• DCV calculations from SSD-BMP tool • Tree Well calculations from SSD-BMP tool	• 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.

6.1 Self-mitigating DMAs (complete this page once for ALL self-mitigating DMAs)

Self-mitigating DMAs consist of natural or landscaped areas that drain directly offsite or to the public storm drain system. These DMAs are excluded from DCV calculations.

- Provide the information requested below for each proposed self-mitigating DMA. Add rows or copy the table if additional entries are needed.

DMA #	*a. DMA Area (ft^2)*	*Incidental Impervious Area*		*Permit # and Sheet #*
		b. Size(ft^2)	*c. % (b/a*100)*	
1-B	4693	40	.9	PDS2024-LDGRMJ-30493 & Sheet 5

- "DMA #", "DMA Area", and "Permit # and Sheet #" are required for all DMAs listed.
- "Incidental Impervious Area" calculations are required only where applicable (see below).
- Each self-mitigating DMA must <u>fully</u> satisfy all design requirements and restrictions described in BMPDM Section 5.2.1 and any other guidance or instruction identified by the County. Check the boxes below to confirm that all required conditions are satisfied <u>for every DMA listed</u>.

☒ Each DMA is hydraulically separate from other DMAs that contain permanent storm water pollutant control BMPs.

<u>Natural and Landscaped Areas</u>

☒ Each DMA consists solely of natural or landscaped areas, except for incidental impervious areas (see below).

☒ Each area drains directly offsite or to the public storm drain system.

☒ Soils are undisturbed native topsoil, or disturbed soils that have been amended and aerated to promote water retention characteristics equivalent to undisturbed native topsoil.

☒ Vegetation is native and/or non-native/non-invasive drought tolerant species that do not require regular application of fertilizers and pesticides.

<u>Incidental Impervious Areas (if applicable; see above)</u>

Minor impervious areas may be permitted within the DMA if they satisfy the following criteria:

☒ They are not hydraulically connected to other impervious areas (unless it is a storm water conveyance system such as a brow ditch).

☒ They comprise less than 5% of the total DMA. Calculate the % incidental impervious area in the table above (c= b/a). DMAs are <u>not</u> self-mitigating if this area is 5% or greater.

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 San Miguel Fire Station #18
Permit Application Number PDS2024-LDGRMJ-30493 & PDS2024-LDPIIP-60151

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

Jarrett J. Linn
Print Name

Nasland Engineering
Company

June 6, 2024 Engineer's Seal:
Date

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.

The DMA area for how much area drains into the property was determined using the site topography performed and with SANGIS contours downloaded from online. Using this data, the runoff coefficient factor was determined based on the land type within the DMA. Using those two values and the Design rainfall Intensity for Flow-Thru BMPs, the flow through treatment worksheet (J.5-1) was filled out to determine the water quality flow rate which is 0.127 CFS. The 100 year storm flow rate to make sure the BMP chosen will handle the overflow. Using the isopluvial maps, DMA area, and runoff coefficients, the 100 year storm flow rate was calculated. A linear modular wetland system with curb outlet (MWS-L-8-8) was chosen based off the values calculated. Hydromodification was also required to mitigate the flow coming from the site. San Diego Hydrology Model Software (SDHM 3.1) was utilized to model and calculate the size of the Hydromodification system needed. Ultimately, Contech CMP pipe was chosen for its low depth needed and simplicity in its implementation.

7.2.2 Structural BMP Summary Table (Complete for all proposed structural BMPs)

- 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.

			Structural BMP Type							
BMP ID #	**DMA #**	**DMA Area (ft²)**	Harvest and Use	Infiltration	Unlined Biofiltration	Lined Biofiltration	Flow-thru treatment	Hydromodification Management [1]	Other	**Permit # and Sheet #**
1	1-A	45,229	☐	☐	☐	☐	☒	☐	☐	Sheet 5 & PDS2024-LDGRMJ-30493
2	1-A	45,229	☐	☐	☐	☐	☐	☒	☐	Sheet 5 & PDS2024-LDGRMJ-30493
			☐	☐	☐	☐	☐	☐	☐	
			☐	☐	☐	☐	☐	☐	☐	
			☐	☐	☐	☐	☐	☐	☐	
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			☐	☐	☐	☐	☐	☐	☐	
			☐	☐	☐	☐	☐	☐	☐	

Copy and Paste table here for additional BMPs

[1] Hydromodification Management BMPs must be accompanied by BMPs that provide pollutant control.

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

Structural BMP ID #	1	**Permit # and Sheet #**	PDS2024-LDGRMJ-30493 & Sheet 5

BMP Type

Infiltration
- ☐ Infiltration basin (INF-1)
- ☐ Bioretention (INF-2)
- ☐ Permeable pavement (INF-3)

Unlined Biofiltration
- ☐ Biofiltration with partial retention (PR-1)

Lined Biofiltration
- ☐ Biofiltration (BF-1)
- ☐ Nutrient Sensitive Media Design (BF-2)
- ☒ Proprietary Biofiltration (BF-3)

Harvest and Use
- ☐ Cistern (HU-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

Hydromodification Management[3]
- ☐ 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	Jarrett J. Linn Nasland Engineering Email: jarrettl@nasland.com

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.

Structural BMP ID # 2	**Permit # and Sheet #** Sheet 5

BMP Type

Infiltration
- ☐ Infiltration basin (INF-1)
- ☐ Bioretention (INF-2)
- ☐ Permeable pavement (INF-3)

Unlined Biofiltration
- ☐ Biofiltration with partial retention (PR-1)

Lined Biofiltration
- ☐ Biofiltration (BF-1)
- ☐ Nutrient Sensitive Media Design (BF-2)
- ☐ Proprietary Biofiltration (BF-3)

Harvest and Use
- ☐ Cistern (HU-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

Hydromodification Management[3]
- ☐ 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	Jarrett J. Linn Nasland Engineering Email: jarrettl@nasland.com

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)

Contech CMP Pipes will be used for Hydromodification Management

[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 Approval[4], PDPs must also participate in an alternative compliance program[5].

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).

Storm water surface flows from the project discharge location located in the northwest corner of the site down the asphalt street and into a series of catch basins and curb inlets. The stormwater then flows into culvert pipes that convey drainage into a creek that goes through south lane county park. After leaving the park, the creek drains through Dehesa valley and into the Sweetwater River. The Sweetwater River flows into the Sweetwater Reservoir and then continues and outlets into San Diego Bay via the Sweetwater River.

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
Middle Sweetwater River	Aluminum, Benthic Community Effects, Indicator Bacteria, Nitrogen, Phosphorus, Selenium, Total Dissolved Solids, Toxicity, Turbidity	Aluminum, Benthic Community Effects, Indicator Bacteria, Nitrogen, Phosphorus, Selenium, Total Dissolved Solids, Toxicity, Turbidity
Sweetwater Reservoir	Mercury, Dissolved Oxygen	Mercury, Dissolved Oxygen
Lower Sweetwater River	Benthic Community Effects, Bifenthrin, Chlorpyrifos, Indicator Bacteria, Nitrogen, Dissolved Oxygen, Phosphorus, Pyrethroids, Total Dissolved Solids, Toxicity	Benthic Community Effects, Bifenthrin, Chlorpyrifos, Indicator Bacteria, Nitrogen, Dissolved Oxygen, Phosphorus, Pyrethroids, Total Dissolved Solids, Toxicity
San Diego Bay	Mercury, PAHs (Polycyclic Aromatic Hydrocarbons), PCBs (Polychlorinated biphenyls)	Mercury, PAHs (Polycyclic Aromatic Hydrocarbons), PCBs (Polychlorinated biphenyls)

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)

[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

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	☒	☐	☐

Worksheet B.1 Calculation of Design Capture Volume

Category	#	Description	*i*	Units
Standard Drainage Basin Inputs	1	Drainage Basin ID or Name	1-A	unitless
	2	85th Percentile 24-hr Storm Depth	0.50	inches
	3	Impervious Surfaces Not Directed to Dispersion Area (C=0.90)	22,178	sq-ft
	4	Semi-Pervious Surfaces Not Serving as Dispersion Area (C=0.30)	21,739	sq-ft
	5	Engineered Pervious Surfaces Not Serving as Dispersion Area (C=0.10)	N/A	sq-ft
	6	Natural Type A Soil Not Serving as Dispersion Area (C=0.10)	N/A	sq-ft
	7	Natural Type B Soil Not Serving as Dispersion Area (C=0.14)	N/A	sq-ft
	8	Natural Type C Soil Not Serving as Dispersion Area (C=0.23)	N/A	sq-ft
	9	Natural Type D Soil Not Serving as Dispersion Area (C=0.30)	N/A	sq-ft
Dispersion Area, Tree Well & Rain Barrel Inputs (Optional)	10	Does Tributary Incorporate Dispersion, Tree Wells, and/or Rain Barrels?	N/A	yes/no
	11	Impervious Surfaces **Directed to Dispersion Area** per SD-B (Ci=0.90)	N/A	sq-ft
	12	Semi-Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.30)	N/A	sq-ft
	13	Engineered Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.10)	N/A	sq-ft
	14	Natural Type A Soil **Serving as Dispersion Area** per SD-B (Ci=0.10)	N/A	sq-ft
	15	Natural Type B Soil **Serving as Dispersion Area** per SD-B (Ci=0.14)	N/A	sq-ft
	16	Natural Type C Soil **Serving as Dispersion Area** per SD-B (Ci=0.23)	N/A	sq-ft
	17	Natural Type D Soil **Serving as Dispersion Area** per SD-B (Ci=0.30)	N/A	sq-ft
	18	Number of Tree Wells Proposed per SD-A	N/A	#
	19	Average Mature Tree Canopy Diameter	N/A	ft
	20	Number of Rain Barrels Proposed per SD-E	N/A	#
	21	Average Rain Barrel Size	N/A	gal
Initial Runoff Factor Calculation	22	Total Tributary Area	43,917	sq-ft
	23	Initial Runoff Factor for Standard Drainage Areas	0.60	unitless
	24	Initial Runoff Factor for Dispersed & Dispersion Areas	N/A	unitless
	25	Initial Weighted Runoff Factor	0.60	unitless
	26	Initial Design Capture Volume	1,098	cubic-feet
Dispersion Area Adjustments	27	Total Impervious Area Dispersed to Pervious Surface	N/A	sq-ft
	28	Total Pervious Dispersion Area	N/A	sq-ft
	29	Ratio of Dispersed Impervious Area to Pervious Dispersion Area	N/A	ratio
	30	Adjustment Factor for Dispersed & Dispersion Areas	N/A	ratio
	31	Runoff Factor After Dispersion Techniques	0.60	unitless
	32	Design Capture Volume After Dispersion Techniques	1,098	cubic-feet
Tree & Barrel Adjustments	33	Total Tree Well Volume Reduction	N/A	cubic-feet
	34	Total Rain Barrel Volume Reduction	N/A	cubic-feet
Results	35	Final Adjusted Runoff Factor	0.60	unitless
	36	Final Effective Tributary Area	43,917	sq-ft
	37	Initial Design Capture Volume Retained by Site Design Elements	1,098	cubic-feet
	38	Final Design Capture Volume Tributary to BMP	1,098	cubic-feet

B.2 Step 2 - Determine Retention Requirements

The second step in performing storm water pollutant control calculations is to determine the retention requirements for each drainage area. Retention requirements can be calculated through use of the automated Worksheet B.2 depicted below, or can be calculated manually by following Steps 2A through 2D presented in this section.

Worksheet B.2 Retention Requirements

Category	#	Description	*i*	Units
Basic Analysis	1	Drainage Basin ID or Name	1-A	uniless
	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?	RESTRICTED	unitless
	5	Nature of Restriction	NO INFILTRATION	unitless
	6	Do Minimum Retention Requirements Apply to this Project?	NO	yes/no
	7	Are Habitable Structures Greater than 9 Stories Proposed?	NO	yes/no
Advanced Analysis	8	Has Geotechnical Engineer Performed an Infiltration Analysis?	YES	yes/no
	9	Design Infiltration Rate Recommended by Geotechnical Engineer	0	in/hr
Result	10	Design Infiltration Rate Used To Determine Retention Requirements	0	in/hr
	11	Percent of Average Annual Runoff that Must be Retained within DMA	N/A	percentage
	12	Fraction of DCV Requiring Retention	N/A	ratio
	13	Required Retention Volume	0	cubic-feet

Worksheet B.2 Line Item Notes

1. User input from stormwater plans.
2. User input from BMPDM Figure B.1-1.
3. User input from stormwater plans.
4. User input from BMPDM Section B.2.2.
5. User input from BMPDM Section B.2.2.
6. Default value of "Yes" for Priority Development Projects.
7. User input from BMPDM Section B.2.1. If "Yes", separate capture and use evaluation must be provided.
8. User input from BMPDM Section B.2.3. If "Yes", geotechnical report excerpts must be provided.
9. User input from BMPDM Section B.2.3.
10. Rates of 0.300, 0.200, 0.100, 0.025, or 0.000 for A, B, C, D, or Restricted soils respectively. Or rate from Geotechnical Engineer.
11. Determined Per BMPDM Section B.2.4.
12. Determined Per BMPDM Section B.2.4.
13. Determined Per BMPDM Section B.2.4.

B.2.1 Step 2A - Capture and Use Analysis

Projects that <u>do not</u> propose habitable structures over 9 stories tall may skip this step (proceed to Step 2B).

Projects that propose habitable structures over 9 stories tall are required to perform a capture and use analysis to identify whether the DCV from the project site can be utilized for onsite toilet flushing and/or irrigation within 36 hours of the storm. If the results indicate capture and use is possible, then

Appendix B: Storm Water Pollutant Control Hydrologic Calculations and Sizing Methods for Structural BMPs

Worksheet B.3: BMP Performance

Category	#	Description	*i*	Units
BMP Inputs	1	Drainage Basin ID or Name	1-A	sq-ft
	2	Design Infiltration Rate Recommended	N/A	in/hr
	3	Design Capture Volume Tributary to BMP	1,098	cubic-feet
	4	Is BMP Vegetated or Unvegetated?	VEGETATED	unitless
	5	Is BMP Impermeably Lined or Unlined?	LINED	unitless
	6	Does BMP Have an Underdrain?	N/A	unitless
	7	Does BMP Utilize Standard or Specialized Media?	SPECIALIZED	unitless
	8	Provided Surface Area	N/A	sq-ft
	9	Provided Surface Ponding Depth	N/A	inches
	10	Provided Soil Media Thickness	N/A	inches
	11	Provided Gravel Thickness (Total Thickness)	N/A	inches
	12	Underdrain Offset	N/A	inches
	13	Diameter of Underdrain or Hydromod Orifice (Select Smallest)	N/A	inches
	14	Specialized Soil Media Filtration Rate	N/A	in/hr
	15	Specialized Soil Media Pore Space for Retention	N/A	unitless
	16	Specialized Soil Media Pore Space for Biofiltration	N/A	unitless
	17	Specialized Gravel Media Pore Space	N/A	unitless
Retention Calculations	18	Volume Infiltrated Over 6 Hour Storm	N/A	cubic-feet
	19	Ponding Pore Space Available for Retention	N/A	unitless
	20	Soil Media Pore Space Available for Retention	N/A	unitless
	21	Gravel Pore Space Available for Retention (Above Underdrain)	N/A	unitless
	22	Gravel Pore Space Available for Retention (Below Underdrain)	N/A	unitless
	23	Effective Retention Depth	N/A	inches
	24	Fraction of DCV Retained (Independent of Drawdown Time)	N/A	ratio
	25	Calculated Retention Storage Drawdown Time	N/A	hours
	26	Efficacy of Retention Processes	N/A	ratio
	27	Volume Retained by BMP (Considering Drawdown Time)	N/A	ratio
	28	Design Capture Volume Remaining for Biofiltration	N/A	cubic-feet
Biofiltration Calculations	29	Max Hydromod Flow Rate through Underdrain	N/A	CFS
	30	Max Soil Filtration Rate Allowed by Underdrain Orifice	N/A	in/hr
	31	Soil Media Filtration Rate per Specifications	N/A	in/hr
	32	Soil Media Filtration Rate to be used for Sizing	N/A	in/hr
	33	Depth Biofiltered Over 6 Hour Storm	N/A	inches
	34	Ponding Pore Space Available for Biofiltration	N/A	unitless
	35	Soil Media Pore Space Available for Biofiltration	N/A	unitless
	36	Gravel Pore Space Available for Biofiltration (Above Underdrain)	N/A	unitless
	37	Effective Depth of Biofiltration Storage	N/A	inches
	38	Drawdown Time for Surface Ponding	N/A	hours
	39	Drawdown Time for Effective Biofiltration Depth	N/A	hours
	40	Total Depth Biofiltered	N/A	inches
	41	Option 1 - Biofilter 1.50 DCV: Target Volume	N/A	cubic-feet
	42	Option 1 - Provided Biofiltration Volume	N/A	cubic-feet
	43	Option 2 - Store 0.75 DCV: Target Volume	N/A	cubic-feet
	44	Option 2 - Provided Storage Volume	N/A	cubic-feet
	45	Portion of Biofiltration Performance Standard Satisfied	N/A	ratio
Result	46	Do Site Design Elements and BMPs Satisfy Annual Retention Requirements?	N/A	yes/no
	47	Overall Portion of Performance Standard Satisfied (BMP Efficacy Factor)	N/A	ratio
	48	**Deficit of Effectively Treated Stormwater**	N/A	cubic-feet

Worksheet J.5-1: Flow-Thru Design Flows

Category	#	Description	Value	Units
Flow-Thru BMP Inputs	0	Drainage Basin ID or Name	1-A	unitless
	1	Total Tributary Area	43,917	sq-ft
	2	Final Adjusted Runoff Factor	0.60	unitless
	3	Design Capture Volume	1,098	cubic-feet
	4	Volume Effectively Retained and/or Biofiltered	N/A	cubic-feet
	5	Deficit of Effectively Treated Stormwater Requiring Flow-Thru Treatment	1,098	cubic-feet
	6	Maximum Rated Water Quality Flow Rate of Proposed BMP		CFS
Flow Rate Calculations	7	Adjustment Factor	1	unitless
	8	Design Rainfall Intensity for Flow-Thru BMPs	0.20	in/hr
	9	Water Quality Flow Rate Requiring Flow-Thru Treatment	0.121	CFS
Result	10	Is Flow-Thru BMP Adequately Sized?	YES	unitless

Safety Factor Adjusted Water Quality Flow Rate = 0.121 x 1.5 = .182 cfs

Worksheet J.5-1 General Notes:

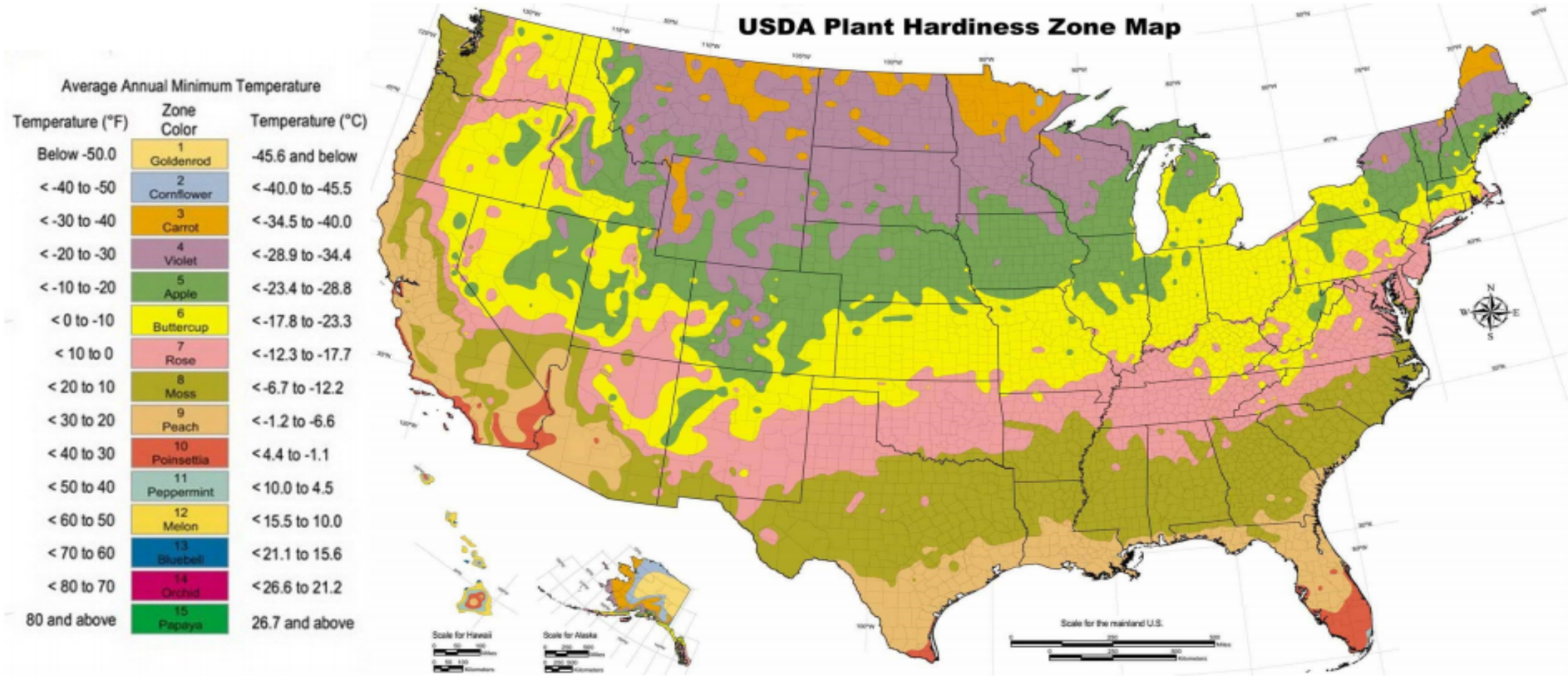
A. Applicants may use this worksheet to size flow-thru BMPs. Applicants must provide inputs for yellow shaded cells and calculate appropriate values for unshaded cells. Note that applicants proposing on-site flow-thru BMPs must also implement an offsite alternative compliance project to offset the deficit of effectively treated stormwater volume. An automated version of this worksheet is available for download at the County of San Diego Department of Public Works website.

Worksheet J.5-1 Line Item Notes:

0. Populated per Worksheet B.1-1.
1. Populated per Worksheet B.1-1.
2. Populated per Worksheet B.1-1.
3. Populated per Worksheet B.2-1.
4. Populated per Retention and/or Biofiltration treatment determined in Worksheets B.3-1 through B.5-3.
5. Line 4 - Line 3
6. User input per manufacturer's specification sheet.
7. -Line 5 / Line 3
8. Default value of 0.20 inches per hour
9. (Line 1/43,560) x Line 2 x Line 7 x Line 8
10. If Line 6 ≥ Line 9 then "Yes". If Line 6 < Line 9 then "No".

Modular Wetland System - Linear® Plants

Average Annual Minimum Temperature Table & Map



Most Commonly Used Plants

We recommend plants that have deep roots and are adapted to course soil textures, so we have compiled this “most commonly used” species list for your convenience.

California Oatgrass - *Danthia californica*
Coastal Strawberry - *Fragaria chiloensis*
Idaho Fescue - *Festuca idahoensis*
Pacific Anemone - *Anemone multifidi*
Penstemon - *Penstemon spp*
Phlox - *Phlox spp.*
Sandberg Bluegrass - *Poa secunda*
Sedum - *Sedum spp.*
Side Oats Grama - *Bouteloua curtipendula*
Western Giant Hyssop - *Agastache occidentalis*
Yellow-Eyed Grass - *Sisyrinchium idahoense*
Yarrow - *Achillea Millefolium*

Modular Wetland System - Linear® Plants

Common Name *Latin Name*	USDA Hardiness Zones
Adam's needle, bear grass, weak-leaf yucca *Yucca filamentosa*	5-10
African iris, fortnight lily, morea iris *Dietes iridioides*	8-10
big bluestem, turkey foot bluestem *Andropogon gerardii*	3-9
brome hummock sedge *carex bromoides*	2-10
canna, canna tropicana, canna lilly *Canna X generalis*	8-11
Cape lily, Powell's crinum lily *Crinum X powellii*	6-11
cattail, reed-mace *Typha latifolia*	2-11
daylily *Hemerocallis hybrids*	2-10
drooping sedge, weeping sedge *Carex pendula*	5-9
feather grass, Mexican needle grass *Nassella tenuissima*	7-11
giant wild rye *Leymus condensatus*	3-11
Gulf muhlygrass, mist grass, hairawn muhly *Muhlenbergia capillaris*	5-10
horsetail, scouring rush, E. prealtum *Equisetum hyemale*	3-11
indiangrass, yellow indiangrass *Sorghastrum nutans*	3-9
Japanese blood grass, cogongrass, kunai *Imperata cylindrica*	5-9
Japanese sweet flag, Japanese rush *Acorus gramineus*	6-9
Joe Pye weed, queen-of-the-meadow *Eupatorium fistulosum*	3-9
lavender *Lavandula L*	5-10
lemongrass, oil grass *Cymbopogon citratus*	10-11
Lily-of-the-Nile, African Lily, African Blue Lily *Agapanthus spp*	8-11
Lindheimer's muhlygrass, blue muhlygrass *Muhlenbergia lindheimeri*	7-11
little bluestern, seacoast bluestem *Schizachyrium scoparium*	3-9
Oshima sedge, Oshima kan sedge *Carex oshimensis*	5-9
oxeye sunflower, false sunflower *Heliopsis helianthoides*	2-9
palm sedge *Carex phyllocephala*	7-10
papyrus, Egyptian papyrus, bulrushes *Cyperus papyrus*	9-11
purple coneflower *Echinacea purpurea*	3-9
rose campion, mullein pink, Dusty Miller *Lychnis coronaria*	5-8
Russian sage *Perovskia atriplicifolia*	5-9
sea oats, Chasmanthium paniculatum *Uniola paniculata*	6-10
society garlic, pink agapanthus *Tulbaghia violacea*	7-10
summer snowflake, giant snowflake *Leucojum aestivum*	4-9
switchgrass, prairie switchgrass *Panicum virgatum*	4-9
umbrella sedge, umbrella plant *Cyperus involucratus*	8-11
Vetiver Grass *Vetiveria zizanioides (L.) Nash*	5-11
whirling butterflies, white gaura *Gaura lindheimer*	5-10

For further plant information:

https://biocleanenvironmental.com/technical-downloads?cat=biofiltration&term=modular-wetlands-linear&tech=design-tools,plant-lists

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 0.1Q2 (default low flow threshold)
☐ Yes (provide the information below): Low flow threshold: ☐ 0.1Q2 ☐ 0.3Q2 ☐ 0.5Q2
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.

SDHM 3.1

PROJECT REPORT

General Model Information

Project Name:	SAN MIGUEL FIRE STATION #18 - HYDROMOD VAULT
Site Name:	SAN MIGUEL FIRE STATION #18
Site Address:	1811 SUNCREST BLVD
City:	EL CAJON
Report Date:	5/1/2024
Gage:	BONITA
Data Start:	1971/10/01 00:00
Data End:	2004/09/30 00:00
Timestep:	Hourly
Precip Scale:	1.000
Version Date:	2020/04/07

POC Thresholds

Low Flow Threshold for POC1:	10 Percent of the 2 Year
High Flow Threshold for POC1:	10 Year

Landuse Basin Data

Predeveloped Land Use

EX1

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C,NatVeg,Moderate	1.01
Pervious Total	1.01
Impervious Land Use	acre
Impervious Total	0
Basin Total	1.01

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

P1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C,Urban,Flat	0.02
C,NatVeg,Moderate	0.48
Pervious Total	0.5

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.46
IMPERVIOUS-MOD	0.05
Impervious Total	0.51
Basin Total	1.01

Element Flows To:

Surface	Interflow	Groundwater
MWS 2	MWS 2	

Routing Elements

Predeveloped Routing

Mitigated Routing

MWS 2

MWS Model Number: MWS-L-6-8
Media Filter Rate (in/hr): 25

Element Flows To:

Outlet 1	Outlet 2
Storm Capture 4	Storm Capture 4

MWS Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
9.0000	0.000	0.000	0.000	0.000
9.0000	0.000	0.000	0.000	0.004
9.0000	0.000	0.000	0.000	0.008
9.0000	0.000	0.000	0.000	0.012
9.0000	0.000	0.000	0.000	0.016
9.0000	0.000	0.001	0.000	0.020
9.0000	0.000	0.001	0.000	0.025
9.0000	0.000	0.001	0.000	0.029
9.0000	0.000	0.002	0.000	0.033
9.0000	0.000	0.003	0.000	0.037
9.0000	0.000	0.003	0.000	0.041
9.0000	0.000	0.004	0.000	0.045
9.0000	0.000	0.005	0.000	0.049
9.0000	0.000	0.006	0.000	0.054
9.0000	0.000	0.007	0.000	0.058
9.0000	0.000	0.008	0.000	0.062
9.0000	0.000	0.009	0.000	0.066
9.0000	0.000	0.010	0.000	0.070
9.0000	0.000	0.011	0.000	0.074
9.0000	0.000	0.012	0.000	0.079
9.0000	0.000	0.014	0.000	0.083
9.0000	0.000	0.015	0.000	0.087
9.0000	0.000	0.017	0.000	0.091
9.0000	0.000	0.018	0.000	0.095
9.0000	0.000	0.020	0.000	0.099
9.0000	0.000	0.021	0.000	0.104
9.0000	0.000	0.023	0.000	0.108
9.0000	0.000	0.025	0.000	0.112
9.0000	0.000	0.027	0.000	0.116
9.0000	0.000	0.029	0.000	0.120
9.0000	0.000	0.031	0.000	0.124
9.0000	0.000	0.033	0.000	0.129
9.0000	0.000	0.035	0.000	0.133
9.0000	0.000	0.037	0.000	0.137
9.0000	0.000	0.040	0.000	0.141
9.0000	0.000	0.042	6.000	0.141

Storm Capture 4

Dimensions

Depth:	3 ft.	
Length:	120 ft.	
Width:	7 ft.	
Discharge Structure		
Riser Height:	2.5 ft.	
Riser Diameter:	15 in.	
Orifice 1 Diameter:	0.5 in.	Elevation:0.25 ft.
Orifice 2 Diameter:	0.5 in.	Elevation:0.25 ft.

Element Flows To:

Outlet 1 Outlet 2

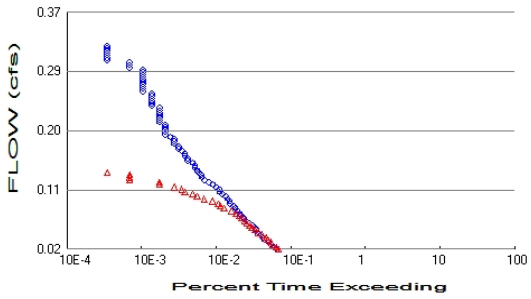
SCapture Hydraulic Table

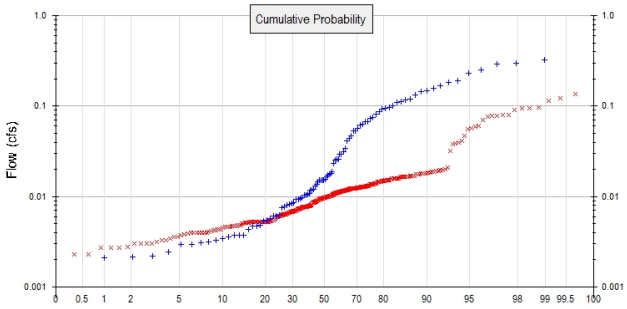
Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.019	0.000	0.000	0.000
0.0333	0.019	0.000	0.000	0.000
0.0667	0.019	0.001	0.000	0.000
0.1000	0.019	0.001	0.000	0.000
0.1333	0.019	0.002	0.000	0.000
0.1667	0.019	0.003	0.000	0.000
0.2000	0.019	0.003	0.000	0.000
0.2333	0.019	0.004	0.000	0.000
0.2667	0.019	0.005	0.001	0.000
0.3000	0.019	0.005	0.003	0.000
0.3333	0.019	0.006	0.003	0.000
0.3667	0.019	0.007	0.004	0.000
0.4000	0.019	0.007	0.005	0.000
0.4333	0.019	0.008	0.005	0.000
0.4667	0.019	0.009	0.006	0.000
0.5000	0.019	0.009	0.006	0.000
0.5333	0.019	0.010	0.007	0.000
0.5667	0.019	0.010	0.007	0.000
0.6000	0.019	0.011	0.008	0.000
0.6333	0.019	0.012	0.008	0.000
0.6667	0.019	0.012	0.008	0.000
0.7000	0.019	0.013	0.009	0.000
0.7333	0.019	0.014	0.009	0.000
0.7667	0.019	0.014	0.009	0.000
0.8000	0.019	0.015	0.010	0.000
0.8333	0.019	0.016	0.010	0.000
0.8667	0.019	0.016	0.010	0.000
0.9000	0.019	0.017	0.010	0.000
0.9333	0.019	0.018	0.011	0.000
0.9667	0.019	0.018	0.011	0.000
1.0000	0.019	0.019	0.011	0.000
1.0333	0.019	0.019	0.012	0.000
1.0667	0.019	0.020	0.012	0.000
1.1000	0.019	0.021	0.012	0.000
1.1333	0.019	0.021	0.012	0.000
1.1667	0.019	0.022	0.013	0.000
1.2000	0.019	0.023	0.013	0.000
1.2333	0.019	0.023	0.013	0.000
1.2667	0.019	0.024	0.013	0.000
1.3000	0.019	0.025	0.013	0.000

1.3333	0.019	0.025	0.014	0.000
1.3667	0.019	0.026	0.014	0.000
1.4000	0.019	0.027	0.014	0.000
1.4333	0.019	0.027	0.014	0.000
1.4667	0.019	0.028	0.015	0.000
1.5000	0.019	0.028	0.015	0.000
1.5333	0.019	0.029	0.015	0.000
1.5667	0.019	0.030	0.015	0.000
1.6000	0.019	0.030	0.015	0.000
1.6333	0.019	0.031	0.016	0.000
1.6667	0.019	0.032	0.016	0.000
1.7000	0.019	0.032	0.016	0.000
1.7333	0.019	0.033	0.016	0.000
1.7667	0.019	0.034	0.016	0.000
1.8000	0.019	0.034	0.016	0.000
1.8333	0.019	0.035	0.017	0.000
1.8667	0.019	0.036	0.017	0.000
1.9000	0.019	0.036	0.017	0.000
1.9333	0.019	0.037	0.017	0.000
1.9667	0.019	0.037	0.017	0.000
2.0000	0.019	0.038	0.017	0.000
2.0333	0.019	0.039	0.018	0.000
2.0667	0.019	0.039	0.018	0.000
2.1000	0.019	0.040	0.018	0.000
2.1333	0.019	0.041	0.018	0.000
2.1667	0.019	0.041	0.018	0.000
2.2000	0.019	0.042	0.018	0.000
2.2333	0.019	0.043	0.019	0.000
2.2667	0.019	0.043	0.019	0.000
2.3000	0.019	0.044	0.019	0.000
2.3333	0.019	0.045	0.019	0.000
2.3667	0.019	0.045	0.019	0.000
2.4000	0.019	0.046	0.019	0.000
2.4333	0.019	0.046	0.020	0.000
2.4667	0.019	0.047	0.020	0.000
2.5000	0.019	0.048	0.020	0.000
2.5333	0.019	0.048	0.101	0.000
2.5667	0.019	0.049	0.248	0.000
2.6000	0.019	0.050	0.438	0.000
2.6333	0.019	0.050	0.662	0.000
2.6667	0.019	0.051	0.911	0.000
2.7000	0.019	0.052	1.180	0.000
2.7333	0.019	0.052	1.462	0.000
2.7667	0.019	0.053	1.752	0.000
2.8000	0.019	0.054	2.041	0.000
2.8333	0.019	0.054	2.324	0.000
2.8667	0.019	0.055	2.594	0.000
2.9000	0.019	0.055	2.845	0.000
2.9333	0.019	0.056	3.073	0.000
2.9667	0.019	0.057	3.274	0.000
3.0000	0.019	0.057	3.446	0.000

Analysis Results

POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 1.01
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0.5
Total Impervious Area: 0.51

Flow Frequency Method: Cunnane

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	0.101288
5 year	0.185631
10 year	0.272803
25 year	0.311403

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.056136
5 year	0.091142
10 year	0.106181
25 year	0.129335

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0210	190	198	104	Pass
0.0246	172	185	107	Pass
0.0281	157	164	104	Pass
0.0317	146	155	106	Pass
0.0352	128	142	110	Pass
0.0388	122	135	110	Pass
0.0424	115	121	105	Pass
0.0459	105	106	100	Pass
0.0495	100	96	96	Pass
0.0530	95	87	91	Pass
0.0566	89	82	92	Pass
0.0602	81	74	91	Pass
0.0637	72	71	98	Pass
0.0673	68	64	94	Pass
0.0708	63	59	93	Pass
0.0744	60	53	88	Pass
0.0780	56	47	83	Pass
0.0815	52	37	71	Pass
0.0851	49	33	67	Pass
0.0886	45	31	68	Pass
0.0922	44	26	59	Pass
0.0958	42	20	47	Pass
0.0993	39	16	41	Pass
0.1029	35	14	40	Pass
0.1064	32	11	34	Pass
0.1100	32	10	31	Pass
0.1135	29	8	27	Pass
0.1171	26	5	19	Pass
0.1207	23	5	21	Pass
0.1242	20	2	10	Pass
0.1278	19	2	10	Pass
0.1313	18	2	11	Pass
0.1349	17	1	5	Pass
0.1385	16	0	0	Pass
0.1420	15	0	0	Pass
0.1456	15	0	0	Pass
0.1491	14	0	0	Pass
0.1527	12	0	0	Pass
0.1563	12	0	0	Pass
0.1598	11	0	0	Pass
0.1634	11	0	0	Pass
0.1669	10	0	0	Pass
0.1705	9	0	0	Pass
0.1741	9	0	0	Pass
0.1776	8	0	0	Pass
0.1812	8	0	0	Pass
0.1847	8	0	0	Pass
0.1883	7	0	0	Pass
0.1919	6	0	0	Pass
0.1954	6	0	0	Pass
0.1990	6	0	0	Pass
0.2025	6	0	0	Pass
0.2061	6	0	0	Pass

0.2097	5	0	0	Pass
0.2132	5	0	0	Pass
0.2168	5	0	0	Pass
0.2203	5	0	0	Pass
0.2239	5	0	0	Pass
0.2275	5	0	0	Pass
0.2310	5	0	0	Pass
0.2346	4	0	0	Pass
0.2381	4	0	0	Pass
0.2417	4	0	0	Pass
0.2453	4	0	0	Pass
0.2488	4	0	0	Pass
0.2524	4	0	0	Pass
0.2559	3	0	0	Pass
0.2595	3	0	0	Pass
0.2631	3	0	0	Pass
0.2666	3	0	0	Pass
0.2702	3	0	0	Pass
0.2737	3	0	0	Pass
0.2773	3	0	0	Pass
0.2809	3	0	0	Pass
0.2844	3	0	0	Pass
0.2880	3	0	0	Pass
0.2915	2	0	0	Pass
0.2951	2	0	0	Pass
0.2986	2	0	0	Pass
0.3022	1	0	0	Pass
0.3058	1	0	0	Pass
0.3093	1	0	0	Pass
0.3129	1	0	0	Pass
0.3164	1	0	0	Pass
0.3200	1	0	0	Pass
0.3236	1	0	0	Pass
0.3271	0	0	0	Pass
0.3307	0	0	0	Pass
0.3342	0	0	0	Pass
0.3378	0	0	0	Pass
0.3414	0	0	0	Pass
0.3449	0	0	0	Pass
0.3485	0	0	0	Pass
0.3520	0	0	0	Pass
0.3556	0	0	0	Pass
0.3592	0	0	0	Pass
0.3627	0	0	0	Pass
0.3663	0	0	0	Pass
0.3698	0	0	0	Pass
0.3734	0	0	0	Pass

Water Quality

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

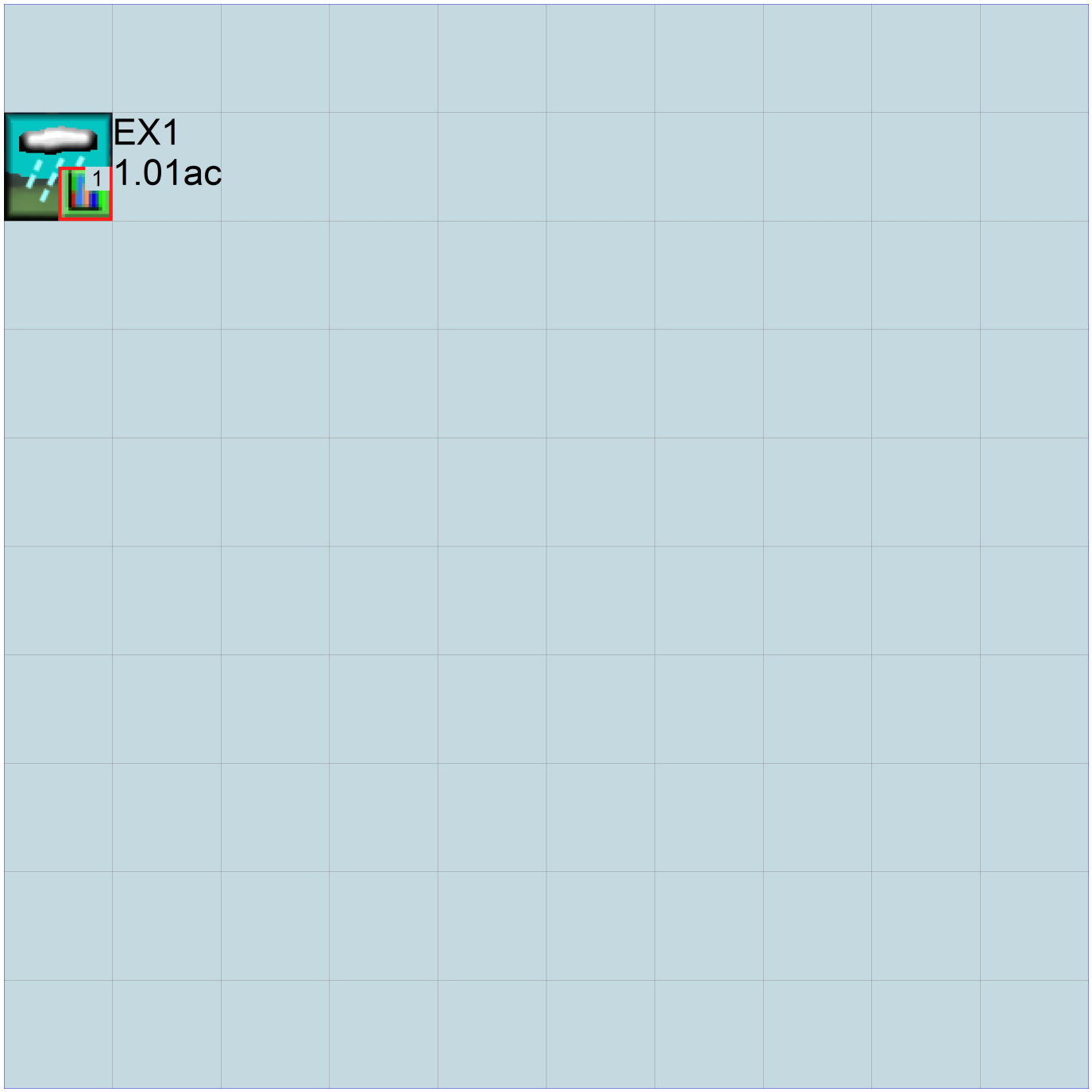
No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

Appendix

Predeveloped Schematic



Mitigated Schematic

Predeveloped UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1971 10 01        END    2004 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                   UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   SAN MIGUEL FIRE STATION #18 - HYDROMOD VAULT.wdm
MESSU       25   PreSAN MIGUEL FIRE STATION #18 - HYDROMOD VAULT.MES
            27   PreSAN MIGUEL FIRE STATION #18 - HYDROMOD VAULT.L61
            28   PreSAN MIGUEL FIRE STATION #18 - HYDROMOD VAULT.L62
            30   POCSAN MIGUEL FIRE STATION #18 - HYDROMOD VAULT1.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:60
      PERLND      20
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        EX1                          MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                         User  t-series Engl Metr ***
                                      in  out           ***
   20      C,NatVeg,Moderate      1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   20         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   20         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO
```

```
  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   20         0    1    1    1    0    0    0    0    1    1    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   20              0       3.5     0.033        80       0.1       2.5     0.915
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   20             0         0         2         2         0      0.05      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   20             0       0.6      0.04         1       0.3         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   20       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   20       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1    0
  END MON-INTERCEP

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   20             0         0      0.01         0       0.4      0.01         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
  END IWAT-PARM2
```

```
  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
EX1***
PERLND  20                        1.01     COPY   501     12
PERLND  20                        1.01     COPY   501     13

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   12.1        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG           ***
                                       in  out                              ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                  ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                     ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES
```

```
SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    1              PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    1              IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1     12.1      WDM    501 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13


END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1971 10 01        END    2004 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   SAN MIGUEL FIRE STATION #18 - HYDROMOD VAULT.wdm
MESSU       25   MitSAN MIGUEL FIRE STATION #18 - HYDROMOD VAULT.MES
            27   MitSAN MIGUEL FIRE STATION #18 - HYDROMOD VAULT.L61
            28   MitSAN MIGUEL FIRE STATION #18 - HYDROMOD VAULT.L62
            30   POCSAN MIGUEL FIRE STATION #18 - HYDROMOD VAULT1.dat
END FILES

OPN SEQUENCE
    INGRP               INDELT 00:60
      PERLND      43
      PERLND      20
      IMPLND       1
      IMPLND       2
      RCHRES       1
      RCHRES       2
      COPY         1
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title---------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Storm Capture  4           MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                          in  out           ***
   43      C,Urban,Flat           1    1    1    1   27    0
   20      C,NatVeg,Moderate      1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   43         0    0    1    0    0    0    0    0    0    0    0    0
   20         0    0    1    0    0    0    0    0    0    0    0    0
```

```
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   43         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   20         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   43         0    1    1    1    0    0    0    0    1    1    0
   20         0    1    1    1    0    0    0    0    1    1    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   43              0       3.8      0.04        50      0.05       2.5     0.915
   20              0       3.5     0.033        80       0.1       2.5     0.915
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   43              0         0         2         2         0      0.05      0.05
   20              0         0         2         2         0      0.05      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   43              0       0.6      0.03         1       0.3         0
   20              0       0.6      0.04         1       0.3         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   43       0.6  0.6  0.6  0.6  0.7  0.7  0.7  0.7  0.7  0.6  0.6  0.6
   20       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   43       0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1    0
   20       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1    0
  END MON-INTERCEP

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   43              0         0      0.15         0         1      0.05         0
   20              0         0      0.01         0       0.4      0.01         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
    1      IMPERVIOUS-FLAT        1    1    1   27    0
    2      IMPERVIOUS-MOD         1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
```

```
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
    2         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
    2         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    1
    2         0    0    0    0    1
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1            100      0.05     0.011       0.1
    2            100       0.1     0.011      0.08
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
    2              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
    2              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                 <--Area-->     <-Target->   MBLK   ***
<Name>   #                 <-factor->     <Name>   #   Tbl#   ***
P1***
PERLND  43                      0.02     RCHRES   1      2
PERLND  43                      0.02     RCHRES   1      3
PERLND  20                      0.48     RCHRES   1      2
PERLND  20                      0.48     RCHRES   1      3
IMPLND   1                      0.46     RCHRES   1      5
IMPLND   2                      0.05     RCHRES   1      5

******Routing******
RCHRES   1                         1     RCHRES   2      7
RCHRES   1                               COPY     1     17
RCHRES   1                         1     RCHRES   2      8
RCHRES   1                               COPY     1     18
RCHRES   2                         1     COPY   501     16
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   12.1        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
```

```
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                   ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG              ***
                                         in  out                               ***
    1     MWS  2                  2    1    1    1   28    0    1
    2     Storm Capture  4-014    1    1    1    1   28    0    1
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections *****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
    1         1    0    0    0    0    0    0    0    0    0
    2         1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ****************** PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
    1         4    0    0    0    0    0    0    0    0    0    1    9
    2         4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                        ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *        ***
    1        0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
    2        0  1  0  0    4  0  0  0  0       0  0  0  0  0       2  2  2  2  2
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50         ***
  <------><--------><--------><--------><--------><--------><-------->         ***
    1             1      0.22       0.0       9.0       0.5       0.0
    2             2      0.02       0.0       0.0       0.5       0.0
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                           ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
         *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
    1           0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    2           0         4.0  0.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
  FTABLE      1
   36    5
     Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)     (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.000551  0.000000  0.000000  0.000000
  0.100000  0.000551  0.000067  0.000000  0.004162
  0.200000  0.000551  0.000202  0.000000  0.008324
  0.300000  0.000551  0.000404  0.000000  0.012486
  0.400000  0.000551  0.000673  0.000000  0.016648
  0.500000  0.000551  0.001010  0.000000  0.020810
  0.600000  0.000551  0.001413  0.000000  0.024971
  0.700000  0.000551  0.001884  0.000000  0.029133
  0.800000  0.000551  0.002423  0.000000  0.033295
  0.900000  0.000551  0.003029  0.000000  0.037457
  1.000000  0.000551  0.003702  0.000000  0.041619
  1.100000  0.000551  0.004442  0.000000  0.045781
```

```
1.200000  0.000551  0.005249  0.000000  0.049943
1.300000  0.000551  0.006124  0.000000  0.054105
1.400000  0.000551  0.007067  0.000000  0.058267
1.500000  0.000551  0.008076  0.000000  0.062429
1.600000  0.000551  0.009153  0.000000  0.066590
1.700000  0.000551  0.010297  0.000000  0.070752
1.800000  0.000551  0.011508  0.000000  0.074914
1.900000  0.000551  0.012787  0.000000  0.079076
2.000000  0.000551  0.014133  0.000000  0.083238
2.100000  0.000551  0.015546  0.000000  0.087400
2.200000  0.000551  0.017027  0.000000  0.091562
2.300000  0.000551  0.018575  0.000000  0.095724
2.400000  0.000551  0.020190  0.000000  0.099886
2.500000  0.000551  0.021873  0.000000  0.104048
2.600000  0.000551  0.023622  0.000000  0.108210
2.700000  0.000551  0.025440  0.000000  0.112371
2.800000  0.000551  0.027324  0.000000  0.116533
2.900000  0.000551  0.029276  0.000000  0.120695
3.000000  0.000551  0.031295  0.000000  0.124857
3.100000  0.000551  0.033381  0.000000  0.129019
3.200000  0.000551  0.035535  0.000000  0.133181
3.300000  0.000551  0.037755  0.000000  0.137343
3.400000  0.000551  0.040044  0.000000  0.141505
4.400000  0.000551  0.042399  6.000000  0.141505
END FTABLE  1
FTABLE      2
 92    4
   Depth      Area    Volume  Outflow1 Velocity  Travel Time***
    (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
0.000000  0.019284  0.000000  0.000000
0.033333  0.019284  0.000673  0.000000
0.066667  0.019284  0.001322  0.000000
0.100000  0.019284  0.001965  0.000000
0.133333  0.019284  0.002608  0.000000
0.166667  0.019284  0.003251  0.000000
0.200000  0.019284  0.003894  0.000000
0.233333  0.019284  0.004536  0.000000
0.266667  0.019284  0.005179  0.001752
0.300000  0.019284  0.005822  0.003034
0.333333  0.019284  0.006465  0.003917
0.366667  0.019284  0.007108  0.004634
0.400000  0.019284  0.007750  0.005255
0.433333  0.019284  0.008393  0.005810
0.466667  0.019284  0.009036  0.006316
0.500000  0.019284  0.009679  0.006784
0.533333  0.019284  0.010321  0.007222
0.566667  0.019284  0.010964  0.007635
0.600000  0.019284  0.011607  0.008027
0.633333  0.019284  0.012250  0.008401
0.666667  0.019284  0.012893  0.008758
0.700000  0.019284  0.013535  0.009102
0.733333  0.019284  0.014178  0.009433
0.766667  0.019284  0.014821  0.009753
0.800000  0.019284  0.015464  0.010063
0.833333  0.019284  0.016107  0.010363
0.866667  0.019284  0.016749  0.010655
0.900000  0.019284  0.017392  0.010939
0.933333  0.019284  0.018035  0.011216
0.966667  0.019284  0.018678  0.011486
1.000000  0.019284  0.019321  0.011751
1.033333  0.019284  0.019963  0.012009
1.066667  0.019284  0.020606  0.012262
1.100000  0.019284  0.021249  0.012509
1.133333  0.019284  0.021892  0.012752
1.166667  0.019284  0.022535  0.012991
1.200000  0.019284  0.023177  0.013225
1.233333  0.019284  0.023820  0.013455
1.266667  0.019284  0.024463  0.013681
1.300000  0.019284  0.025106  0.013903
1.333333  0.019284  0.025748  0.014122
```

```
  1.366667  0.019284  0.026391  0.014338
  1.400000  0.019284  0.027034  0.014550
  1.433333  0.019284  0.027677  0.014760
  1.466667  0.019284  0.028320  0.014966
  1.500000  0.019284  0.028962  0.015170
  1.533333  0.019284  0.029605  0.015371
  1.566667  0.019284  0.030248  0.015569
  1.600000  0.019284  0.030891  0.015765
  1.633333  0.019284  0.031534  0.015959
  1.666667  0.019284  0.032176  0.016150
  1.700000  0.019284  0.032819  0.016339
  1.733333  0.019284  0.033462  0.016525
  1.766667  0.019284  0.034105  0.016710
  1.800000  0.019284  0.034748  0.016893
  1.833333  0.019284  0.035390  0.017073
  1.866667  0.019284  0.036033  0.017252
  1.900000  0.019284  0.036676  0.017429
  1.933333  0.019284  0.037319  0.017604
  1.966667  0.019284  0.037962  0.017778
  2.000000  0.019284  0.038604  0.017949
  2.033333  0.019284  0.039247  0.018119
  2.066667  0.019284  0.039890  0.018288
  2.100000  0.019284  0.040533  0.018455
  2.133333  0.019284  0.041175  0.018621
  2.166667  0.019284  0.041818  0.018785
  2.200000  0.019284  0.042461  0.018947
  2.233333  0.019284  0.043104  0.019108
  2.266667  0.019284  0.043747  0.019268
  2.300000  0.019284  0.044389  0.019427
  2.333333  0.019284  0.045032  0.019584
  2.366667  0.019284  0.045675  0.019740
  2.400000  0.019284  0.046318  0.019895
  2.433333  0.019284  0.046961  0.020049
  2.466667  0.019284  0.047603  0.020201
  2.500000  0.019284  0.048246  0.020353
  2.533333  0.019284  0.048889  0.101199
  2.566667  0.019284  0.049532  0.248634
  2.600000  0.019284  0.050175  0.438793
  2.633333  0.019284  0.050817  0.662067
  2.666667  0.019284  0.051460  0.911436
  2.700000  0.019284  0.052103  1.180514
  2.733333  0.019284  0.052746  1.462926
  2.766667  0.019284  0.053388  1.752143
  2.800000  0.019284  0.054031  2.041508
  2.833333  0.019284  0.054674  2.324399
  2.866667  0.019284  0.055317  2.594458
  2.900000  0.019284  0.055960  2.845893
  2.933333  0.019284  0.056602  3.073821
  2.966667  0.019284  0.057245  3.274658
  3.000000  0.019284  0.057888  3.446540
  3.033333  0.019284  0.058531  3.589785
  END FTABLE  2
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    1              PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    1              IMPLND   1 999 EXTNL  PETINP
WDM     22 IRRG     ENGL    0.7       SAME PERLND  43     EXTNL  SURLI
WDM      1 EVAP     ENGL    1              RCHRES   1     EXTNL  POTEV

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
RCHRES   2 HYDR   RO     1 1        1      WDM   1000 FLOW     ENGL      REPL
```

```
RCHRES   2 HYDR   STAGE  1 1        1      WDM   1003 STAG     ENGL      REPL
COPY     1 OUTPUT MEAN   1 1     12.1      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN   1 1     12.1      WDM    801 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>             <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK        2
PERLND     PWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    2

  MASS-LINK        3
PERLND     PWATER IFWO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    3

  MASS-LINK        5
IMPLND     IWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    5

  MASS-LINK        7
RCHRES     OFLOW  OVOL   1                 RCHRES         INFLOW IVOL
  END MASS-LINK    7

  MASS-LINK        8
RCHRES     OFLOW  OVOL   2                 RCHRES         INFLOW IVOL
  END MASS-LINK    8

  MASS-LINK       16
RCHRES     ROFLOW                         COPY           INPUT  MEAN
  END MASS-LINK   16

  MASS-LINK       17
RCHRES     OFLOW  OVOL   1                 COPY           INPUT  MEAN
  END MASS-LINK   17

  MASS-LINK       18
RCHRES     OFLOW  OVOL   2                 COPY           INPUT  MEAN
  END MASS-LINK   18


END MASS-LINK

END RUN
```

Predeveloped HSPF Message File

```
ERROR/WARNING ID:   238   1

The continuity error reported below is greater than 1 part in 1000 and is
therefore considered high.

Did you specify any "special actions"?  If so, they could account for it.

Relevant data are:
DATE/TIME: 1998/ 3/31 24: 0

RCHRES :    1

RELERR       STORS        STOR       MATIN      MATDIF
-1.245E-02     0.00000  0.0000E+00     0.00000  5.9299E-12

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR  is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR   is the storage of material in the processing unit (land-segment or
reach/reservior) at the end of the present interval.
STORS  is the storage of material in the pu at the start of the present
printout reporting period.
MATIN  is the total inflow of material to the pu during the present printout
reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the
present printout reporting period.
```

```
ERROR/WARNING ID:   238   1

The continuity error reported below is greater than 1 part in 1000 and is
therefore considered high.

Did you specify any "special actions"?  If so, they could account for it.

Relevant data are:
DATE/TIME: 1998/ 4/30 24: 0

RCHRES :    1

RELERR       STORS        STOR       MATIN      MATDIF
-4.025E-02     0.00000  0.0000E+00     0.00000  1.1574E-11

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR  is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR   is the storage of material in the processing unit (land-segment or
reach/reservior) at the end of the present interval.
STORS  is the storage of material in the pu at the start of the present
printout reporting period.
MATIN  is the total inflow of material to the pu during the present printout
reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the
present printout reporting period.
```

```
ERROR/WARNING ID:   238   1

The continuity error reported below is greater than 1 part in 1000 and is
therefore considered high.

Did you specify any "special actions"?  If so, they could account for it.

Relevant data are:
```

DATE/TIME: 2001/ 3/31 24: 0

RCHRES : 1

RELERR	STORS	STOR	MATIN	MATDIF
-1.211E-02	0.00000	0.0000E+00	0.00000	4.2941E-12

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR is the storage of material in the processing unit (land-segment or reach/reservior) at the end of the present interval.
STORS is the storage of material in the pu at the start of the present printout reporting period.
MATIN is the total inflow of material to the pu during the present printout reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the present printout reporting period.

ERROR/WARNING ID: 238 1

The continuity error reported below is greater than 1 part in 1000 and is therefore considered high.

Did you specify any "special actions"? If so, they could account for it.

Relevant data are:
DATE/TIME: 2003/ 1/31 24: 0

RCHRES : 1

RELERR	STORS	STOR	MATIN	MATDIF
-3.693E-02	0.00000	0.0000E+00	0.00000	1.3627E-11

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR is (STOR-STORS) - MATDIF.
REFVAL is the reference value (STORS+MATIN).
STOR is the storage of material in the processing unit (land-segment or reach/reservior) at the end of the present interval.
STORS is the storage of material in the pu at the start of the present printout reporting period.
MATIN is the total inflow of material to the pu during the present printout reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the present printout reporting period.

ERROR/WARNING ID: 238 1

The continuity error reported below is greater than 1 part in 1000 and is therefore considered high.

Did you specify any "special actions"? If so, they could account for it.

Relevant data are:
DATE/TIME: 2003/ 2/28 24: 0

RCHRES : 1

RELERR	STORS	STOR	MATIN	MATDIF
-8.600E-03	0.00000	0.0000E+00	0.00000	1.4292E-11

Where:

RELERR is the relative error (ERROR/REFVAL).
ERROR is (STOR-STORS) - MATDIF.

REFVAL is the reference value (STORS+MATIN).
STOR is the storage of material in the processing unit (land-segment or reach/reservior) at the end of the present interval.
STORS is the storage of material in the pu at the start of the present printout reporting period.
MATIN is the total inflow of material to the pu during the present printout reporting period.
MATDIF is the net inflow (inflow-outflow) of material to the pu during the present printout reporting period.

The count for the WARNING printed above has reached its maximum.

If the condition is encountered again the message will not be repeated.

Disclaimer

Legal Notice

Clear Creek Solutions, Inc.
6200 Capitol Blvd. Ste F
Olympia, WA. 98501
Toll Free 1(866)943-0304
Local (360)943-0304

www.clearcreeksolutions.com

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
1	1	Northwest corner of the Project Site

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 Exemption**[1]	Section 1.6
☒ **9.2: Watershed Management Area Analysis (WMAA) Mapping**[1]	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

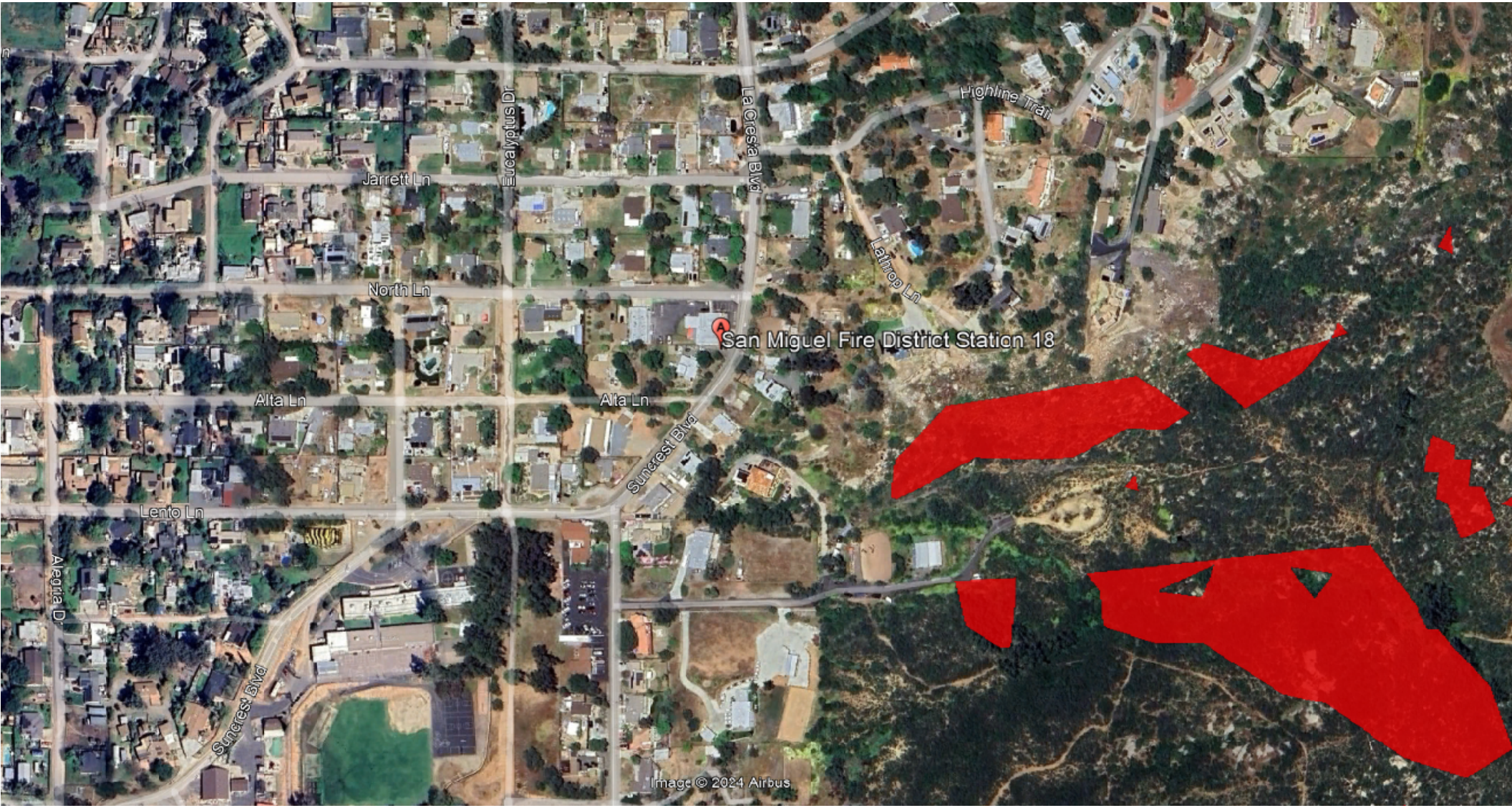
  (b) All upstream offsite PCCYSAs will be bypassed (see BMPDM Appendix H.3).

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

PCCSYAs are south of the DMA tributary to the site and therefore will not impact our site.


Jarrett Ln
Eucalyptus Dr
La Cresta Blvd
Highline Trail
Lathrop Ln
North Ln
San Miguel Fire District Station 18
Alta Ln
Alta Ln
Sunerest Blvd
Lento Ln
Alegria D
Sunerest Blvd
Image © 2024 Airbus

This form must be accepted by the County prior to the release of construction permits or granting of occupancy for applicable portions of a Priority Development Project (PDP). Its purpose is to provide documentation of the final installation of permanent Best Management Practices (BMPs) used to satisfy Structural Performance Standards for the development project. Compliance with these standards reduces the discharge of pollutants and flows from the completed project site. Applicable standards may be satisfied using Structural BMPs (S-BMPs), Significant Site Design BMPs (SSD-BMPs), or both. Applicants are responsible for providing all requested information.

PART 1 PROJECT INFORMATION

A. Project Summary Information	
Project Name	San Miguel Fire Station #18
Record ID (e.g. grading/improvement plan number, building permit)	PDS2024-LDGRMJ-30493 PDS2024-LDPIIP-60151
Project Address	1811 Suncrest Blvd, El Cajon, CA 92021
Assessor's Parcel Number(s) APN(s)	509-191-16-00
Project Watershed (Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	Sweetwater, Middle Sweetwater, Dehesa 909.23
B. Owner Information	
Name	San Miguel Fire & Rescue
Address	2850 Via Orange Way
Email Address	info@sanmiguelfire.org
Phone Number	(619) 670-0500

COUNTY – OFFICIAL USE ONLY	
INTAKE ID#	
ACCEPTANCE ID#	

****THIS PAGE IS FOR PARTIAL VERIFICATIONS ONLY ****

If final grade release or granting of occupancy is being requested for only a portion of the Priority Development Project (PDP) please fill out the table below. Include ALL of the Structural BMPs and/or Significant Site Design BMPs for the entire project in the table. **Include a mark-up of the DMA map from the approved SWQMP with this Verification package that clearly shows which DMAs you are submitting for approval and which DMAs have already been accepted (if any).**

DMA #	APN or Lot #	BMP ID #	WPP Acceptance Date (If applicable)	WPP Acceptance ID# (If applicable, e.g. 20/21-001)

PART 2 BMP INVENTORY INFORMATION

Use this table to document Structural BMPs (S-BMPs) and Significant Site Design BMPs (SSD-BMPs) for the PDP. All DMAs that are not self-mitigating or de minimis must have at least one Structural BMP or Significant Site Design BMP.

- In **Part A** list all Structural BMPs (including both Pollutant Control and/or Hydromodification as applicable) by DMA.
- Complete **Part B** for all DMAs that contain only Significant Site Design BMPs. SSD-BMPs are Site Design BMPs (SD-BMPs) that are sized and constructed to satisfy Structural Performance Standards for a DMA.
- The information provided for each BMP in the table must match that provided in the Stormwater Quality Management Plan (SWQMP), construction plans, maintenance agreements, and other relevant project documentation.

DMA #	BMP Information			Maintenance Category (1, 2, 3, or 4)	Maintenance Agreement Recorded DOC #	Construction Plan Sheet #	Landscape Plan Sheet # N/A	FOR DPW-WPP USE ONLY
	Quantity	Description/Type of Structural BMP	BMP ID #					
A. Structural BMPs (S-BMPs)								
P1	1	Linear Modular Wetland System (MWS-L-8-8)	1	1	1	5		
P2	1	Contech CMP	2	1	2	5		
Add rows as needed. Click into the last column in the row below this, then press TAB to add a new row.								
B. Significant Site Design BMPs (SSD-BMPs)								
		Choose an item.		Choose				
		Choose an item.		Choose				
		Choose an item.		Choose				
		Choose an item.		Choose				
		Choose an item.		Choose				
		Choose an item.		Choose				
Add rows as needed. Click into the last column in the row below this, then press TAB to add a new row.								

PART 3 REQUIRED ATTACHMENTS

For the permanent BMPs listed in Part 2, submit the following to the County inspector along with this Verification form as a package (check all that are attached):

☐ **PHOTOGRAPHS:** Final construction photos of every permanent BMP listed in Part 2 are required. Final photos must be recent and be labeled with the date and a BMP Identifier. Additional photographs illustrating proper construction of the BMPs are recommended to be included and may be requested by WPP prior to acceptance of this Verification (e.g. excavation depths, liners, hydromodification orifices, Biofiltration Soil Media (BSM), vegetation, mulch).

☐ **MAINTENANCE AGREEMENTS:** Copies of approved and recorded Storm Water Maintenance Agreements (SWMA), Category 1 Maintenance Notification Agreements (MN), or Encroachment Maintenance and Removal Agreements (EMRA) for all S-BMPs.

Note: Significant Site Design (SSD) BMPs and most Category 4 BMPs do not require recorded maintenance agreements.

☐ **CONSTRUCTION PLANS:** Submit electronic and/or 11" X 17" hard copies of the current approved Construction Plan sheets for the Record ID(s) listed on Page 1:

- ☐ Grading Plans
- ☐ Improvement Plans
- ☐ Precise Grading Plan
- ☐ Building Plan (Applicable BMP Sheets only)
- ☐ Other (Please specify) _____

For each Construction Plan, the sheets submitted must incorporate all of the following:

- A BMP Table on Sheet 1, AND
- A plan detail cross-section of each verified as-built BMP, AND
- The location of each verified as-built BMP

☐ **LANDSCAPE PLANS**: If the PDP includes vegetated BMPs and has a Landscape Plan, submit the following:

- ☐ Final Landscape Plans
- ☐ Proof of Irrigation Installed (if applicable)

PART 4 PREPARER'S CERTIFICATION

By signing below, I certify that the BMP(s) listed in Part 2 of this Verification Form have been constructed and are in substantial conformance with the approved plans and applicable regulations. I understand the County reserves the right to inspect the above BMPs to verify compliance with the approved plans and Watershed Protection Ordinance (WPO). Should it be determined that the BMPs were not constructed to plan or code, corrective actions may be necessary before permits can be closed.

Note: Structural BMPs must be certified by a licensed professional engineer.

Please sign and, if applicable, provide your seal below.

Preparer's Name:	Jarrett J. Linn
Email Address:	jarrettl@nasland.com
Phone Number:	(858) 292-7770
Preparer's Signature:	
Date:	06/06/2024

[SEAL]

PROJECT RECORD ID: _____

COUNTY - OFFICIAL USE ONLY

County Inspector Approval:

***NOTE: The County approved SWQMP document and any Addendums or Revisions must be included with this BMP Installation Verification submittal package.**

- ☐ DPW Private Development Construction Inspection (PDCI)
- ☐ PDS Building
- ☐ DGS
- ☐ DPR

By signing below, the County Inspector concurs that every BMP listed in Part 2 of this BMP Installation Verification form has been installed per plan.

Inspector Name: _____

Inspector's Signature: _____ Date: _____

DPW Watershed Protection Program (WPP) Acceptance:

Date Received: _____

WPP Reviewer: _____

WPP Reviewer concurs that the BMPs accepted in **Part 2** above may be entered into County inventory.

WPP Reviewer's Signature: _____ Date: _____

Enter Acceptance ID# on page 1.

NOTES:

11.0 Cover Sheet and General Requirements

- All Structural BMPs must have a plan and mechanism to ensure on-going maintenance. Use the table below to document the types of agreements to be submitted for the PDP and submit them under cover of this sheet.
- See BMPDM Section 7.3 for a description of maintenance categories and responsibilities. Note that since Category 3 and 4 BMPs are County-maintained, they do not require maintenance agreements.

a. Applicability of Maintenance Agreements

Check the boxes below to indicate which types of agreements are included with this attachment.

☒ **Maintenance Notification Agreement for Category 1 Stormwater Structural BMPs**

- Exhibit A: Project Site Map; and a Map for each BMP and its Drainage Management Area (DMA).
- Exhibit B: BMP Maintenance Plan (see below)

CATEGORY 1 MAINTENANCE AGREEMENTS ARE RECORDED PRIOR TO OCCUPANCY.

☐ **Storm Water Facilities Maintenance Agreement (SWMA) (Category 2 BMPs)**

- Exhibit A: Legal Description of Property
- Exhibit B: BMP Maintenance Program (see below)
- Exhibit C: BMP Locations

CATEGORY 2 MAINTENANCE AGREEMENTS ARE RECORDED PRIOR TO PERMIT ISSUANCE.

Maintenance agreement templates and instructions are available on the County's website: www.sandiegocounty.gov/stormwater under the Development Resources tab, Submittal Templates.

b. Maintenance Plan Requirements

Maintenance plans should include the following:

☒ Specific **maintenance indicators and actions** for proposed structural BMP(s). These must be based on maintenance indicators presented in BMP Design Manual Fact Sheets in Appendix E and enhanced to reflect actual proposed components of the structural BMP(s).

☒ **Access** to inspect and perform maintenance on the structural BMP(s).

☒ Features to **facilitate inspection** (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds).

☒ Manufacturer and part number for **proprietary parts** of structural BMP(s) when applicable.

☒ **Maintenance thresholds** specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP).

☒ Recommended **equipment** to perform maintenance.

☒ When applicable, necessary special **training or certification** requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management.

CONTECH®
ENGINEERED SOLUTIONS

Modular Wetlands® Linear Operatons & Maintenance Manual

MODULAR WETLANDS®

ATTACHMENT G - STORMWATER QUALITY MANAGEMENT PLAN

MODULAR WETLANDS LINEAR
OPERATION & MAINTENANCE MANUAL

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OVERVIEW

This operation and maintenance (O&M) manual is for the Modular Wetlands Linear Biofilter (MWL). Please read the instructions and equipment lists closely prior to starting. It is important to follow all necessary safety procedures associated with state and local regulations. Please contact Contech for more information on pre-authorized third-party service providers who can provide inspection and maintenance services in your area. For a list of service providers in your area, please visit www.conteches.com/maintenance.

WARNING

Confined space entry may be required. Contractor to obtain all equipment and training to meet applicable local and OSHA regulations regarding confined space entry. It is the Contractor's or entry personnel's responsibility to always proceed safely.

SAFETY NOTICE & PERSONAL SAFETY EQUIPMENT

Job site safety is a topic and a practice addressed comprehensively by others. The inclusions here are merely reminders to whole areas of Safety Practice that are the responsibility of the Owner(s), Manager(s), and Service Provider(s). OSHA and Canadian OSH, Federal, State/Provincial, and Local Jurisdiction Safety Standards apply on any given site or project. The knowledge and applicability of those responsibilities is the Service Provider's responsibility and outside the scope of Contech Engineered Solutions.

Safety Boots

Gloves

Hard Hat

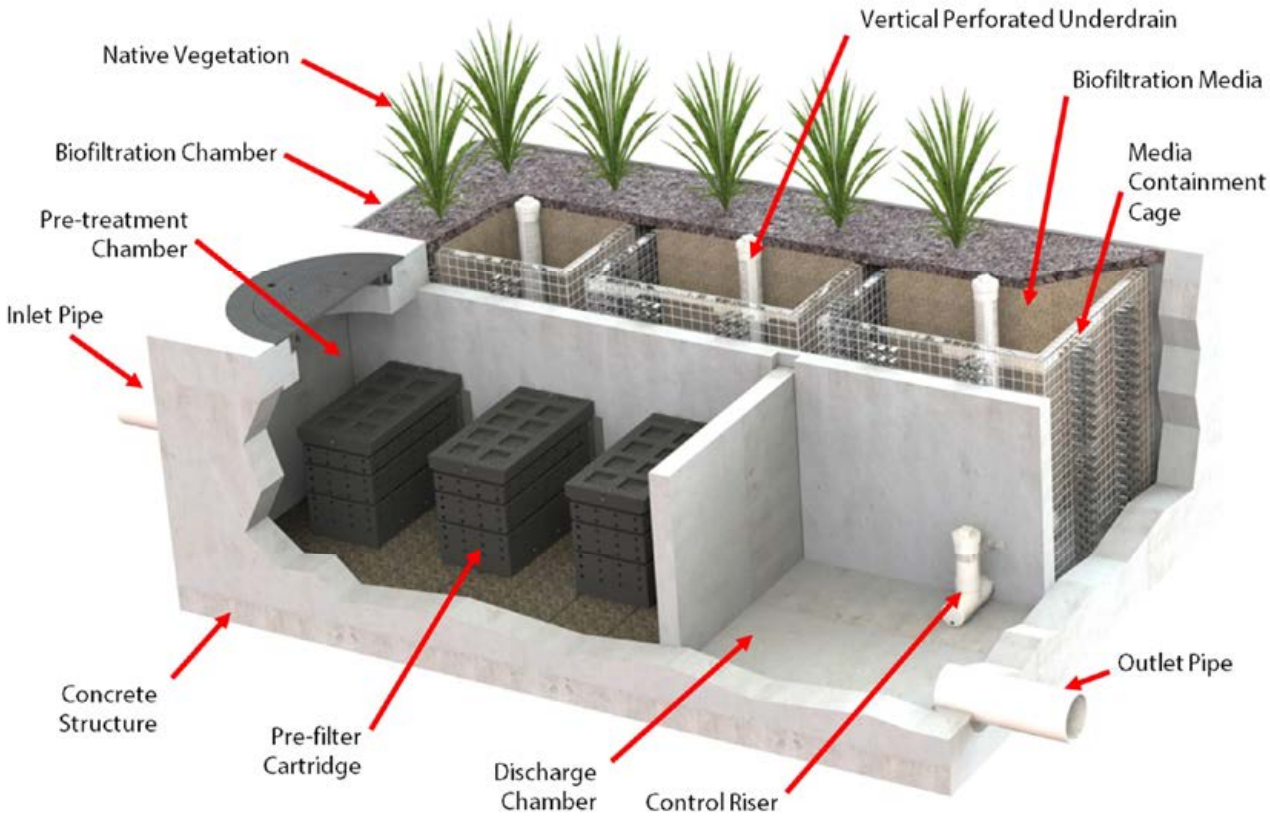
Eye Protection

Maintenance and Protection of Traffic Plan

MODULAR WETLANDS LINEAR COMPONENTS LIST

The MWL system comes in multiple sizes and configurations, including side by side or end to end layouts, both as open planters or underground systems. See shop drawings (plans) for project specific details.

The standard MWL system is comprised of the following components:



INSPECTION SUMMARY & EQUIPMENT LIST

Stormwater regulations require BMPs be inspected and maintained to ensure they are operating as designed to allow for effective pollutant removal and provide protection to receiving water bodies. It is recommended that inspections be performed multiple times during the first year to assess the site-specific loading conditions. The first year of inspections can be used to set inspection and maintenance intervals for subsequent years to ensure appropriate maintenance is provided.

- Inspect pre-treatment, biofiltration, and discharge chambers an average of once every six to twelve months. Varies based on site specific and local conditions.
- Average inspection time is approximately 15 minutes. Always ensure appropriate safety protocol and procedures are followed.

The following is a list of equipment required to allow for simple and effective inspection of the MWL:

Modular Wetlands Linear Inspection Form

Flashlight

Tape Measure

Access Cover Hook

Ratchet
& 7/16" Socket
(if required for older pre-filter cartridges that have two bolts holding the lids on)

INSPECTION & MAINTENANCE NOTES

1. Following maintenance and/or inspection, it is recommended that the maintenance operator prepare a maintenance/inspection record. The record should include any maintenance activities performed, amount and description of debris collected, and condition of the system and its various filter mechanisms.
2. The owner should keep maintenance/inspection record(s) for a minimum of five years from the date of maintenance. These records should be made available to the governing municipality for inspection upon request at any time.
3. Transport all debris, trash, organics, and sediments to approved facility for disposal in accordance with local and state requirements.
4. Entry into chambers may require confined space training based on state and local regulations.
5. No fertilizer shall be used in the biofiltration chamber.
6. Irrigation should be provided as recommended by manufacturer and/or landscape architect. Amount of irrigation required is dependent on plant species. Some plants may not require irrigation after initial establishment.

INSPECTION PROCESS

1. Prepare the inspection form by writing in the necessary information including project name, location, date & time, unit number and other information (see inspection form).
2. Observe the inside of the system through the access covers. If minimal light is available and vision into the unit is impaired, utilize a flashlight to see inside the system and all chambers.
3. Look for any out of the ordinary obstructions in the inflow pipe, pre-treatment chamber, biofiltration chamber, discharge chamber or outflow pipe. Write down any observations on the inspection form.
4. Through observation and/or digital photographs, estimate the amount of trash, debris accumulated in the pre-treatment chamber. Utilizing a tape measure or measuring stick, estimate the amount of sediment in this chamber. Record this depth on the inspection form.
5. Through visual observation, inspect the condition of the pre-filter cartridges. Look for excessive build-up of sediment on the cartridges, any build-up on the tops of the cartridges, or clogging of the holes. Record this information on the inspection form. The pre-filter cartridges can be further inspected by removing the cartridge tops and assessing the color of the BioMediaGREEN filter cubes (requires entry into pre-treatment chamber - see notes previous notes regarding confined space entry). Record the color of the material. New material is a light green color. As the media becomes clogged, it will turn darker in color, eventually becoming dark brown or black. The closer to black the media is the higher percentage that the media is exhausted and in need of replacement.

6. The biofiltration chamber is generally maintenance-free due to the system's advanced pre-treatment chamber. For units which have open planters with vegetation, it is recommended that the vegetation be inspected. Look for any plants that are dead or showing signs of disease or other negative stressors. Record the general health of the plants on the inspection form and indicate through visual observation or digital photographs if trimming of the vegetation is required.

7. The discharge chamber houses the control riser (if applicable), drain down filter (only in California - older models), and is connected to the outflow pipe. It is important to check to ensure the orifice is in proper operating condition and free of any obstructions. It is also important to assess the condition of the drain down filter media which utilizes a block form of the BioMediaGREEN. Assess in the same manner as the cubes in the pre-filter cartridge as mentioned above.

8. Finalize the inspection report for analysis by the maintenance manager to determine if maintenance is required.

MAINTENANCE INDICATORS

Based upon the observations made during inspection, maintenance of the system may be required based on the following indicators:

- Missing or damaged internal components or cartridges.
- Obstructions in the system or its inlet and/or outlet pipes.
- Excessive accumulation of floatables in the pre-treatment chamber in which the length and width of the chamber is fully impacted more than 18".
- Excessive accumulation of sediment in the pre-treatment chamber of more than 6" in depth.
- Excessive accumulation of sediment on the BioMediaGREEN media housed within the pretreatment cartridges. When media is more than 85% clogged, replacement is required. The darker the BioMediaGREEN, the more clogged it is and in need of replacement.
- Excessive accumulation of sediment on the BioMediaGREEN media housed within the drain down filter (California only - older models).
- Overgrown vegetation.

MAINTENANCE SUMMARY & EQUIPMENT LIST

The time has come to maintain your MWL. All necessary pre-maintenance steps must be carried out before maintenance occurs. Once traffic control has been set up per local and state regulations and access covers have been safely opened, the maintenance process can begin. It should be noted that some maintenance activities require confined space entry. All confined space requirements must be strictly followed before entry into the system. In addition, the following is recommended:

- Prepare the maintenance form by writing in the necessary information including project name, location, date & time, unit number and other info (see maintenance form).
- Set up all appropriate safety and maintenance equipment.
- Ensure traffic control is set up and properly positioned.
- Prepared pre-checks (OSHA, safety, confined space entry) are performed.
    - A gas meter should be used to detect the presence of any hazardous gases prior to entering the system. If hazardous gases are present, do not enter the vault. Following appropriate confined space procedures, take steps such as utilizing a venting system to address the hazard. Once it is determined to be safe, enter the system utilizing appropriate entry equipment such as a ladder and tripod with harness.

The following is a list of equipment required for maintenance of the MWL:

Modular Wetlands Linear Maintenance Form

Flashlight

Access Cover Hook

Ratchet & 7/16" Socket (if required for older pre-filter cartridges that have two bolts holding the lids on)

Vacuum Assisted Truck with Pressure Washer

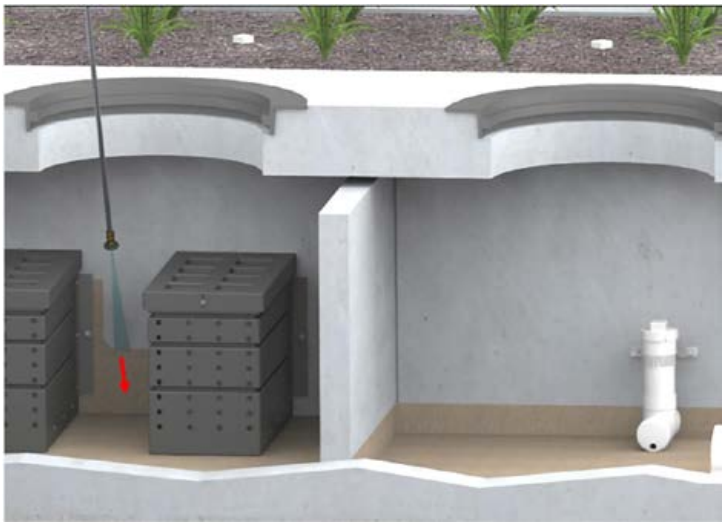
Replacement BioMediaGREEN (If Required)

(order BioMediaGREEN from Contech's Maintenance Team members at https://www.conteches.com/maintenance)

MAINTENANCE INSTRUCTIONS

1. ACCESS COVER REMOVAL

Upon determining that the vault is safe for entry, remove all access cover(s) and position the vacuum truck accordingly.



2. PRESSURE WASH SYSTEM CHAMBERS

With the pressure washer, spray down pollutants accumulated on the walls and floors of the pre-treatment and discharge chambers. Then wash any accumulated sediment from the pre-filter cartridge(s).

3. VACUUM SYSTEM CHAMBERS

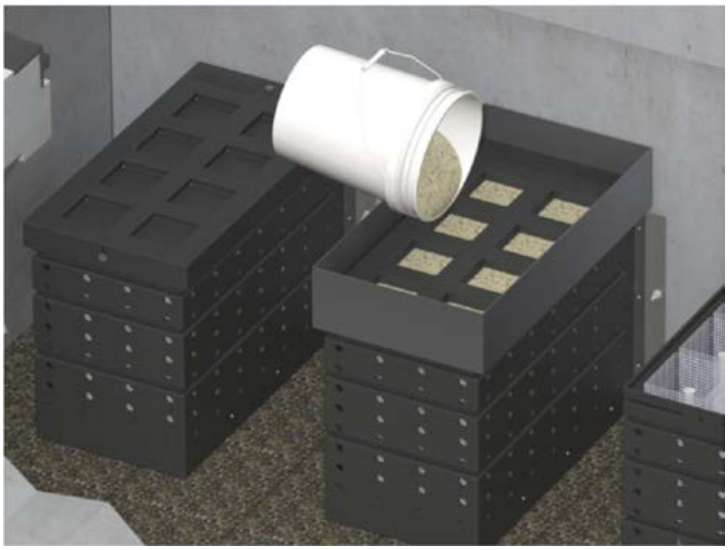
Vacuum out pre-treatment and discharge chambers and remove all accumulated pollutants including trash, debris, and sediments. Be sure to vacuum the pre-treatment floor until the pervious pavers are visible and clean. **(MWL systems outside of California may or may not have pervious pavers on the floor in the pre-treatment chamber)** If pre-filter cartridges require media replacement, proceed to **Step 4**. If not, replace the access cover(s) and proceed to **Step 7**.

4. PRE-FILTER CARTRIDGE LID REMOVAL

After successfully cleaning out the pre-treatment chamber, enter the chamber and remove the lid(s) from the pre-filter cartridge(s) by removing the two thumb screws. (Older pre-filter cartridges have two bolts holding the lids on that require a 7/16" socket to remove)

5. VACUUM EXISTING PRE-FILTER MEDIA

Utilize the vacuum truck hose or hose extension to remove the filter media from each of the individual media cages. Once filter media has been sucked out, use a pressure washer to spray down the inside of the cartridge and its media cages. Remove cleaned media cages and place to the side. Once removed, the vacuum hose can be inserted into the cartridge to vacuum out any remaining material near the bottom of the cartridge.



6. PRE-FILTER MEDIA REPLACEMENT

Reinstall media cages and fill with new media from the manufacturer or outside supplier. Manufacturer will provide specification of media and sources to purchase. The easiest way to fill the media cages is to utilize a refilling tray that can also be sourced from the manufacturer. Place the refilling tray on top of the cartridge and fill with new bulk media shaking it down into the cages. Using your hands, lightly compact the media into each filter cage. Once the cages are full (each cartridge will hold five heaping 5gal buckets of bulk media), remove the refilling tray and replace the cartridge top, ensuring fasteners are properly tightened.

7. MAINTAINING VEGETATION

In general, the biofiltration chamber is maintenance-free with the exception of maintaining the vegetation. The MWL utilizes vegetation similar to surrounding landscape areas, therefore, trim vegetation to match surrounding vegetation. If any plants have died, replace them with new ones.

8. INSPECT UNDERDRAIN SYSTEM

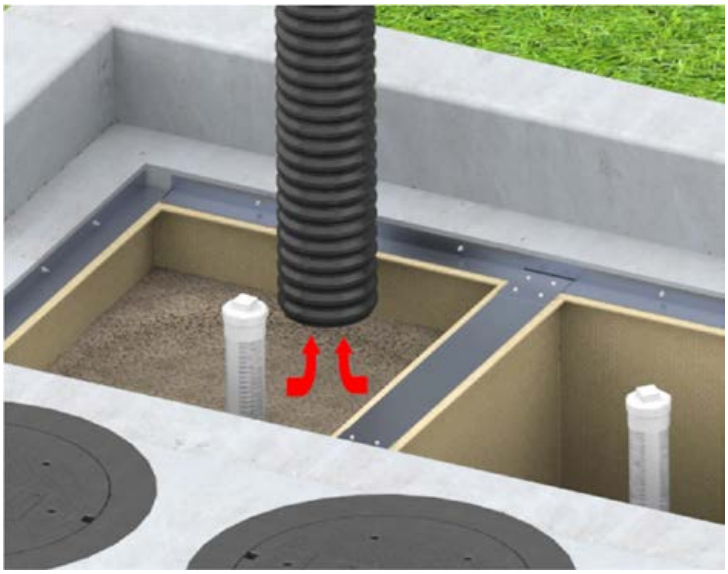
Each vertical under drain on the biofiltration chamber has a removable threaded cap that can be taken off to check for any blockages or root growth. Once removed, a jetting attachment to the pressure washer can be used to clean out the under drain and orifice riser if needed.

9. REPLACE ACCESS COVERS

Once maintenance is complete, replace all access cover(s)

REPLACING BIOFILTRATION MEDIA IF REQUIRED

As with all biofilter systems, at some point the biofiltration media will need to be replaced, either due to physical clogging or sorptive exhaustion (for dissolved pollutants) of the media ion exchange capacity (to remove dissolved metals and phosphorous). The general life of this media is 10 to 20 years based on site specific conditions and pollutant loading, so replacing the biofiltration media should not be a common occurrence. In the event that the biofiltration media requires replacement, contact one of Contech's Maintenance Team members at https://www.conteches.com/maintenance to order new biofiltration media. The quantity of media needed can be determined by providing the model number and unit depth. Media will be provided in super sacks for easy installation. Each sack will weigh between 1,000 and 2,000 lbs. Biofiltration media replacement can be done following the steps below:



1. VACUUM EXISTING BIOFILTRATION MEDIA

Remove the mulch and vegetation to access the biofiltration media, and then position the vacuum truck accordingly. Utilize the vacuum truck to vacuum out all the media. Once all media is removed, use the pressure washer to spray down all the netting and underdrain systems on the inside of the media containment cage. Vacuum out any remaining debris after spraying down netting. Inspect the netting for any damage or holes. If the netting is damaged, it can be repaired or replaced with guidance by the manufacturer.

2. INSTALLING NEW BIOFILTRATION MEDIA

Ensure that the chamber is fully cleaned prior to installation of new media into the media containment cage(s). Media will be provided in super sacks for easy installation. A lifting apparatus (forklift, backhoe, boom truck, or other) is recommended to position the super sack over the biofiltration chamber. Add media in lifts to ensure that the riser pipes remain vertical. Be sure to only fill the media cage(s) up to the same level as the old media.

3. REPLANT VEGETATION

Once the media has been replaced, replant the vegetation and cover biofiltration chamber with approved mulch (if applicable). If the existing vegetation is not being reused, and new vegetation is being planted, you will need to acquire new plant establishment media that will be installed just below the mulch layer at each plant location. (see plan drawings for details). Contact one of Contech's Maintenance Team members at https://www.conteches.com/maintenance to order new plant establishment media.

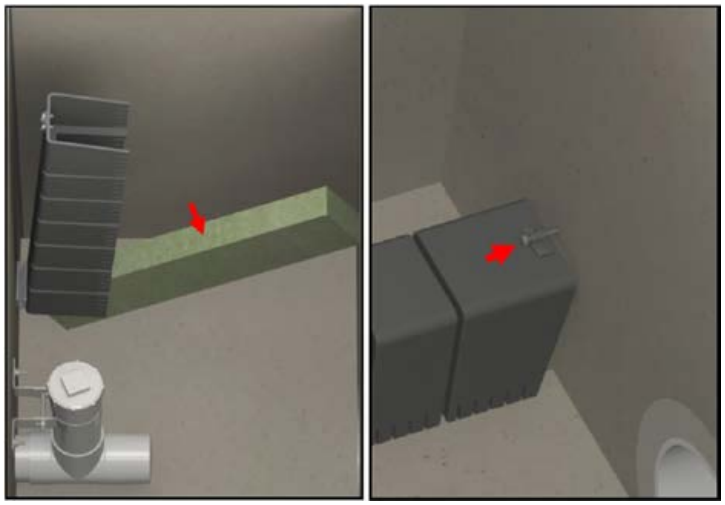
REPLACING DRAIN DOWN FILTER MEDIA (ONLY ON OLDER CALIFORNIA MODELS)

NOTE: The drain down filter is only found on units installed in California prior to 2023

If during inspection it was determined that the drain down filter media requires replacement, contact one of Contech's Maintenance Team members at https://www.conteches.com/maintenance to order new media.

1. REMOVE EXISTING DRAIN DOWN MEDIA

Pull knob back to unlock the locking mechanism and lift the drain down filter housing to remove the used BioMediaGREEN filter block.



2. INSTALL NEW DRAIN DOWN MEDIA

Ensure that the chamber and housing are fully cleaned prior to installation of new media, and then insert the new BioMediaGREEN filter block. The media filter block should fit snugly between the chamber walls and be centered under the filter housing. Lower the housing over the filter block and secure the locking mechanism.

NOTES

CONTECH® ENGINEERED SOLUTIONS

Inspection Report
Modular Wetlands Linear

Project Name _____

Project Address _____
(city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

Inspector Name _____ Date ____/____/____ Time _____ AM / PM

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

For Office Use Only
(Reviewed By)
(Date) Office personnel to complete section to the left.

Inspection Checklist

Modular Wetland System Type (Curb, Grate or UG Vault): _____ Size (22', 14' or etc.): _____

Structural Integrity:	**Yes**	**No**	**Comments**
Damage to pre-treatment access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Damage to discharge chamber access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Does the MWS unit show signs of structural deterioration (cracks in the wall, damage to frame)?			
Is the inlet/outlet pipe or drain down pipe damaged or otherwise not functioning properly?			
Working Condition:			
Is there evidence of illicit discharge or excessive oil, grease, or other automobile fluids entering and clogging the unit?			
Is there standing water in inappropriate areas after a dry period?			
Is the filter insert (if applicable) at capacity and/or is there an accumulation of debris/trash on the shelf system?			
Does the depth of sediment/trash/debris suggest a blockage of the inflow pipe, bypass or cartridge filter? If yes, specify which one in the comments section. Note depth of accumulation in in pre-treatment chamber.			Depth:
Does the cartridge filter media need replacement in pre-treatment chamber and/or discharge chamber?			Chamber:
Any signs of improper functioning in the discharge chamber? Note issues in comments section.			
Other Inspection Items:			
Is there an accumulation of sediment/trash/debris in the wetland media (if applicable)?			
Is it evident that the plants are alive and healthy (if applicable)? Please note Plant Information below.			
Is there a septic or foul odor coming from inside the system?			

Waste:	**Yes**	**No**
Sediment / Silt / Clay		
Trash / Bags / Bottles		
Green Waste / Leaves / Foliage		

Recommended Maintenance	
No Cleaning Needed	
Schedule Maintenance as Planned	
Needs Immediate Maintenance	

Plant Information	
Damage to Plants	
Plant Replacement	
Plant Trimming	

Additional Notes: _____

CONTECH® ENGINEERED SOLUTIONS

Cleaning and Maintenance Report
Modular Wetlands Linear

Project Name _____

Project Address _____ (city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section to the left.

Inspector Name _____ Date ____/____/____ Time _____ AM / PM

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

Site Map #	GPS Coordinates of Insert	Manufacturer / Description / Sizing	Trash Accumulation	Foliage Accumulation	Sediment Accumulation	Total Debris Accumulation	Condition of Media 25/50/75/100 (will be changed @ 75%)	Operational Per Manufactures' Specifications (If not, why?)
	Lat: Long:	MWS Catch Basins						
		MWS Sedimentation Basin						
		Media Filter Condition						
		Plant Condition						
		Drain Down Media Condition						
		Discharge Chamber Condition						
		Drain Down Pipe Condition						
		Inlet and Outlet Pipe Condition						

Comments:

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800-338-1122

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CONTECH ENGINEERED SOLUTIONS LLC PROVIDES SITE SOLUTIONS FOR THE CIVIL ENGINEERING INDUSTRY. CONTECH'S PORTFOLIO INCLUDES BRIDGES, DRAINAGE, SANITARY SEWER, STORMWATER AND EARTH STABILIZATION PRODUCTS. FOR INFORMATION ON OTHER CONTECH DIVISION OFFERINGS, VISIT CONTECHES.COM OR CALL 800-338-1122.

SUPPORT

DRAWINGS AND SPECIFICATIONS ARE AVAILABLE AT WWW.CONTECHES.COM

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