County of San Diego

Stormwater Quality Management Plan (SWQMP)

For Priority Development Projects (PDPs)

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

Project Information	
Project Name	Demler Brothers Manure Processing
Project Address	25818 Highway 78 Ramona, CA 92065
Assessor's Parcel # (APN)	286-031-01
Permit # / Record ID	PDS2019-MUP-19-004

Project Applicant / Project Proponent		
Name	Demler Brothers, LLC	
Address	25818 Highway 78, Ramona, CA 92065	
Phone	760-789-0195	**Email:** alexdemler@sceggs.com

SWQMP Preparer		
Name	Leila Talebi	
Company (if applicable)	Michael Baker International	
Address	9755 Clairemont Mesa Blvd. San Diego, CA 92124	
Phone	858-810-1428	**Email:** leila.talebi@mbakerintl.com
PE Number (if applicable)	RCE 86123	

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 L Talebi **Date** 12/2/2020

SDC PDS RCVD 12-20-21

MUP19-004

COUNTY ACCEPTED

SWQMP Approved By: *Approval Date*:

**** Note* Approval does not constitute compliance with regulatory requirements.***

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	3/26/2019	Initial Submittal
2	7/31/2019	Comment Revisions
3	3/24/2020	Comment Revision & Expansion of MUP area
4	9/4/2020	Comment Revisions
No.	Date	Summary of Change
Final Design		
1	Date	Initial Submittal
2	Date	Summary of Change
3	Date	Summary of Change
4	Date	Summary of Change
No.	Date	Summary of Change
Plan Changes		
1	Date	Initial Submittal
2	Date	Summary of Change
3	Date	Summary of Change
4	Date	Summary of Change
No.	Date	Summary of Change

General Directions

Note: These directions may be omitted from the final SWQMP submittal.	See ***PDP SWQMP Form Instructions*** for additional, more detailed guidance and explanation of terms.

① 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.

② Attachment 1: Stormwater Intake Form

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

③ Table 1: Submittal Scope

Complete Table 1 to document the scope of activities covered under the current 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 in Table 1, 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.

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

Table 2 Completion: Complete **Table 2** to document existing (Group 1) and proposed (Groups 2 and 3) site features and the BMPs to be implemented for them. Except where otherwise noted, all BMPs must be implemented ***where applicable and feasible***.

- ***Full implementation*** means a BMP will be fully implemented everywhere that the feature exists on the site. For example, all existing water bodies will be fully conserved.
- ***Partial implementation*** means that some BMP implementation will occur, but the BMP will NOT be fully implemented everywhere that the feature exists. For example, only one of two existing water bodies will be conserved, or not all rooftop runoff will be dispersed to vegetated areas.
- ***Infeasible*** means a BMP cannot be either partially or fully implemented. Infeasibility can be based both on technical factors (soil type, site layout, etc.) and economic considerations (material or labor costs, etc.). However, technical factors should generally be given greater weight.

Table 3 Completion: All projects must complete **Table 3, Part A** to identify applicable requirements for documenting pollutant-generating sources/ features and source control BMPs. Part B is required unless the PDP is a Small Residential Project OR none of the sources or features listed in the table are proposed for the project. Sources, features, and BMPS other than those identified in Table 3 should be described in Table 4.

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.

Each BMP listed in Table 3 must be implemented ***where applicable and feasible***. Leaving a BMP unselected means it will not be either partially or fully implemented.

If requested by County staff, complete and submit a **Source Control BMP Worksheet** (**Attachment 3**).

Table 4 Completion: Use **Table 4** to provide justifications for baseline BMPs as shown.

Feature or Activity	Mandatory Justification	Justify if Requested
• Table 2 Existing and Proposed Features • Table 3 Pollutant-generating Sources	Any feature or activity for which NO BMPs are selected (you must explain why all BMPs are infeasible)	Individual BMPs that will either not be implemented, or will only be partially implemented

Also use Table 4 to describe any proposed sources, features, or BMPs that are not listed in Table 2 or 3.

⑤ Attachment 4: Existing Site and Drainage Description

Complete **Attachment 4** 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 4.

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 5** as follows.

Table 5, 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 5, 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 5, 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 5, 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 6: Critical Coarse Sediment Yield Area Requirements

Complete **Table 6** 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 6 selections, including hydromodification management exemptions, in **Attachment 9**.

⑨ Tables 7 and 8: Temporary Construction Phase BMPs

Complete **Table 7** 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 8** to describe why BMPs not selected in Table 7 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 2, 3, and 7** 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 eight tables below must be completed.

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: Source Control BMP Worksheet

☐ 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: 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. Some attachments are presented out of order because they are shared between multiple SWQMP forms.

Table 1 – Scope of SWQMP Submittal

Select one option below 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***	Use the spaces below to identify 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.):	

Table 2 – Baseline BMPs for Existing and Proposed Site Features

Site Features Select each feature that applies.		BMP Implementation Describe BMP implementation for each selected site feature.				
Group 1: Existing Natural Site Features [See BMPDM Sections 4.3.1 and 4.3.2]						
		Maintain & conserve natural features (SD-G)		**Establish buffers for waterbodies (SD-H)**		
		Full	Partial	Full	Partial	
☐	**Natural waterbodies**	☐	☐	☐	☐	
☐	**Natural storage reservoirs & drainage corridors**	☐	☐			
☒	**Natural areas, soils, & vegetation (incl. trees)**	☐	☒			
Group 2: Common Impervious Outdoor Site Features [See BMPDM Sections 4.3.3 and 4.3.5]						
		Disperse impervious areas (SD-B)		**Use permeable materials (SD-D)**		**Minimize impervious areas (SD-I)**
		Full	Partial	Full	Partial	
☒	**Streets and roads**	☐	☒	☒	☐	☒ Check here to confirm that impervious surfaces have been minimized where applicable and feasible for all outdoor impervious areas. If not, explain in Table 3.
☐	**Sidewalks & walkways**	☐	☐	☐	☐	
☒	**Parking areas & lots**	☐	☒	☒	☐	
☒	**Driveways**	☐	☒	☒	☐	
☐	**Patios, decks, & courtyards**	☐	☐	☐	☐	
☐	**Hardcourt recreation areas**	☐	☐	☐	☐	
☐		☐	☐	☐	☐	
☐		☐	☐	☐	☐	
☐		☐	☐	☐	☐	
Group 3: Other Outdoor Site Features [See BMPDM Sections 4.2.6, 4.3.4, 4.3.5, 4.3.7, and 4.3.8]						
☒	**Rooftop areas**	**Disperse rooftop runoff (SD-B)**		**Install green roofs (optional; SD-C)**		**Use rain barrels to capture runoff (optional; SD-E)**
		Full	Partial	Full	Partial	Full / Partial
		☒	☐	☐	☐	☐ / ☐
☒	**Landscaped areas**	**Use water-efficient landscaping (SD-J)**		**Install efficient irrigation systems (SD-K)**		**Minimize erosion of slopes and surfaces (SD-L)**
		Full	Partial	Full	Partial	Full / Partial
		☐	☐	☐	☐	☒ / ☐
☐	**Water features (pools, spas, etc.)**	**Provide a designated washing area (SC-A)**		**Drain feature to the sanitary sewer (if allowed) (SC-B)**		**Drain feature to a pervious area (SC-C)**
		Full	Partial	Full	Partial	Full / Partial
		☐	☐	☐	☐	☐ / ☐

Note: Justification is required in Table 4 for any feature not selecting at least one BMP (either full or partial implementation). For Group 2 features this means not selecting either SD-B or SD-D. Additional justifications may be required on request by County staff. Also use Table 4 to describe sources or BMPs other than those listed.

Table 3 –Baseline BMPs for Pollutant-generating Sources (Group 4)

A. Requirements for Documentation Select either or both as applicable.	Completion of Part B is not required because: ☐ This is a Small Residential Project, OR ☐ None of these sources or features is proposed.	☒ ***Source Control BMP Requirements Worksheet E.1-1*** (SC in Appendix E of the BMP Design Manual) is included as **Attachment 3** (optional unless requested by County staff).

B. Sources and BMPs Select all proposed sources and features below. Then select the BMPs on the right to be implemented for each.	**SC-B** Plumb to sanitary sewer	**SC-C** Drain feature to a pervious area	**SC-D** Provide containment for spills and discharges	**SC-E** Prevent contact with rainfall	**SC-F** Isolate flows from adjacent areas	**SC-G** Prevent wind dispersal	**SC-H** Label with stencils or signs
Common Source Areas							
☒ **Trash & Refuse Storage**	☐	---	☒	☒	☐	☐	---
☒ **Materials & Equipment Storage**	☐	---	☒	☒	☒	☒	---
☒ **Loading & Unloading**	☐	---	☒	☒	☒	---	---
☐ **Fueling**	☐	---	☐	☐	☐	---	---
☐ **Maintenance & Repair**	☐	---	☐	☐	☐	---	---
☐ **Vehicle & Equipment Cleaning**	☐	---	☐	☐	☐	---	---
☐ **Food Preparation or Service**	☐	---	☐	☐	☐	---	---
Distributed Features							
☐ **Storm drain inlets & catch basins**	---	---	---	---	---	---	☐
☐ **Interior floor drains and sumps**	☐	---	---	---	---	---	---
☐ **Drain lines (air conditioning, etc.)**	☐	☐	☐	---	---	---	---
☐ **Fire test sprinkler discharges**	☐	☐	☐	---	---	---	---

Provide the following in Table 4: (1) justification of any source area or feature with NO BMPs selected, (2) justification of individual unselected BMPs *if requested by County staff*, and (3) identification of any proposed pollutant-generating sources and BMPs not listed here.

Note: Pollutant-generating sources and features may not discharge directly to the MS4. Discharging to any of the stormwater BMPs identified in Table 5 Part B is also discouraged. If doing so, however, the source or feature area must be included in applicable DCV calculations.

Table 4 – Explanations and Justifications for Table 2 and 3 Baseline BMPs

☐ **Check here if no explanations or justifications for Table 2 or 3 BMPs are required.**

- **Required Justifications**: If NO BMPs are selected for a source or feature, justify why all BMPs are either not applicable or are infeasible. For Group 2 features NO BMPs means not selecting either SD-B or SD-D.
- **If Requested**: Justify why individual BMPs will not be implemented or will only be partially implemented.
- **Additional Explanation**: Describe any proposed features and/or BMPs not listed in Tables 2 or 3.

BMP-Feature Combination		**Explanation**
Feature	Loading and Unloading	No sewer lines are associated with the project scope.
BMP	SC-B	
Feature	Fueling	Fueling is not proposed onsite within the MUP boundary.
BMP	BMP	
Feature	Feature	Explanation
BMP	BMP	
Feature	Feature	Explanation
BMP	BMP	
Feature	Feature	Explanation
BMP	BMP	
Feature	Feature	Explanation
BMP	BMP	
Feature	Feature	Explanation
BMP	BMP	

Table 5: 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]
0	65,340	100%

☒ *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 ☒	Source Control BMP Worksheet (see Page 3) ☒	Previous SWQMP Submittals (see Page 1) ☐	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 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 BMPs (BMPDM Chapter 6)			☒	☒	☒	☒	
☐Alternative Compliance Project (BMPDM Section 1.8)				☐	☐	☐	☐

☒ **Please check this box after you complete this list. Corresponding attachments will be automatically selected on the right.**

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

Table 6: 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**[2]

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**

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

Table 7 –Minimum Construction Stormwater BMPs

Minimum Required BMPs by Activity Type Select all applicable activities and at least one BMP for each	References Caltrans[3]	 County of San Diego	
☒ **Erosion Control for Disturbed Slopes** (choose at least 1 per season)			
☒ Vegetation Stabilization Planting[4] (Summer)	SS-2, SS-4		
☒ Hydraulic Stabilization Hydroseeding[9] (Summer)	SS-4		
☒ Bonded Fiber Matrix or Stabilized Fiber Matrix[5] (Winter)	SS-3		
☐ Physical Stabilization Erosion Control Blanket[7] (Winter)	SS-7		
☒ **Erosion control for disturbed flat areas (slope < 5%)**			
☒ County Standard Lot Perimeter Protection Detail	SC-2	PDS 659[6]	
☐ 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[7]	
☐ 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[8]	
☒ **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[9]**			
☒ Waste Management Concrete Waste Management	WM-8		
☒ Solid Waste Management	WM-5		
☒ Sanitary Waste Management	WM-9		
☒ Hazardous Waste Management	WM-6		

[3] See Caltrans 2017 Storm Water Quality Handbooks, Construction Site BMP Manual, available at: (http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm)
[4] 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.
[5] All slopes over three feet must have established vegetative cover prior to final permit approval.
[6] County PDS 659. Standard Lot Perimeter Protection Design System (Bldg. Division)
[7] County PDS 660. County Standard Desilting Basin for Disturbed Areas of 1 Acre or Less Bldg. Division
[8] Regional Standard Drawing D-40 – Rip Rap Energy Dissipater (also acceptable for velocity reduction)
[9] Applicants are responsible to apply appropriate BMPs for specific wastes (e.g., BMP WM-8 for concrete).

Table 8 – Explanations and Justifications for Construction Phase BMPs

☒ **Check here if no explanations or justifications for Table 7 BMPs are required.**		
Justifications for Table 7 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 7.		
Activity Type / BMP		**Explanation**
Activity Type	Activity Type	Explanation
BMP	BMP	
Activity Type	Activity Type	Explanation
BMP	BMP	
Activity Type	Activity Type	Explanation
BMP	BMP	
Activity Type	Activity Type	Explanation
BMP	BMP	
Activity Type	Activity Type	Explanation
BMP	BMP	
Activity Type	Activity Type	Explanation
BMP	BMP	
Activity Type	Activity Type	Explanation
BMP	BMP	

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:	Demler Brothers Manure Processing
Record ID (Permit) No(s):	PDS2019-MUP-19-004
Assessor's Parcel No(s):	286-031-01
Street Address (or Intersection):	25818 Highway 78
City, State, Zip:	Ramona, CA 92065

Part 2. Applicant / Project Proponent Information	
Name:	Demler Brothers, LLC
Company:	Demler Brothers, LLC
Street Address:	25818 Highway 78
City, State, Zip:	Ramona, CA 92065
Phone Number	760-789-0195
Email:	alexdemler@sceggs.com

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)**
0	65,340	5.5 AC

Ⓑ ☒ 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)**
	Forthcoming

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: 12/2/20

- ***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.

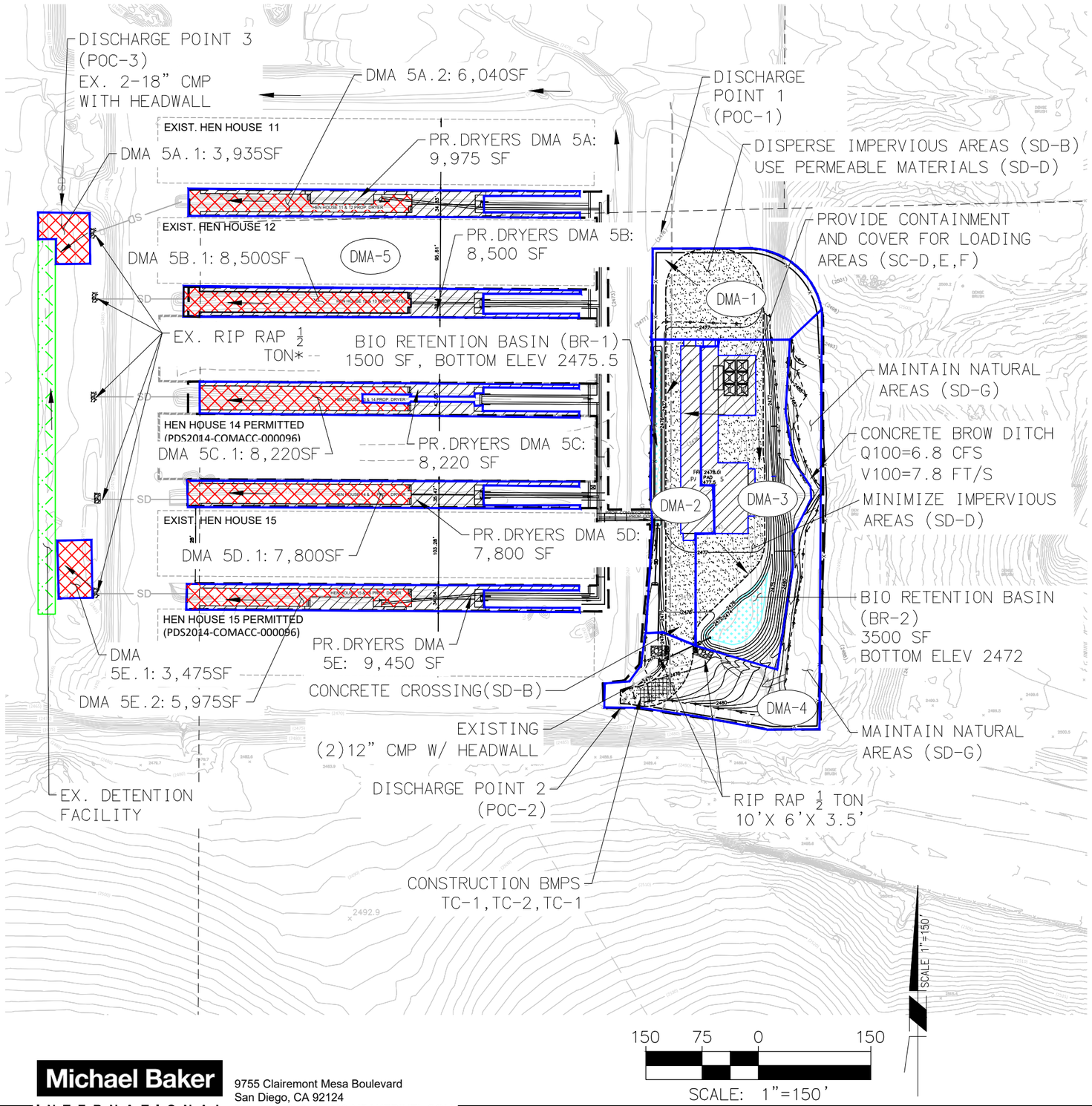
Sub-attachments	Requirement
☒ **2.1: DMA Exhibits**	All PDPs
☒ **2.2: Individual Structural BMP DMA Mapbook**	PDPs with structural BMPs
☒ **2.3: Construction Plan Sets**	All projects

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 #:	**DMA Exhibit**
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.



LEGEND

- MUP BOUNDARY
- DMA BOUNDARY
- IMPERVIOUS AREA
- DG (SEMI-PERVIOUS AREA)
- BIORETENTION AREA
- EX. TREATMENT AREA (11,500 SF) EXCLUDED FROM THIS ANALYSIS
- DISPERSION AREA - 11" AMENDED SOILS (43,945 SF)
- DMA ID NUMBER (DMA-X)
- FLOW DIRECTION
- BROW DITCH
- PERIMETER PROTECTION SC-1,SC-2,SC-5,SC-6,SC-8
- EXISTING STORM DRAIN (SD)

NOTES

DMA 5 CONSISTS OF 5 DRYERS A-E AND 7 EQUIVALENT IMPERVIOUS DISPERSION AREAS A.1,A.2,B.1,C.1,D.1,E.1,E.2

OTHER OUTDOOR SITE FEATURES PER SD-B, SD-L

SOURCE AREA BMPS SC-D, SC-E, SC-F, SC-G

NO NATURAL HYDROLOGIC FEATURES CURRENTLY EXIST ON SITE

ALL SOILS URBAN LANDS SOIL TYPE "C"

GROUNDWATER DEPTH EXCEEDS 10 FEET

EXISTING UPSTREAM CCSYA WILL BE BYPASSED THROUGH THE MUP SITE. REFER TO ATTACHMENT 9

*EX. RIP RAP SIZED PER COUNTY GRADING PERMIT NO: L-15547 VELOCITY LESS THAN 3.0 FT/SEC

CONSTRUCTION STORMWATER BMPS

BARE SOIL WILL RECEIVE HYDROSEED/STABILIZING VEGETATION PER SS-2,3,4

CONSTRUCTION MATERIALS WILL BE MANAGED PER WM-1, WM-4

CONSTRUCTION WASTE WILL BE MANAGED PER WM-5, WM-6, WM-8, WM-9

DMA SUMMARY

DMA	PERVIOUS AREA (AC)	IMPERVIOUS AREA (AC)	TOTAL AREA (AC)	TYPE	POC
1	0.57	0.00	0.57	SELF MITIGATING	POC-1
2	0.43	0.19	0.62	STRUCTURAL/ BIORETENTION	POC-2
3	0.85	0.30	1.15	STRUCTURAL/ BIORETENTION	POC-2
4	1.00	0.00	1.00	SELF MITIGATING	POC-2
5	1.01	1.01	2.02	IMPERVIOUS DISPERSION	POC-3

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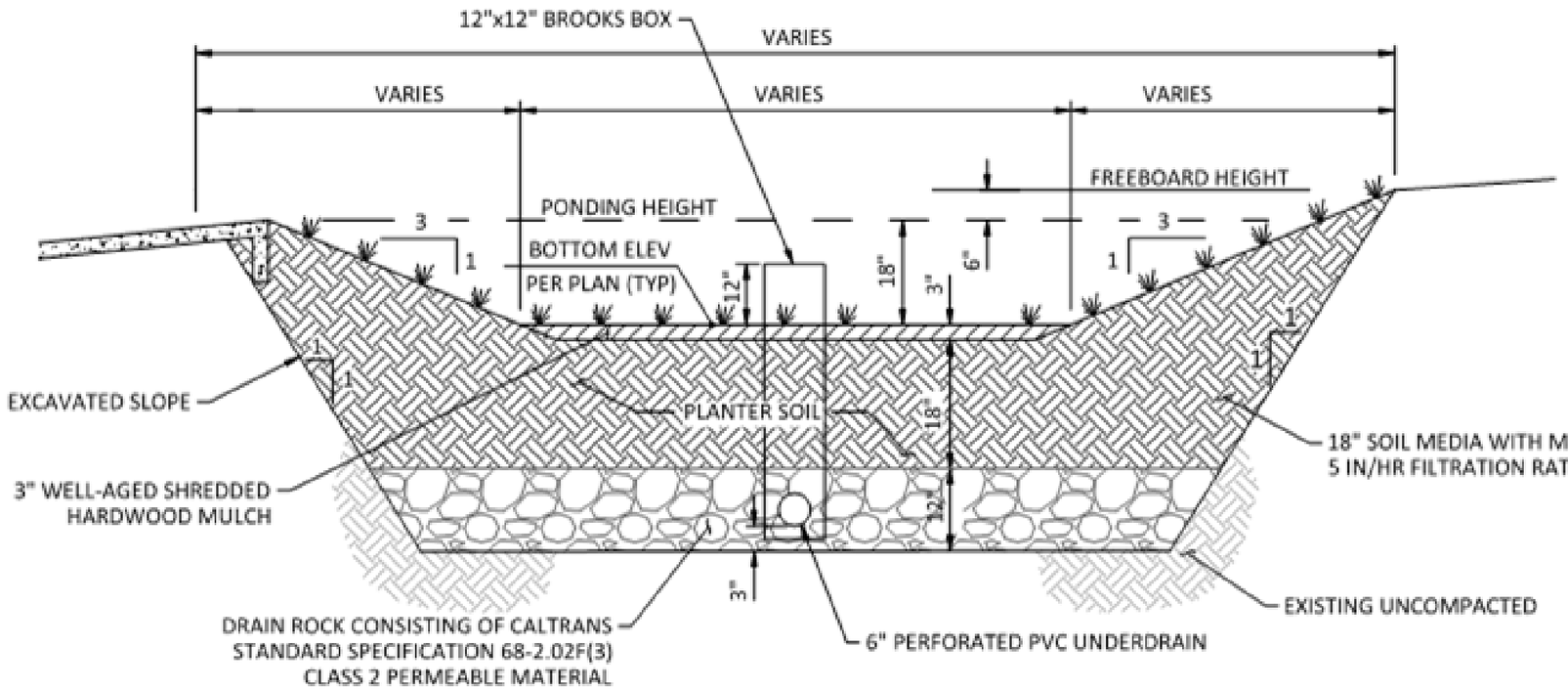
DEMLER BROTHERS MANURE PROCESSING
DMA EXHIBIT PAGE 1 OF 2



NOTE:

1. COVER PLANTER SURFACE WITH 3" THICK LAYER OF MULCH.
2. PROVIDE 2"x2" CLUSTERED FIELD SEDGE AND COBBES. PLANT AT 6" ON CENTER IN AREAS INDICATED ON PLANS.
3. PLANTER SOIL MIX TO CONSIST OF 20% COMPOST, 60% SAND, 20% TOP SOIL (NO CLAY).
4. PROVIDE TEMPORARY IRRIGATION MEASURES UNTIL VEGETATION IS ESTABLISHED.

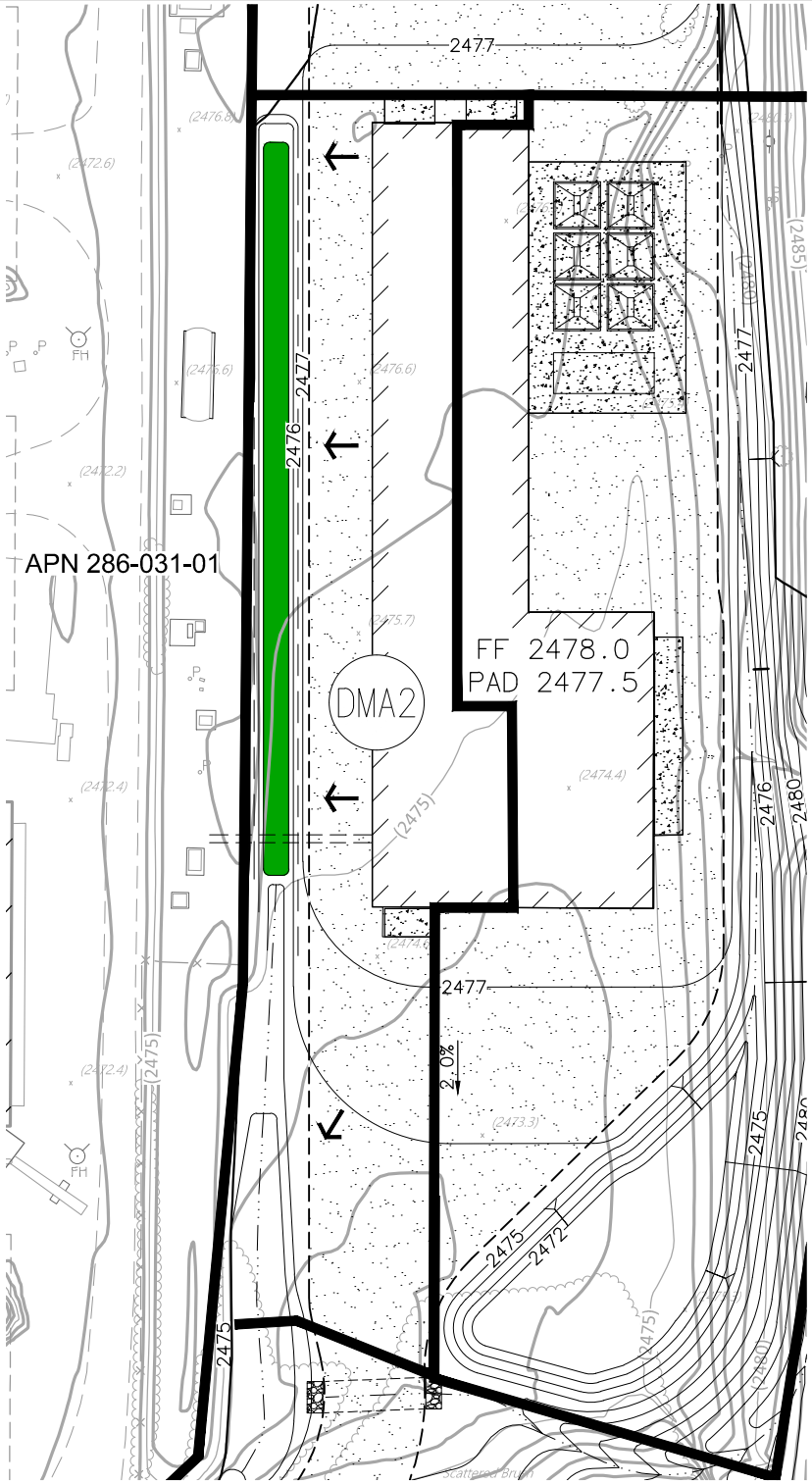
SECTION - BIORETENTION BASIN

N.T.S.

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



LEGEND:

BIORETENTION

DRAINAGE MANAGEMENT AREA — DMA2

FLOW DIRECTION

SCALE 1"=60'

DEMLER BROTHERS MANURE PROCESSING
STRUCTURAL BMP HANDBOOK
DMA 2 MAP

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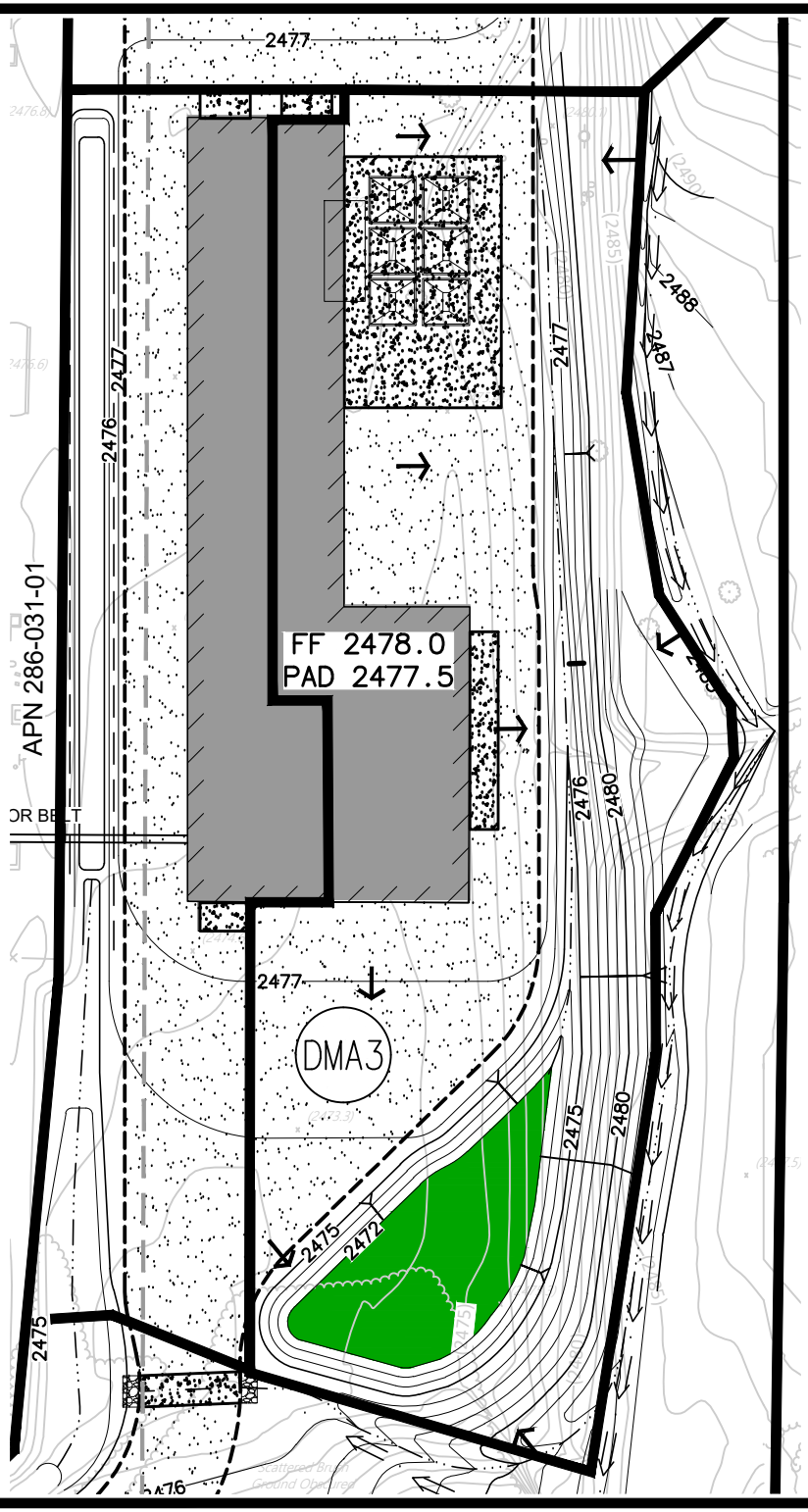
San Diego, CA 92124
Phone: (858) 614-5000 · MBAKERINTL.COM



LEGEND:

BIORETENTION

DRAINAGE MANAGEMENT AREA — DMA3

FLOW DIRECTION

SCALE 1"=60'

DEMLER BROTHERS MANURE PROCESSING
STRUCTURAL BMP HANDBOOK
DMA 3 MAP

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San Diego, CA 92124
Phone: (858) 614-5000 · MBAKERINTL.COM

2.3 Construction Plan Sets

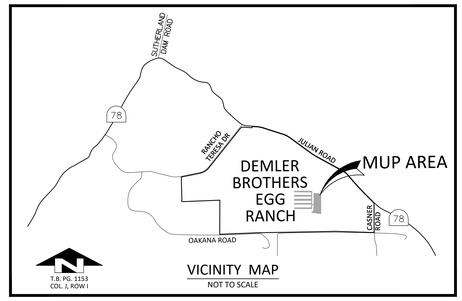
- DMAs, features, and BMPs identified and described in this attachment must also be shown on all applicable construction and landscape plans.
- As applicable, plan sheets must identify:
    - All features and BMPs identified in Sub-attachment 2.1 (DMA Exhibits).
    - The additional information listed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

Plan Type	**Grading Plan**
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

DEMLER BROTHERS EGG RANCH

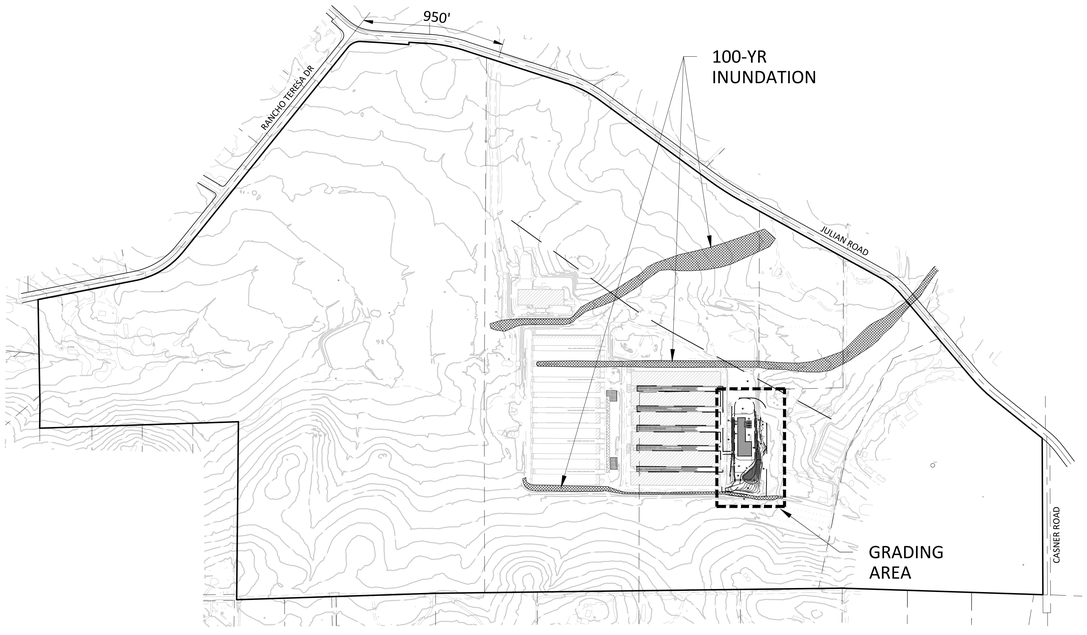
RAMONA, CA
PRELIMINARY GRADING PLAN
PDS 2019-MUP-19-004



VICINITY MAP
NOT TO SCALE

NOTES

1. GROSS AREA: 362.1 ACRES
2. MUP AREA: 6.0 ACRES
3. ALL EXISTING AGRICULTURAL BUILDINGS TO REMAIN. PROJECT ACCESS FROM HWY. 78.
4. APN PARCEL LINES ARE SHOWN HEREON FOR REFERENCE ONLY AND ARE PER COUNTY OF SAN DIEGO APN DATA. ALL APN DATA SHOULD BE CONSIDERED APPROXIMATE ONLY.
5. NO RPO STEEP SLOPES LOCATED ON MUP SITE.
6. ROOF DRAINAGE TO BE DIRECTED TO SWALE AND BIOFILTRATION BASINS.
7. SEE BIOLOGICAL RESOURCE LETTER.
8. THIS PLAN IS PROVIDED TO ALLOW FOR FULL AND ADEQUATE DISCRETIONARY REVIEW OF A PROPOSED DEVELOPMENT PROJECT. THE PROPERTY OWNER ACKNOWLEDGES THAT ACCEPTANCE OR APPROVAL OF THIS PLAN DOES NOT CONSTITUTE AN APPROVAL TO PERFORM ANY GRADING SHOWN HEREON, AND AGREES TO OBTAIN VALID GRADING PERMISSIONS BEFORE COMMENCING SUCH ACTIVITY.
9. DEVELOPMENT AREA IS VEGETATED WITH NON-NATIVE VEGETATION (WEEDS).



KEY MAP
NOT TO SCALE

EARTHWORK

VOLUME OF CUT: 3,000 CY
VOLUME OF FILL: 3,000 CY
EXPORT/IMPORT: 0 CY

NOTE: THIS IS A RAW EARTHWORK VALUE AND IS SUBJECT TO ADJUSTMENTS DUE TO SHRINKAGE AND/OR BULKING, BUILDING FOUNDATION DESIGN AND ROADWAY UNDERCUTS TO BE DETERMINED BY THE PROJECT'S GEOTECHNICAL CONSULTANT.

MAX. DEPTH OF CUT: 7'
MAX. DEPTH OF FILL: 4'

MAX. CUT SLOPE RATIO: 2 TO 1
MAX. FILL SLOPE RATIO: 2 TO 1

TOTAL DISTURBED AREA BEFORE PROJECT: 4.8 AC
TOTAL DISTURBED AREA AFTER PROJECT: 5.5 AC

TOTAL IMPERVIOUS AREA BEFORE PROJECT: 0.0 AC
TOTAL IMPERVIOUS AREA AFTER PROJECT: 1.5 AC

MAXIMUM SITE RETAINING WALL HEIGHT: N/A

TOPOGRAPHIC SOURCE: AEROTECH MAPPING, INC
FLOWN 2/8/2018

SUMMARY OF LID/SITE DESIGN BMPs

- MINIMIZE DISTURBANCE TO NATURAL DRAINAGE AREAS
- MINIMIZE IMPERVIOUS SURFACES
- MINIMIZE SOIL COMPACTION
- DRAINAGE RUNOFF FROM IMPERVIOUS SURFACE TO PERVIOUS AREAS
- UNMANNED FACILITY, PERSONNEL WILL ONLY BE ON SITE IN THE EVENT OF REQUIRED MAINTENANCE ACTIVITIES

SUMMARY OF SOURCE CONTROL BMPs

- BINDING AGENT TO ADDED ON ALL DISTURBED OR EXPOSED SURFACES AREAS

MUP ASSESSOR PARCEL NUMBER

POR. 286-030-22 & POR. 286-031-01

LEGAL DESCRIPTION

(EX RD) DOC 82-10326 IN NWQ OF SEQ & IN NEQ SEC 4-13-2E & D74-304132 IN WQ SEC L4 S OF RS 329 & IN NEQ OF SEQ 4-13-2E

BASIS OF BEARINGS

THE COORDINATES SHOWN HEREON ARE BASED UPON THE CALIFORNIA COORDINATE SYSTEM OF 1983, CCS83, ZONE 6, (EPOCH 1991.35). SAID COORDINATES ARE BASED LOCALLY UPON FIELD-OBSERVED TIES TO THE FOLLOWING CONTROL STATION PER NGS DATA SHEET (PID DX5024). THIS METHODOLOGY WAS PERFORMED BY JAIME TAYLOR IN 2009.THIS METHODOLOGY IS NOT SUFFICIENT FOR MAPPING PURPOSES.

BENCHMARK

THE BASIS OF ELEVATIONS FOR THIS SURVEY IS THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29) PER NGS DATA SHEET (PID DX0281), BENCHMARK DESIGNATION: "E62" 3.5" BRASS DISC IN 1' SQ. CONCRETE MONUMENT, STAMPED E62 1927. ELEVATION: 2187.39 (NGRD29)

OWNER/APPLICANT

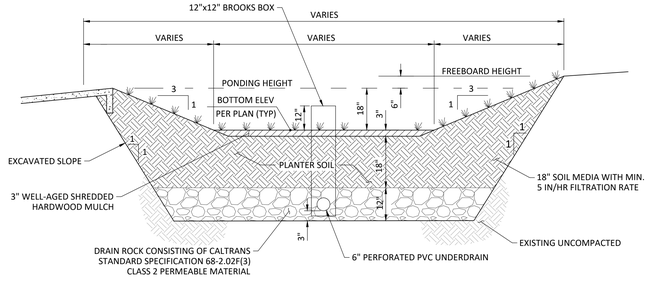
DEMLER BROTHERS, LLC
25818 HIGHWAY 78
RAMONA, CA 92065

PLANNER/ENGINEER

MICHAEL BAKER INTERNATIONAL
STEVE WRAGG
9755 CLAIREMONT MESA BLVD.
SAN DIEGO, CA. 92124
(858) 614-5000

SITE ADDRESS

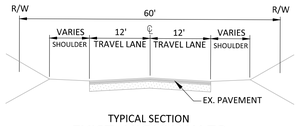
25818 HIGHWAY 78
RAMONA, CA 92065



NOTE:

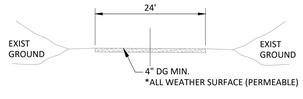
1. COVER PLANTER SURFACE WITH 3" THICK LAYER OF MULCH.
2. PROVIDE 2"x2" CLUSTERED FIELD SEDGE AND COBBES. PLANT AT 6" ON CENTER IN AREAS INDICATED ON PLANS.
3. PLANTER SOIL MIX TO CONSIST OF 20% COMPOST, 60% SAND, 20% TOP SOIL (NO CLAY).
4. PROVIDE TEMPORARY IRRIGATION MEASURES UNTIL VEGETATION IS ESTABLISHED.

SECTION - BIORETENTION BASIN
N.T.S.



TYPICAL SECTION
EXIST. HIGHWAY 78
N.T.S.

NOTE:
PER COUNTY GENERAL PLAN ROAD IS DESIGNATED AS 2.1D, ULTIMATE RIGHT-OF-WAY 84'. NOT A PART OF THIS MUP APPLICATION.



TYPICAL SECTION
EXIST. PRIMARY PROJECT ACCESS
N.T.S.

* ALL WEATHER (DECOMPOSED GRANITE, CLASS 2 BASE OR GRAVEL) MIN. 75,000 lbs. FIRE APPARATUS BEARING LOAD

DEMLER BROTHERS EGG RANCH
RAMONA, CA
MANURE PROCESSING FACILITY PROJECT
PDS 2019-MUP-19-004
PRELIMINARY GRADING PLAN

SHEET 1 OF 2
DATE: 9/11/2020

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San Diego, CA 92124
Phone: (858) 614-5000
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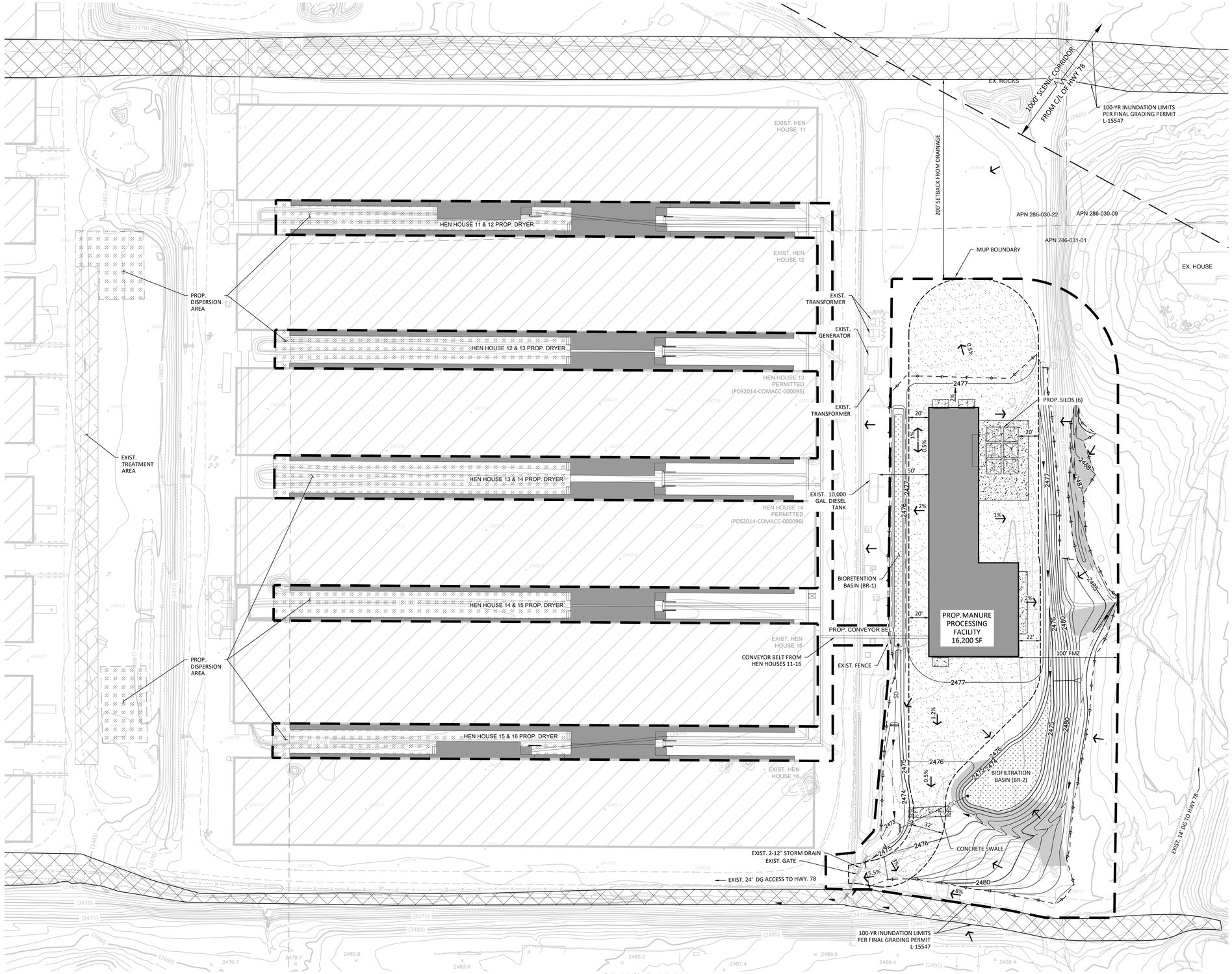
LEGEND

- MUP BOUNDARY
- EXIST. LOT LINE
- EXIST. METAL FENCE
- EXIST. GATE
- EXIST. HEADWALL
- EXIST. POLE
- EXIST. BOLLARD
- EXIST. FIRE HYDRANT
- EXIST. EGG RANCH STRUCTURES / HOUSE
- 100-YR. INUNDATION AREA
- EXIST. DG ACCESS ROAD
- PROP. DG SURFACE (SECTION PER GEOTECH CONSULTANT)
- PROP. MUP STRUCTURE
- FUTURE EGG RANCH HEN HOUSES
- CONCRETE APRON
- EXIST. CONTOUR (2475)
- PROP. CONTOUR 2675
- PROP. EARTHEN SWALE
- DIRECTION OF FLOW
- DAYLIGHT LINE
- BIORETENTION BASIN
- PROP. RIP-RAP
- PROP. FILL SLOPE
- PROP. DISPERSION AREA
- 12"X12" BROOK BOX W/ 6" SD PIPE (SD)
- PROP. HEADWALL



SCALE 1"=40'

40 0 40 80 120

SCALE: 1"=40'

GRADING AREA

SCALE: 1"=40'

DEMLER BROTHERS EGG RANCH
RAMONA, CA
MANURE PROCESSING FACILITY PROJECT
PDS 2019-MUP-19-004
PRELIMINARY GRADING PLAN

SHEET 2 OF 2

DATE: 9/11/2020

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San Diego, CA 92124
Phone: (858) 614-5000
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3.0 Cover Sheet and General Requirements

- Standard SWQMP Form Table 2 and PDP SWQMP Form Table 3 require the identification of pollutant-generating sources and associated BMPs for development projects.

- In some cases, County staff may request additional, more detailed documentation of source control BMP design details. If requested, applicants must submit a completed copy of this Source Control BMP Worksheet. This requirement can be satisfied either by submitting a copy of BMPDM Attachment E.1 (Source Control BMP Requirements) or equivalent documentation at the County's discretion.

- Submit this documentation using this cover sheet.

- Sources and BMPs must also be shown as applicable on DMA exhibits and construction plans (see Attachment 2).

E.2 Source Control BMP Requirements

Worksheet E.1-1: Source Control BMP Requirements

How to comply: Projects must comply with this requirement by implementing all source control BMPs listed in this section that are applicable and feasible for their project. Applicability must be determined through consideration of the development project's features and anticipated pollutant sources. Appendix E.2 provides guidance for identifying source control BMPs applicable to a project. The Standard and PDP SWQMP templates include sections that must be used to document compliance with source control BMP requirements.

How to use this worksheet:

1. Review Column 1 and identify which of these potential sources of storm water pollutants apply to your site. Check each box that applies.
2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your project site plan.
3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs in a table in your project-specific storm water management report. Describe your specific BMPs in an accompanying narrative, and explain any special conditions or situations that required omitting BMPs or substituting alternatives.

If These Sources Will Be on the Project Site …	… Then Your SWQMP Must Consider These Source Control BMPs		
1 **Potential Sources of Runoff Pollutants**	**2** **Permanent Controls—Show on Drawings**	**3** **Permanent Controls—List in Table and Narrative**	**4** **Operational BMPs—Include in Table and Narrative**
❑ **A.** Onsite storm drain inlets ☒ Not Applicable	❑ Locations of inlets.	❑ Mark all inlets with the words "No Dumping! Flows to Bay" or similar. See stencil template provided in Appendix I-4	❑ Maintain and periodically repaint or replace inlet markings. ❑ Provide storm water pollution prevention information to new site owners, lessees, or operators. ❑ See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Storm Water Quality Handbooks at https://www.casqa.org/resources/bmp-handbooks ❑ Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."

If These Sources Will Be on the Project Site …	… Then Your SWQMP must consider These Source Control BMPs		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on Drawings**	3 **Permanent Controls—List in Table and Narrative**	4 **Operational BMPs—Include in Table and Narrative**
❑ **B.** Interior floor drains and elevator shaft sump pumps ☒ Not Applicable		❑ State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.	❑ Inspect and maintain drains to prevent blockages and overflow.
❑ **C.** Interior parking garages ☒ Not Applicable		❑ State that parking garage floor drains will be plumbed to the sanitary sewer.	❑ Inspect and maintain drains to prevent blockages and overflow.
❑ **D1.** Need for future indoor & structural pest control ☒ Not Applicable		❑ Note building design features that discourage entry of pests.	❑ Provide Integrated Pest Management information to owners, lessees, and operators.

If These Sources Will Be on the Project Site …	… Then Your SWQMP must consider These Source Control BMPs		
1 **Potential Sources of Runoff Pollutants**	**2** **Permanent Controls—Show on Drawings**	**3** **Permanent Controls—List in Table and Narrative**	**4** **Operational BMPs—Include in Table and Narrative**
❑ **D2.** Landscape/ Outdoor Pesticide Use ☒ Not Applicable	❑ Show locations of existing trees or areas of shrubs and ground cover to be undisturbed and retained. ❑ Show self-retaining landscape areas, if any. ❑ Show storm water treatment facilities.	State that final landscape plans will accomplish all of the following. ❑ Preserve existing drought tolerant trees, shrubs, and ground cover to the maximum extent possible. ❑ Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to storm water pollution. ❑ Where landscaped areas are used to retain or detain storm water, specify plants that are tolerant of periodic saturated soil conditions. ❑ Consider using pest-resistant plants, especially adjacent to hardscape. ❑ To ensure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use,	❑ Maintain landscaping using minimum or no pesticides. ❑ See applicable operational BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Storm Water Quality Handbooks at https://www.casqa.org/resources/bmp-handbooks ❑ Provide IPM information to new owners, lessees and operators.

If These Sources Will Be on the Project Site …	… Then Your SWQMP must consider These Source Control BMPs		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on Drawings**	3 **Permanent Controls—List in Table and Narrative**	4 **Operational BMPs—Include in Table and Narrative**
❑ **E.** Pools, spas, ponds, decorative fountains, and other water features. ☒ Not Applicable	❑ Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet.	❑ If the local municipality requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.	❑ See applicable operational BMPs in Fact Sheet SC-72, "Fountain and Pool Maintenance," in the CASQA Storm Water Quality Handbooks at https://www.casqa.org/resources/bmp-handbooks
❑ **F.** Food service ☒ Not Applicable	❑ For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment. ❑ On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.	❑ Describe the location and features of the designated cleaning area. ❑ Describe the items to be cleaned in this facility and how it has been sized to ensure that the largest items can be accommodated.	

If These Sources Will Be on the Project Site …	… Then Your SWQMP must consider These Source Control BMPs		
1 **Potential Sources of**	2 **Permanent Controls—Show on Drawings**	3 **Permanent Controls—List in Table and Narrative**	4 **Operational BMPs—Include in Table and Narrative**
☒ **G.** Refuse areas ☐ Not Applicable	☒ Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas. ☐ If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area. Also show how the designated area will be protected from wind dispersal. ☐ Any drains from dumpsters, compactors, and tallow bin areas must be connected to a grease removal device before discharge to sanitary sewer.	☐ State how site refuse will be handled and provide supporting detail to what is shown on plans. ☒ State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.	☒ State how the following will be implemented: Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on- site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Storm Water Quality Handbooks at https://www.casqa.org/resources/bmp-handbooks

If These Sources Will Be on the Project Site …	… Then Your SWQMP must consider These Source Control BMPs		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on Drawings**	3 **Permanent Controls—List in Table and Narrative**	4 **Operational BMPs—Include in Table and Narrative Table and Narrative**
❑ **H.** Industrial processes. ☒ Not Applicable	❑ Show process area.	❑ If industrial processes are to be located onsite, state: "All process activities to be performed indoors. No processes to drain to exterior or to storm drain system."	❑ See Fact Sheet SC-10, "Non-Storm Water Discharges" in the CASQA Storm Water Quality Handbooks at https://www.casqa.org/resources/bmp-handbooks
☒ **I.** Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.) ❑ Not Applicable	☒ Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or runoff from area and protected from wind dispersal. ❑ Storage of non-hazardous liquids must be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults. ☒ Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.	☒ Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains. Where appropriate, reference documentation of compliance with the requirements of local Hazardous Materials Programs for: ▪ Hazardous Waste Generation ▪ Hazardous Materials Release Response and Inventory ▪ California Accidental Release Prevention Program ▪ Aboveground Storage Tank ▪ Uniform Fire Code Article 80 Section 103(b) & (c) 1991 ▪ Underground Storage Tank	☒ See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials" in the CASQA Storm Water Quality Handbooks at https://www.casqa.org/resources/bmp-handbooks

If These Sources Will Be on the Project Site …	… Then Your SWQMP must consider These Source Control BMPs		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on Drawings**	3 **Permanent Controls—List in Table and Narrative**	4 **Operational BMPs—Include in Table and Narrative**
❑ **J.** Vehicle and Equipment Cleaning ☒ Not Applicable	❑ Show on drawings as appropriate: (1) Commercial/industrial facilities having vehicle /equipment cleaning needs must either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses. (2) Multi-dwelling complexes must have a paved, bermed, and covered car wash area (unless car washing is prohibited onsite and hoses are provided with an automatic shut- off to discourage such use). (3) Washing areas for cars, vehicles, and equipment must be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer. (4) Commercial car wash facilities must be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility must discharge to the sanitary sewer, or a wastewater reclamation system must be installed.	❑ If a car wash area is not provided, describe measures taken to discourage onsite car washing and explain how these will be enforced.	Describe operational measures to implement the following (if applicable): ❑ Washwater from vehicle and equipment washing operations must not be discharged to the storm drain system. ❑ Car dealerships and similar may rinse cars with water only. ❑ See Fact Sheet SC-21, "Vehicle and Equipment Cleaning," in the CASQA Storm Water Quality Handbooks at https://www.casqa.org/resources/bmp-handbooks

If These Sources Will Be on the Project Site …	… Then Your SWQMP must consider These Source Control BMPs		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on Drawings**	3 **Permanent Controls—List in Table and Narrative**	4 **Operational BMPs—Include in Table and Narrative**
❑ **K.** Vehicle/Equipment Repair and Maintenance ☒ Not Applicable	❑ Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to protect from rainfall, run-on runoff, and wind dispersal. ❑ Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains must not be installed within the secondary containment areas. ❑ Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained.	❑ State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area. ❑ State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements. ❑ State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.	In the report, note that all of the following restrictions apply to use the site: ❑ No person must dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains. ❑ No vehicle fluid removal must be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids must be contained or drained from the vehicle immediately. ❑ No person must leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment.

If These Sources Will Be on the Project Site …	… Then Your SWQMP must consider These Source Control BMPs		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on Drawings**	3 **Permanent Controls—List in Table and Narrative**	4 **Operational BMPs—Include in Table and Narrative**
❑ **L.** Fuel Dispensing Areas ☒ Not Applicable	❑ Fueling areas[2] must have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are (1) graded at the minimum slope necessary to prevent ponding; and (2) separated from the rest of the site by a grade break that prevents run-on of storm water to the MEP. ❑ Fueling areas must be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area1.] The canopy [or cover] must not drain onto the fueling area.		❑ The property owner must dry sweep the fueling area routinely. ❑ See the Business Guide Sheet, "Automotive Service—Service Stations" in the CASQA Storm Water Quality Handbooks at https://www.casqa.org/resources/bmp-handbooks

[2] The fueling area must be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.

If These Sources Will Be on the Project Site …	… Then Your SWQMP must consider These Source Control BMPs		
1 **Potential Sources of Runoff Pollutants**	**2** **Permanent Controls—Show on Drawings**	**3** **Permanent Controls—List in Table and Narrative**	**4** **Operational BMPs—Include in Table and Narrative**
M. Loading Docks ❑ Not Applicable	☒ Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks must be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts must be positioned to direct storm water away from the loading area. Water from loading dock areas should be drained to the sanitary sewer where feasible. Direct connections to storm drains from depressed loading docks are prohibited. ❑ Loading dock areas draining directly to the sanitary sewer must be equipped with a spill control valve or equivalent device, which must be kept closed during periods of operation. ❑ Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.		☒ Move loaded and unloaded items indoors as soon as possible. ☒ See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Storm Water Quality Handbooks at https://www.casqa.org/resources/bmp-handbooks

If These Sources Will Be on the Project Site …	… Then Your SWQMP must consider These Source Control BMPs		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on Drawings**	3 **Permanent Controls—List in Table and Narrative**	4 **Operational BMPs—Include in Table and Narrative**
❑ **N.** Fire Sprinkler Test Water ☒ Not Applicable		❑ Provide a means to drain fire sprinkler test water to the sanitary sewer.	❑ See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Storm Water Quality Handbooks at https://www.casqa.org/resources/bmp-handbooks
O. Miscellaneous Drain or Wash Water ❑ Boiler drain lines ❑ Condensate drain lines ❑ Rooftop equipment ❑ Drainage sumps ❑ Roofing, gutters, and trim ☒ Not Applicable		❑ Boiler drain lines must be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system. ❑ Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. ❑ Rooftop mounted equipment with potential to produce pollutants must be roofed and/or have secondary containment. ❑ Any drainage sumps onsite must feature a sediment sump to reduce the quantity of sediment in pumped water. ❑ Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.	

If These Sources Will Be on the Project Site …	… Then Your SWQMP must consider These Source Control BMPs		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on Drawings**	3 **Permanent Controls—List in Table and Narrative**	4 **Operational BMPs—Include in Table and Narrative**
❑ **P.** Plazas, sidewalks, and parking lots. ☒ Not Applicable			❑ Plazas, sidewalks, and parking lots must be swept regularly to prevent the accumulation of litter and debris. Debris from pressure washing must be collected to prevent entry into the storm drain system. Washwater containing any cleaning agent or degreaser must be collected and discharged to the sanitary sewer and not discharged to a storm drain.

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 Demler Brothers Manure Processing
Prepared By: Michael Baker International
Date: September 2020

  - 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.

Section 5 Conclusions

Peak flow rates for the 100-year existing and proposed conditions have been developed in accordance with San Diego County's methodology.

Minor increases in project peak flow associated with new impervious area are mitigated back to existing condition levels through the installation of storm water mitigation basins. These basins also achieve water quality and hydromodification mitigation – refer to the project specific SWQMP for further detail. As a conjunctive-use BMP, these basins have been sized to mitigate the 100-year peak flow attenuation while also simultaneously holding the Design Capture Volumes.

The project has been designed to avoid an impact to the number or location of concentrated discharge locations, as compared to existing conditions. In Basin 1, runoff will discharge northerly as sheet flow, negating the need for riprap at a concentrated flow location. In Basin 2, at the southwest corner, riprap will be included to protect against erosion. The respective discharge locations for each new dryer within Basin 3 are already fitted with riprap as discharge enters the existing basin via existing headwalls.

This project will not discharge, dredge, or fill material into any Water of The United States, thus the project is not required to obtain a Section 401 certification or Section 404 permit from the State or U.S. Army Corps of Engineers.

The proposed project will not result in additional runoff that could exceed the capacity of existing or planned storm water drainage systems. Proposed improvements result in a reduction of project site peak flow discharge, as compared to existing conditions. The proposed project will not expose people or structures to a significant risk of loss, injury, or death involving flooding as a result of the failure of a levee or dam because the peak flow from the project area will not increase.

Section 6 CEQA

1. **Will the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?**

The proposed project will not result in a substantial alteration to the existing drainage pattern across the site. Upon completion of the project, runoff will continue to discharge westerly at three locations, consistent with existing conditions. New discharge locations are not proposed, and all existing discharge locations are adequately protected against erosion under present day conditions.

2. **Will the project increase water surface elevation in a watercourse within a watershed equal to or greater than 1 square mile, by 1 foot or more in height**

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	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**	• Sub-attachment 6.3.1	• Fact Sheet SD-B (Appendix E.8)
☐ **Tree Wells**	• Sub-attachment 6.3.2	• Fact Sheet SD-A (Appendix E.7)

- Submit this cover page and all "Required Sub-attachments" 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	24,879	0	0	TBD
4	43,560	0	0	TBD

- "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.

N/A

6.2 De Minimis DMAs (complete this page once for ALL de minimis DMAs)

De minimis DMAs consist of areas too small to be considered significant contributors of pollutants and not practicable to drain to a BMP. They are excluded from DCV calculations. Examples include driveway aprons connecting to existing streets, portions of sidewalks, retaining walls, and similar features at the external boundaries of a project.

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

DMA #	***DMA Area (ft^2)***	***Permit # and Sheet #***

- "DMA #", "DMA Area", and "Permit # and Sheet #" are required.
- Check the boxes below to confirm that each required condition is satisfied for ALL de minimis DMAs on the site.

☐ Each DMA listed is less than 250 square feet and not adjacent or hydraulically connected to each other.

☐ Each DMA listed <u>fully</u> satisfies all design requirements and restrictions described in BMPDM Section 5.2.2 De Minimis DMAs.

6.3 Self-retaining DMAs using Significant Site Design BMPs

Self-retaining DMAs use Site Design BMPs to fully-retain the entire DCV, at a minimum. Site Design BMPs that fully retain the DCV, at a minimum, therefore replacing the need for a Structural BMP (S-BMP), are classified as Significant Site Design BMPs (SSD-BMPs). To satisfy pollutant control requirements only, self-retaining means retention of the entire DCV. However, under some circumstances, a self-retaining DMA can also satisfy hydromodification management requirements by implementing BMPs that retain a greater volume of runoff.

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

DMA #	DMA Area (ft²)	**BMP Type** (choose one per DMA)		*Permit # and Sheet #*
		Dispersion Area (Att. 6.3.1)	**Tree Wells (Att. 6.3.2)**	
5	87,890	☒	☐	TBD
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	

Copy and Paste table here for additional DMAs

- "DMA #", "DMA Area", and "Permit # and Sheet #" are required.
- Select one BMP Type per DMA. Provide detailed documentation for each DMA in Attachments 6.3.1 (Impervious Dispersion Areas) and/or 6.3.2 (Tree Wells) below.
- Each self-retaining DMA must <u>fully</u> satisfy all design requirements and restrictions described in BMPDM Section 5.2.3, applicable BMPDM Appendix E Fact Sheets, and any other guidance or instruction identified by the County.

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[2]Applicants wishing to utilize parameters less conservative than listed here must submit modeling to support their proposal. Consult your project manager for more information.
[3]Including the permeable pavement.

6.3.1 Self-retaining DMAs with Impervious Dispersion Areas

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

- Each self-retaining DMA with impervious area dispersion must fully satisfy all design requirements and restrictions described in BMPDM Section 5.2.3, Fact Sheet SD-B: Impervious Area Dispersion, and any other guidance or instruction identified by the County.
- Documentation of compliance with all applicable conditions must be submitted with this sub-attachment using the ***Summary Sheet for DMAs with Impervious Area Dispersion*** on the next page. One version of this Summary Sheet must be completed for each applicable DMA.
- Applicants are responsible to comply with all other applicable requirements, regardless of whether they are included in the summary sheet.
- The following applies if the dispersion area is **native soil** (SD-B in Appendix E):
    - For pollutant control only, the DMA is considered self-retaining if the impervious to pervious ratio is:
        - 2:1 when the pervious area is composed of Hydrologic Soil Group A
        - 1:1 when the pervious area is composed of Hydrologic Soil Group B
- The following applies if the dispersion area includes **amended soil** (SD-B in Appendix E):
    - DMAs using impervious area dispersion can be considered to meet both pollutant control and hydromodification flow control requirements if the impervious to pervious area ratio is 1:1 or less and all other design requirements of SD-B are satisfied, including 11 inches of amended soil.
- The following apply if the dispersion area is **permeable pavement** (SD-D in Appendix E):
    - For pollutant control only, a DMA is considered self-retaining if the ratio of total drainage area (including permeable pavement) to area of permeable pavement is 1.5:1 or less, and all other design requirements of SD-D are satisfied.
    - Hydromodification management performance standards can be satisfied using permeable pavement only if constructed to Structural BMP specifications. In this case, the permeable pavement must be sized and constructed in accordance with the requirements of INF-3.

[2]Applicants wishing to utilize parameters less conservative than listed here must submit modeling to support their proposal. Consult your project manager for more information.
[3]Including the permeable pavement.

Summary Sheet for DMAs with Impervious Area Dispersion (Complete 1 sheet per DMA)

DMA # 5

A. Minimum Sizing Requirements

Verify that minimum standards are satisfied for the applicable dispersion area type below[2].

Native Soil (Pollutant Control Only) Select one and provide calculations below.

☐ Soil Group A: Ratio I:P is 2:1 or less ☐ Soil Group B: Ratio I:P is 1:1 or less

Impervious Area (ft²)	*Permeable Dispersion Area (ft²)*	*Ratio I:P*

Amended Soil (Pollutant Control plus Hydromodification Management)

Must satisfy both conditions and provide calculations below.

☒ Ratio I:P is 1:1 or less, AND

☒ 11 inches or more of the top of the pervious area consists of amended soils (Fact Sheet SD-F)

Impervious Area (ft²)	*Permeable Dispersion Area (ft²)*	*Ratio I:P*
43,945	43,945	1:1

Permeable Pavement (Pollutant Control Only) Provide calculations below.

☐ Ratio DMA area to area of permeable pavement is 1.5:1 or less

DMA Area[3] (ft²)	*Permeable Pavement Area (ft²)*	*Ratio DMA:Pavement*

B. Minimum Design Criteria

Check the boxes below to confirm that each design criterion has been satisfied for the DMA.

Impervious Areas:

☒ Are graded to ensure area that the full DCV drains to the dispersion area before the runoff discharges from the DMA.

Pervious Dispersion Areas:

☒ Are less than 5% slope and sheet flow over a distance of at least 10 feet from inflow to overflow route.

☒ Have inflow velocities of 3 ft/s or less OR use energy dissipation methods (e.g., riprap, level spreader) for concentrated inflows.

☒ Are densely and robustly vegetated with drought tolerant species.

☒ Consist of soil types capable of supporting or being amended to support vegetation (e.g., with sand or compost). If applicable, media amendments have been tested to verify that they are not a source of pollutants.

☒ Are owned by the project owner and will be dedicated to exclude future uses that might reduce their effectiveness.

Copy and Paste table here for additional DMAs

[2]Applicants wishing to utilize parameters less conservative than listed here must submit modeling to support their proposal. Consult your project manager for more information.

[3]Including the permeable pavement.

N/A

6.3.2 Self-retaining DMAs with Tree Wells

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

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

DMA #	**Tree Wells Requiring Structural Soil (list Tree Well #s)**

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

N/A

Summary Sheet for Self-retaining DMAs with Tree Wells (complete one sheet per DMA)

DMA #:	**DMA Area (ft²):**		
Required Retention Volume (RRV)			
a. Design Capture Volume (DCV; ft³):			
b. DCV Multiplier (Fact Sheet SD-A)			
Applicable Structural Performance Standards (select one)	Tree well soil depth (inches)	Underlying soil type (A, B, C, or D)	DCV Multiplier
☐ Pollutant control only	Any	All	1.0
☐ Pollutant control plus hydromodification			
c. Required Retention Volume (ft³) [DCV * DCV Multiplier]			
Tree Well Credit Volume (add records or copy this sheet as needed for additional tree wells)			
Provide the information below for each tree well or group of tree wells within the DMA. A single entry can be used for any group of tree wells of the same species and soil depth.			
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Tree species or name		**No. tree wells**	
Mature Canopy Diameter (ft)		**Credit Volume per tree well (ft³)**	
Tree well ID #(s)		**Combined Volume (ft³)**	
Total Credit Volume (ft3) Add the combined volumes above. Total credit volume must equal or exceed the RRV.			

Copy and Paste table here for additional DMAs

E.8 SD-B Impervious Area Dispersion (Dispersion Areas)

Photo Credit: Orange County Technical Guidance Document

MS4 Permit Category

Site Design

Retention

Manual Category

Site Design
Infiltration

Applicable Performance Criteria

Site Design
Pollutant Control
Flow Control

Primary Benefits

Volume Reduction
Peak Flow Attenuation

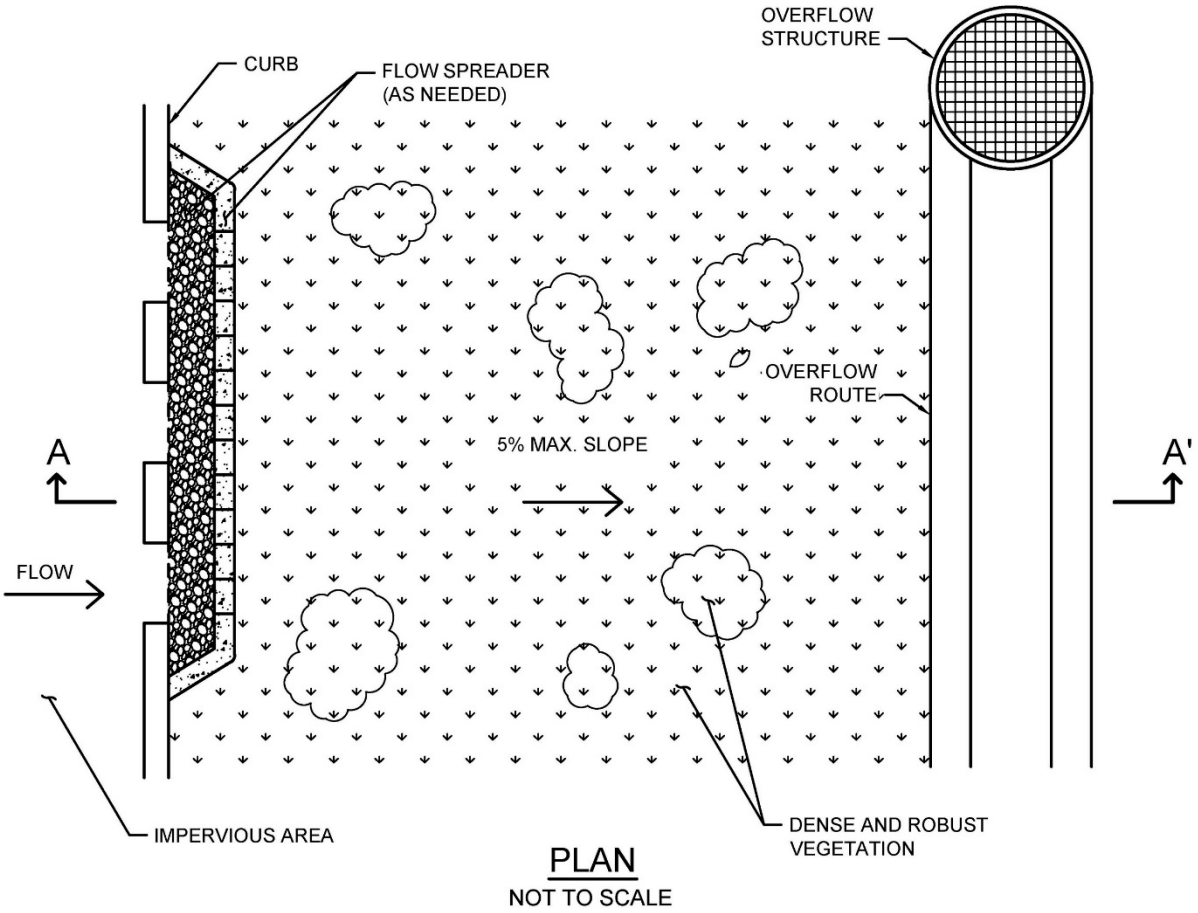
Description

Impervious area dispersion (dispersion) refers to the practice of effectively disconnecting impervious areas from directly draining to the storm drain system by routing runoff from impervious areas such as rooftops (through downspout disconnection), walkways, and driveways onto the surface of adjacent pervious areas. The intent is to slow runoff discharges, and reduce volumes. Dispersion with partial or full infiltration results in significant volume reduction by means of infiltration and evapotranspiration.

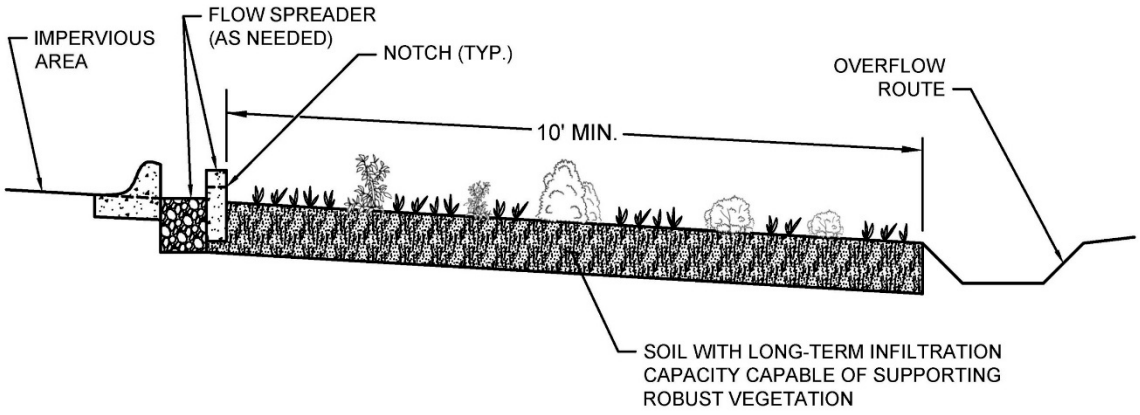
Typical dispersion components include:

- An impervious surface from which runoff flows will be routed with minimal piping to limit concentrated inflows
- Splash blocks, flow spreaders, or other means of dispersing concentrated flows and providing energy dissipation as needed
- Dedicated pervious area, typically vegetated, with in-situ soil infiltration capacity for partial or full infiltration
- Optional soil amendments to improve vegetation support, maintain infiltration rates and enhance treatment of routed flows
- Overflow route for excess flows to be conveyed from dispersion area to the storm drain

system or discharge point



PLAN
NOT TO SCALE



SECTION A-A'
NOT TO SCALE

Typical plan and section view of an Impervious Area Dispersion BMP

Design Adaptations for Project Goals

Site design BMP to reduce impervious area and DCV. Impervious area dispersion primarily functions as a site design BMP for reducing the effective imperviousness of a site by providing partial or full infiltration of the flows that are routed to pervious dispersion areas and otherwise slowing down excess flows that eventually reach the storm drain system. This can significantly reduce the DCV for the site.

Design Criteria and Considerations

Dispersion must meet the following design criteria. Deviations from the below criteria may be approved at the discretion of County Staff if it is determined to be appropriate:

Siting and Design		*Intent/Rationale*
☐	**Impervious area dispersion Placement:** ensure area is graded; and located so that full DCV water drains to the area of dispersion	Minimizes short-circuiting of run off
☐	Dispersion is over areas with soil types capable of supporting or being amended (e.g., with sand or compost) to support vegetation. Media amendments must be tested to verify that they are not a source of pollutants.	Soil must have long-term infiltration capacity for partial or full infiltration and be able to support vegetation to provide runoff treatment. Amendments to improve plant growth must not have negative impact on water quality.
☐	Dispersion has vegetated sheet flow over a relatively large distance (minimum 10 feet) from inflow to overflow route.	Full or partial infiltration requires relatively large areas to be effective depending on the permeability of the underlying soils.
☐	Pervious areas should be flat (with less than 5% slopes) and vegetated.	Flat slopes facilitate sheet flows and minimize velocities, thereby improving treatment and reducing the likelihood of erosion.
Inflow velocities		
☐	Inflow velocities are limited to 3 ft/s or less or use energy dissipation methods (e.g., riprap, level spreader) for concentrated inflows.	High inflow velocities can cause erosion, scour and/or channeling.
Dedication		

Siting and Design		*Intent/Rationale*
☐	Dispersion areas must be owned by the project owner and be dedicated for the purposes of dispersion to the exclusion of other future uses that might reduce the effectiveness of the dispersion area.	Dedicated dispersion areas prevent future conversion to alternate uses and facilitate continued full and partial infiltration benefits.
Vegetation		
☐	Dispersion typically requires dense and robust vegetation for proper function. Drought tolerant species should be selected to minimize irrigation needs. A plant list to aid in selection can be found in Appendix F.	Vegetation improves resistance to erosion and aids in runoff treatment.

Conceptual Design and Sizing Approach for Site Design

1. Determine the areas where dispersion can be used in the site design to reduce the DCV for pollutant control sizing.
2. Calculate the DCV for storm water pollutant control per Appendix B.2, taking into account reduced runoff from dispersion.
3. Determine if a DMA is considered "Self-retaining" if the impervious to pervious ratio is:
    a. 2:1 when the pervious area is composed of Hydrologic Soil Group A
    b. 1:1 when the pervious area is composed of Hydrologic Soil Group B

Conceptual Design and Sizing Approach for Storm Water Pollutant Treatment and Flow Control

DMAs using impervious area dispersion are considered to meet both pollutant control and hydromodification flow control requirements if ALL of the following criteria are met:

1. All impervious area within the DMA discharges to the pervious area before the runoff discharges from the DMA.
2. As a minimum, the top 11 inches of the pervious area uses amended soils in accordance with the SD-F fact sheet and the pervious area also meets the requirements for dispersion (e.g. slope, inflow velocities, etc.) in the SD-B fact sheet.
3. The impervious to pervious area ratio is 1:1 or less.

Impervious Area Dispersion designed to meet both pollutant control and flow control requirements are designated as SSD BMPs.

Maintenance Overview

Normal Expected Maintenance. Vegetated area shall be maintained as part of normal landscape

maintenance. Additionally, ensure that storm water runoff can be conveyed into the vegetated area as designed. That is, the mechanism that allows storm water runoff from impervious area to flow into the pervious area (e.g., a curb cut allows runoff from a parking lot to drain onto adjacent landscaping area, or a roof drain outlet is directed to a lawn) shall not be removed, blocked, filled, or otherwise changed in a manner that prevents storm water from draining into the pervious area. A summary table of standard inspection and maintenance indicators is provided within this Fact Sheet.

Non-Standard Maintenance or BMP Failure. Impervious area dispersion is a site design BMP that normally does not require maintenance actions beyond routine landscape maintenance. If changes have been made to the area, such as the vegetated area has been replaced with impervious area, or the mechanism that allows storm water runoff from impervious area to flow into the pervious area has been removed (e.g., roof drains previously directed to vegetated area have been directly connected to the street or storm drain system), the BMP is not performing as intended to protect downstream waterways from pollution and/or erosion. Corrective maintenance will be required to restore drainage into the pervious area as designed. If the pervious area has been removed, contact the County reviewer to determine a solution.

Runoff directed into vegetated areas is expected to be drained within 24-96 hours following a storm event. Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health, and surface ponding longer than approximately 96 hours following a storm event poses a risk of vector (mosquito) breeding. Poor drainage can result from clogging or compaction of the soils. Loosen or replace the soils to restore drainage.

Other Special Considerations. Site design BMPs, such as impervious area dispersion, installed within a new development or redevelopment project are components of an overall storm water management strategy for the project. The presence of site design BMPs within a project is usually a factor in the determination of the amount of runoff to be managed with structural BMPs (i.e., the amount of runoff expected to reach downstream retention or biofiltration basins that process storm water runoff from the project as a whole). When site design BMPs are not maintained or are removed, this can lead to clogging or failure of downstream structural BMPs due to greater delivery of runoff and pollutants than intended for the structural BMP. Therefore, the County reviewer may require confirmation of maintenance of site design BMPs as part of their structural BMP maintenance documentation requirements. Site design BMPs that have been installed as part of the project should not be removed, nor should they be bypassed by re-routing roof drains or re-grading surfaces within the project. If changes are necessary, consult the County reviewer to determine requirements.

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Summary of Standard Inspection and Maintenance

The property owner is responsible to ensure inspection, operation and maintenance of permanent BMPs on their property unless responsibility has been formally transferred to an agency, community facilities district, homeowners association, property owners association, or other special district.

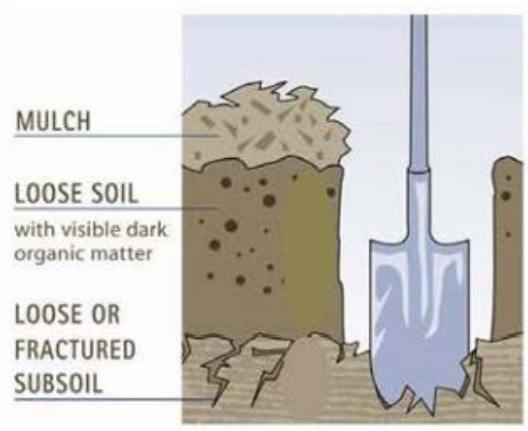
Maintenance frequencies listed in this table are average/typical frequencies. Actual maintenance needs are site-specific, and maintenance may be required more frequently. Maintenance must be performed whenever needed, based on maintenance indicators presented in this table. The BMP owner is responsible for conducting regular inspections to see when maintenance is needed based on the maintenance indicators. During the first year of operation of a structural BMP, inspection is recommended at least once prior to August 31 and then monthly from September through May. Inspection during a storm event is also recommended. After the initial period of frequent inspections, the minimum inspection and maintenance frequency can be determined based on the results of the first year inspections.

Threshold/Indicator	Maintenance Action	Inspection and Maintenance Frequency
Poor vegetation establishment	Re-seed, re-plant, or re-establish vegetation per original plans.	• Inspect monthly. • Maintain when needed.
Dead or diseased vegetation	Remove dead or diseased vegetation, re-seed, re-plant, or re-establish vegetation per original plans.	• Inspect monthly. • Maintain when needed.
Overgrown vegetation	Mow or trim as appropriate.	• Inspect monthly. • Maintain when needed.
Standing water in vegetated pervious area for longer than 24 hours following a storm event Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health	Disperse any areas of standing water to nearby landscaping (i.e., spread it out to another portion of the pervious area so it drains into the soil). Make appropriate corrective measures such as adjusting irrigation system, or repairing/replacing clogged or compacted soils.	• Inspect monthly and after every 0.5-inch or larger storm event. If standing water is observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintain when needed.

Threshold/Indicator	Maintenance Action	Inspection and Maintenance Frequency
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology	Disperse any areas of standing water to nearby landscaping (i.e., spread it out to another portion of the pervious area so it drains into the soil). Loosen or replace soils to restore drainage (and prevent standing water)	• Inspect monthly and after every 0.5-inch or larger storm event. If mosquitos are observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintain when needed
Entrance / opening to the vegetated pervious area is blocked such that storm water from impervious area will not drain into the pervious area (e.g., a curb cut opening is blocked by debris or a roof drain outlet has been directly connected to the storm drain system)	Make repairs as appropriate to restore drainage into the vegetated pervious area.	• Inspect monthly. • Maintain when needed.

E.12 SD-F Amended Soil

Image Credit: WDOE Guidelines and Resources for Implementing Amended Soil BMP T5.13



MS4 Permit Category
Site Design
Manual Category
Site Design
Applicable Performance Standard
Site Design
Primary Benefits
Volume Reduction Peak Flow Attenuation

Description

Amended soils are soils whose physical, chemical, and biological characteristics have been altered from the natural condition to promote beneficial storm water characteristics. Amended soils shall be used as part of SD-B Impervious Area Dispersion, where applicable. Typical storm water management benefits associated with amended soils include:

- **Improved hydrologic characteristics**—amended soils can promote infiltration, decrease runoff rates and volumes, and more effectively filter pollutants from storm water runoff
- **Improved vegetation health**—amended soils provide greater moisture retention, and altered chemical and biological characteristics that can result in healthier plant growth, reduced irrigation demands, and reduced need for fertilization and maintenance
- **Reduced erosion**—amended soils produce healthier plant growth and reduced runoff which results in reduced soil erosion

Not all amended soils have the same storm water benefits, the soil amendment used should be suited for the design purpose and design period of the amended area.

Design Adaptations for Project Goals

Amended soil primarily functions as a site design BMP for reducing the effective imperviousness of a site by providing partial or full infiltration of the flows that are routed to amended soil areas and otherwise slowing down excess flows that eventually reach the storm drain system. Amended soil is

used in conjunction with SD-B Impervious Area Dispersion.

Varying categories of soil amendments have different benefits and applications. Mulch is a soil amendment that is added at grade, rather than mixed into the soil. Mulch reduces evaporation and improves retention. Shavings and compost are common soil amendments that improve biological and chemical properties of the soil. Sand can be used as an amendment to improve the drainage rates of amended soils. Native soil samples may need to be analyzed by a lab to determine the specific soil amendments needed to achieve the desired infiltration, retention, and/or filtration rates.

Amending soil per these guidelines is not the same as preservation of naturally occurring topsoil and vegetation. However, amending soil will improve on-site management of storm water flow and water quality.

Design Criteria and Considerations

Soil amendments must meet the following design criteria and considerations. Deviations from the below criteria may be approved at the discretion of the County reviewer if appropriate:

	Siting and Design	*Intent/Rationale*
□	Mulch is applied at grade over all planting areas to a depth of 3".	Mulch should be applied on top and not mixed into underlying soils
□	Shavings or compost are rototilled into the native soil to a minimum depth of 6" (12 inches preferred).	If soil is not completely mixed the overall benefit will be reduced.
□	Compost meets the criteria in Appendix F.2 Section 803-5.1	If poor quality compost is used, it will have negative impact to water quality.
□	Soil amendments are free of stones, stumps, roots, glass, plastic, metal, and other deleterious materials.	Large debris in amended soils can cause localized erosion. Trash/harmful materials can result in personal injury or contamination.
□	Mixing of soils are done prior to planting	Soil mixing before planting results in a more homogeneous mixing and will reduce the stress on plants.
□	Care is taken around existing trees and shrubs to prevent root damage during construction and soil amendment application.	Preservation of existing established vegetation is an important part of site design and erosion control.
□	Soil amendments are applied at the end of construction	Soil amendments applied too soon in the construction process may become over compacted reducing effectiveness.

Siting and Design		*Intent/Rationale*
□	Soil amendments are compatible with planned vegetation	The soil amendments impact the pH and salinity of the soil. Some plants have sensitive pH and/or salinity tolerance ranges.

Conceptual Design and Sizing Approach for Site Design

- When soil amendments are used a runoff factor of 0.1 can be used for DCV calculation for the amended area.
- Amended soils should be used as part of SD-B Impervious Area Dispersion, and to increase the retention volume in other BMPs.

Maintenance

Annual maintenance may be required to determine reapplication requirements of amended soils. Amended soils should be regularly inspected for signs of compaction, waterlogging, and unhealthy vegetation.

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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 Demler Brothers Manure Processing
Permit Application Number PDS2019-MUP-19-004

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).

RCE 86123 09/30/2020
Engineer of Work's Signature, PE Number & Expiration Date

Leila Talebi
Print Name

Michael Baker International
Company

9/10/2020
Date

Engineer's Seal:

7.2 Structural BMP Strategy

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

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

The project has elected to treat runoff from impervious areas using unlined bioretention basins. An infiltration rate of 0.1 in/hr has been used at this preliminary stage to develop sizing calculations based on the County's recommendation for type C soils.

A geotechnical engineer is not consulted at this stage. The SWQMP Preparer is responsible for the responses in Table B.2-1, included in Attachment 7. No restrictions apply onsite.

Pollutant and hydromodification controls are integrated within the bioretention basins.

For sizing purposes:

Step 1. For all DMAs DCV were calculated per Appendix B.1 using Automated Worksheet B.1

Step 2. Retention Requirements were calculated per Appendix B.2 using Automated Worksheet B.2.

Step 3. BMP Performance was calculated per Appendix B.3 using Automated Worksheet B.3.

Water quality and hydromodification for the new impervious area from the proposed dryers will be mitigated using the dispersion area designed for an impervious to pervious area ratio of 1:1 or less (proposed is less at 1:1.14) and all other design requirements in SD-B in Appendix E, including 11" of amended soil. Please see Attachment 6 for more details.

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.

BMP ID #	DMA #	DMA Area (ft^2)	Structural BMP Type							Permit # and Sheet #
			Harvest and Use	Infiltration	Unlined Biofiltration	Lined Biofiltration	Flow-thru treatment	Hydromodification Management [1]	Other	
BR-1	2	26,906	☐	☒	☐	☐	☐	☒	☐	TBD
BR-2	3	50,025	☐	☒	☐	☐	☐	☒	☐	TBD
			☐	☐	☐	☐	☐	☐	☐	
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			☐	☐	☐	☐	☐	☐	☐	

[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 # BR-1	**Permit # and Sheet #** TBD
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	Leila Talebi RCE 86123 9755 Clairemont Mesa Blvd. San Diego, CA 92124 858-810-1428

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 # BR-2	**Permit # and Sheet #** TBD

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	Leila Talebi RCE 86123 9755 Clairemont Mesa Blvd. San Diego, CA 92124 858-810-1428

BMP Ownership and Maintenance (See BMPDM Section 7.3 and Attachment 11)

BMP Maintenance Category	Cat. 1 ☐	Cat. 2 ☒	Cat. 3 ☐	Cat. 4 ☐
Final owner of BMP	☐ HOA	☒ Property Owner	☐ County	☐ Other (describe):
Maintenance of BMP into perpetuity	☐ HOA	☒ Property Owner	☐ County	☐ Other (describe):

Discussion (As needed; Continue on subsequent pages as necessary)

[2] Indicate which onsite retention or biofiltration BMP the pre-treatment/forebay serves.
[3] Hydromodification Management BMPs must be accompanied by BMPs that provide pollutant control.

7.4 Storm Water Pollutant Control Worksheet Calculations

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

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

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

Category	#	Description	*i*	*ii*	*iii*	Units
Standard Drainage Basin Inputs	1	Drainage Basin ID or Name	DMA-2	DMA-3	DMA-5	unitless
	2	85th Percentile 24-hr Storm Depth	0.66	0.66	0.66	inches
	3	Impervious Surfaces Not Directed to Dispersion Area (C=0.90)	8,276	13,068		sq-ft
	4	Semi-Pervious Surfaces Not Serving as Dispersion Area (C=0.30)	10,890	14,380		sq-ft
	5	Engineered Pervious Surfaces Not Serving as Dispersion Area (C=0.10)				sq-ft
	6	Natural Type A Soil Not Serving as Dispersion Area (C=0.10)				sq-ft
	7	Natural Type B Soil Not Serving as Dispersion Area (C=0.14)				sq-ft
	8	Natural Type C Soil Not Serving as Dispersion Area (C=0.23)	7,840	22,646		sq-ft
	9	Natural Type D Soil Not Serving as Dispersion Area (C=0.30)				sq-ft
Dispersion Area, Tree Well & Rain Barrel Inputs (Optional)	10	Does Tributary Incorporate Dispersion, Tree Wells, and/or Rain Barrels?	No	No	Yes	yes/no
	11	Impervious Surfaces **Directed to Dispersion Area** per SD-B (Ci=0.90)			43,945	sq-ft
	12	Semi-Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.30)				sq-ft
	13	Engineered Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.10)			43,945	sq-ft
	14	Natural Type A Soil **Serving as Dispersion Area** per SD-B (Ci=0.10)				sq-ft
	15	Natural Type B Soil **Serving as Dispersion Area** per SD-B (Ci=0.14)				sq-ft
	16	Natural Type C Soil **Serving as Dispersion Area** per SD-B (Ci=0.23)				sq-ft
	17	Natural Type D Soil **Serving as Dispersion Area** per SD-B (Ci=0.30)				sq-ft
	18	Number of Tree Wells Proposed per SD-A				#
	19	Average Mature Tree Canopy Diameter				ft
	20	Number of Rain Barrels Proposed per SD-E				#
	21	Average Rain Barrel Size				gal
Initial Runoff Factor Calculation	22	Total Tributary Area	27,006	50,094	87,890	sq-ft
	23	Initial Runoff Factor for Standard Drainage Areas	0.46	0.42	0.00	unitless
	24	Initial Runoff Factor for Dispersed & Dispersion Areas	0.00	0.00	0.50	unitless
	25	Initial Weighted Runoff Factor	0.46	0.42	0.50	unitless
	26	Initial Design Capture Volume	683	1,157	2,417	cubic-feet
Dispersion Area Adjustments	27	Total Impervious Area Dispersed to Pervious Surface	0	0	43,945	sq-ft
	28	Total Pervious Dispersion Area	0	0	43,945	sq-ft
	29	Ratio of Dispersed Impervious Area to Pervious Dispersion Area	n/a	n/a	1.00	ratio
	30	Adjustment Factor for Dispersed & Dispersion Areas	1.00	1.00	0.00	ratio
	31	Runoff Factor After Dispersion Techniques	0.46	0.42	0.00	unitless
	32	Design Capture Volume After Dispersion Techniques	683	1,157	0	cubic-feet
Tree & Barrel Adjustments	33	Total Tree Well Volume Reduction	0	0	0	cubic-feet
	34	Total Rain Barrel Volume Reduction	0	0	0	cubic-feet
Results	35	Final Adjusted Runoff Factor	0.46	0.42	0.00	unitless
	36	Final Effective Tributary Area	12,423	21,039	0	sq-ft
	37	Initial Design Capture Volume Retained by Site Design Elements	0	0	2,417	cubic-feet
	38	Final Design Capture Volume Tributary to BMP	683	1,157	0	cubic-feet

No Warning Messages

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

Category	#	Description	*i*	*ii*	*iii*	Units
Basic Analysis	1	Drainage Basin ID or Name	DMA-2	DMA-3	DMA-5	unitless
	2	85th Percentile Rainfall Depth	0.66	0.66	0.66	inches
	3	Predominant NRCS Soil Type Within BMP Location	C	C	C	unitless
	4	Is proposed BMP location Restricted or Unrestricted for Infiltration Activities?	Unrestricted	Unrestricted	Unrestricted	unitless
	5	Nature of Restriction	n/a	n/a	n/a	unitless
	6	Do Minimum Retention Requirements Apply to this Project?	Yes	Yes	Yes	yes/no
	7	Are Habitable Structures Greater than 9 Stories Proposed?	No	No	No	yes/no
Advanced Analysis	8	Has Geotechnical Engineer Performed an Infiltration Analysis?	No	No	No	yes/no
	9	Design Infiltration Rate Recommended by Geotechnical Engineer				in/hr
Result	10	Design Infiltration Rate Used To Determine Retention Requirements	0.100	0.100	0.100	in/hr
	11	Percent of Average Annual Runoff that Must be Retained within DMA	16.3%	16.3%	16.3%	percentage
	12	Fraction of DCV Requiring Retention	0.10	0.10	0.10	ratio
	13	Required Retention Volume	68	116	0	cubic-feet

No Warning Messages

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

Category	#	Description	*i*	*ii*	Units
BMP Inputs	1	Drainage Basin ID or Name	DMA-2	DMA-3	sq-ft
	2	Design Infiltration Rate Recommended	0.100	0.100	in/hr
	3	Design Capture Volume Tributary to BMP	683	1,157	cubic-feet
	4	Is BMP Vegetated or Unvegetated?	Vegetated	Vegetated	unitless
	5	Is BMP Impermeably Lined or Unlined?	Unlined	Unlined	unitless
	6	Does BMP Have an Underdrain?	Underdrain	Underdrain	unitless
	7	Does BMP Utilize Standard or Specialized Media?	Standard	Standard	unitless
	8	Provided Surface Area	1,500	3,500	sq-ft
	9	Provided Surface Ponding Depth	12	12	inches
	10	Provided Soil Media Thickness	18	18	inches
	11	Provided Gravel Thickness (Total Thickness)	12	12	inches
	12	Underdrain Offset	3	3	inches
	13	Diameter of Underdrain or Hydromod Orifice (Select Smallest)	0.50	0.75	inches
	14	Specialized Soil Media Filtration Rate			in/hr
	15	Specialized Soil Media Pore Space for Retention			unitless
	16	Specialized Soil Media Pore Space for Biofiltration			unitless
	17	Specialized Gravel Media Pore Space			unitless
Retention Calculations	18	Volume Infiltrated Over 6 Hour Storm	75	175	cubic-feet
	19	Ponding Pore Space Available for Retention	0.00	0.00	unitless
	20	Soil Media Pore Space Available for Retention	0.05	0.05	unitless
	21	Gravel Pore Space Available for Retention (Above Underdrain)	0.00	0.00	unitless
	22	Gravel Pore Space Available for Retention (Below Underdrain)	0.40	0.40	unitless
	23	Effective Retention Depth	2.10	2.10	inches
	24	Fraction of DCV Retained (Independent of Drawdown Time)	0.49	0.68	ratio
	25	Calculated Retention Storage Drawdown Time	21	21	hours
	26	Efficacy of Retention Processes	0.81	0.96	ratio
	27	Volume Retained by BMP (Considering Drawdown Time)	553	1,112	cubic-feet
	28	Design Capture Volume Remaining for Biofiltration	130	45	cubic-feet
Biofiltration Calculations	29	Max Hydromod Flow Rate through Underdrain	0.0118	0.0265	cfs
	30	Max Soil Filtration Rate Allowed by Underdrain Orifice	0.34	0.33	in/hr
	31	Soil Media Filtration Rate per Specifications	5.00	5.00	in/hr
	32	Soil Media Filtration Rate to be used for Sizing	0.34	0.33	in/hr
	33	Depth Biofiltered Over 6 Hour Storm	2.04	1.96	inches
	34	Ponding Pore Space Available for Biofiltration	1.00	1.00	unitless
	35	Soil Media Pore Space Available for Biofiltration	0.20	0.20	unitless
	36	Gravel Pore Space Available for Biofiltration (Above Underdrain)	0.40	0.40	unitless
	37	Effective Depth of Biofiltration Storage	19.20	19.20	inches
	38	Drawdown Time for Surface Ponding	27	28	hours
	39	Drawdown Time for Effective Biofiltration Depth	44	45	hours
	40	Total Depth Biofiltered	21.24	21.16	inches
	41	Option 1 - Biofilter 1.50 DCV: Target Volume	194	68	cubic-feet
	42	Option 1 - Provided Biofiltration Volume	194	68	cubic-feet
	43	Option 2 - Store 0.75 DCV: Target Volume	97	34	cubic-feet
	44	Option 2 - Provided Storage Volume	97	34	cubic-feet
	45	Portion of Biofiltration Performance Standard Satisfied	1.00	1.00	ratio
Result	46	Do Site Design Elements and BMPs Satisfy Annual Retention Requirements?	Yes	Yes	yes/no
	47	Overall Portion of Performance Standard Satisfied (BMP Efficacy Factor)	1.00	1.00	ratio
	48	**Deficit of Effectively Treated Stormwater**	**0**	**0**	cubic-feet

Attention!

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

B.2.2 Step 2B – Infiltration Restrictions

The SWQMP Preparer is responsible for evaluating the infiltration restrictions in Table B.2-1 below and characterizing each drainage area as Restricted or Unrestricted for infiltration.

Restriction elements are divided into Mandatory Considerations and Optional Considerations. Mandatory Considerations include elements that may pose a significant risk to human health and safety. These elements must always be evaluated and discretion regarding the setbacks is not permitted. Optional Considerations include elements that are not necessarily associated with human health and safety, so analysis is not mandated through this guidance document.

Analysis of these elements is outside of the scope of typical geotechnical engineering investigations; therefore, it is the responsibility of the SWQMP Preparer to perform this evaluation. If a geotechnical engineer is consulted to complete this portion of the analysis, additional discretion on the mandatory considerations may be permitted if supported by the geotechnical reporting.

Table B.2-1: Infiltration Restrictions

Restriction Element		Is Element Applicable? (Yes/No)
Mandatory Considerations	BMP is within 100' of Contaminated Soils	NO
	BMP is within 100' of Industrial Activities Lacking Source Control	NO
	BMP is within 100' of Well/Groundwater Basin	NO
	BMP is within 50' of Septic Tanks/Leach Fields	NO
	BMP is within 10' of Structures/Tanks/Walls	NO
	BMP is within 10' of Sewer Utilities	NO
	BMP is within 10' of Groundwater Table	NO
	BMP is within Hydric Soils	NO
	BMP is within Highly Liquefiable Soils and has Connectivity to Structures	NO
	BMP is within 1.5 Times the Height of Adjacent Steep Slopes (≥25%)	NO
	County Staff has Assigned "Restricted" Infiltration Category	NO
Optional Considerations	BMP is within Predominantly Type D Soil	NO
	BMP is within 10' of Property Line	NO
	BMP is within Fill Depths of ≥5' (Existing or Proposed)	NO
	BMP is within 10' of Underground Utilities	NO
	BMP is within 250' of Ephemeral Stream	NO
	Other (Provide detailed geotechnical support)	NO
Result	**Unrestricted**. None of the restriction elements above are applicable.	UNRESTRICTED
	Restricted. One or more of the restriction elements above are applicable.	

B.2.3 Step 2C – Design Infiltration Rate

The design infiltration rate for each drainage area must be determined through either a basic or advanced analysis. The basic analysis allows the SWQMP Preparer to assign a default design infiltration rate based on the predominant NRCS soil type present within the proposed BMP footprint. The advanced analysis allows for a geotechnical engineer to assign a more specific design infiltration rate based on field testing outlined in Appendix D. Table B.2-3 below identifies the design infiltration rates that can be used for each analysis. Please note that the basic analysis is not permitted for BMPs that lack an underdrain.

Table B.2-3: Design Infiltration Rate

Infiltration Restrictions	Design Infiltration Rate (in/hr)	
	Option 1: Basic Analysis	Option 2: Advanced Analysis
Unrestricted	Type A Soil = 0.300	Rate recommended by geotechnical engineer (Reference Appendix D)
Unrestricted	Type B Soil = 0.200	
Unrestricted	Type C Soil = 0.100	
Unrestricted	Type D Soil = 0.025	
Restricted	Any Soil = 0.000	0.000

B.2.4 Step 2D - Retention Requirements

Using information determined in previous steps, the retention requirements for each drainage area can now be determined. Retention requirements can be expressed as a function of the DCV or as a percentage of annual runoff that must be retained within the drainage area.

Part 1) Using Figure B.2-1, locate the applicable Design Infiltration Rate (determined in Step 2A) along the x-axis. Trace vertically from the x-axis result to the intersect with the plot representing the project's 85th Percentile Rainfall Depth (determined in Step 1A).

> Note: Data presented in Figure B.2-1 represents ranges of rainfall depth. Users should choose the range that includes their specific rainfall depth rather than interpolating or extrapolating discrete values between the plotted lines.

Part 2) Trace horizontally from the intersect result to the right hand y-axis to identify the fraction of the DCV that must be retained to satisfy retention requirements (F).

> Note: Retention requirements can also be expressed as a fraction of annual runoff by tracing horizontally from the intersect result to the left hand y-axis. This method is appropriate if the proposed retention elements have drawdown times significantly different than 36-hours.

No flow-thru proposed.

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).

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

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 B.6.

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

[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

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.
See following SDHM Output

SDHM 3.1

PROJECT REPORT

General Model Information

Project Name:	Demler_DMA 2 & 3
Site Name:	Pine Hills Manure
Site Address:	
City:	
Report Date:	3/23/2020
Gage:	RAMONA
Data Start:	10/01/1963
Data End:	09/30/2004
Timestep:	Hourly
Precip Scale:	1.000
Version Date:	2019/12/01

POC Thresholds

Low Flow Threshold for POC1:	10 Percent of the 2 Year
High Flow Threshold for POC1:	10 Year
Low Flow Threshold for POC2:	10 Percent of the 2 Year
High Flow Threshold for POC2:	10 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C,NatVeg,Flat	1.77
C,NatVeg,Moderate	1
Pervious Total	2.77
Impervious Land Use	acre
Impervious Total	0
Basin Total	2.77

Element Flows To:

Surface	Interflow	Groundwater

Basin 2

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C,NatVeg,Flat	0.4
C,NatVeg,Moderate	0.17
Pervious Total	0.57

Impervious Land Use	acre
Impervious Total	0
Basin Total	0.57

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

DMA-2

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C,NatVeg,Flat	0.18
C,Dirt,Flat	0.25
Pervious Total	0.43

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.19
Impervious Total	0.19
Basin Total	0.62

Element Flows To:

Surface	Interflow	Groundwater
Surface ation (BR-1)	Surface ation (BR-1)	

DMA-3

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C,NatVeg,Flat	0.52
C,Dirt,Flat	0.33
Pervious Total	0.85

Impervious Land Use	acre
IMPERVIOUS-FLAT	0.3
Impervious Total	0.3
Basin Total	1.15

Element Flows To:

Surface	Interflow	Groundwater
Surface ation (BR-2)	Surface ation (BR-2)	

DMA-1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C,Dirt,Flat	0.27
C,NatVeg,Moderate	0.17
C,NatVeg,Flat	0.13
Pervious Total	0.57

Impervious Land Use	acre
Impervious Total	0
Basin Total	0.57

Element Flows To:

Surface	Interflow	Groundwater

DMA-4

Bypass:	Yes
GroundWater:	No
Pervious Land Use	acre
C,NatVeg,Moderate	1
Pervious Total	1
Impervious Land Use	acre
Impervious Total	0
Basin Total	1

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Routing

Biofiltration (BR-1)

Bottom Length:	15.00 ft.
Bottom Width:	100.00 ft.
Material thickness of first layer:	0.25
Material type for first layer:	Mulch
Material thickness of second layer:	1.5
Material type for second layer:	ESM
Material thickness of third layer:	1
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	0.5
Orifice Diameter (in.):	0.5
Offset (in.):	3
Flow Through Underdrain (ac-ft.):	8.936
Total Outflow (ac-ft.):	10.688
Percent Through Underdrain:	83.61
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	12 in.
Element Flows To:	
Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0842	0.0000	0.0000	0.0000
0.0412	0.0836	0.0004	0.0000	0.0000
0.0824	0.0828	0.0009	0.0000	0.0000
0.1236	0.0820	0.0013	0.0000	0.0000
0.1648	0.0811	0.0018	0.0000	0.0000
0.2060	0.0803	0.0022	0.0000	0.0000
0.2473	0.0795	0.0027	0.0000	0.0000
0.2885	0.0787	0.0032	0.0000	0.0000
0.3297	0.0778	0.0037	0.0000	0.0000
0.3709	0.0770	0.0042	0.0000	0.0000
0.4121	0.0762	0.0047	0.0000	0.0000
0.4533	0.0754	0.0052	0.0000	0.0000
0.4945	0.0746	0.0057	0.0000	0.0000
0.5357	0.0738	0.0062	0.0000	0.0000
0.5769	0.0730	0.0068	0.0000	0.0000
0.6181	0.0722	0.0073	0.0000	0.0000
0.6593	0.0714	0.0079	0.0000	0.0000
0.7005	0.0706	0.0084	0.0000	0.0000
0.7418	0.0698	0.0090	0.0000	0.0000
0.7830	0.0690	0.0096	0.0000	0.0000
0.8242	0.0682	0.0102	0.0000	0.0000
0.8654	0.0674	0.0108	0.0000	0.0000
0.9066	0.0667	0.0114	0.0000	0.0000
0.9478	0.0659	0.0120	0.0000	0.0000
0.9890	0.0651	0.0126	0.0000	0.0000
1.0302	0.0643	0.0133	0.0000	0.0000
1.0714	0.0636	0.0139	0.0000	0.0000
1.1126	0.0628	0.0145	0.0000	0.0000
1.1538	0.0620	0.0152	0.0000	0.0000

1.1951	0.0613	0.0159	0.0001	0.0000
1.2363	0.0605	0.0166	0.0002	0.0000
1.2775	0.0598	0.0172	0.0006	0.0000
1.3187	0.0590	0.0179	0.0008	0.0000
1.3599	0.0583	0.0187	0.0011	0.0000
1.4011	0.0575	0.0194	0.0013	0.0000
1.4423	0.0568	0.0201	0.0015	0.0000
1.4835	0.0560	0.0208	0.0016	0.0000
1.5247	0.0553	0.0216	0.0018	0.0000
1.5659	0.0545	0.0223	0.0019	0.0000
1.6071	0.0538	0.0231	0.0021	0.0000
1.6484	0.0531	0.0239	0.0021	0.0000
1.6896	0.0524	0.0246	0.0023	0.0000
1.7308	0.0516	0.0254	0.0024	0.0000
1.7720	0.0509	0.0265	0.0025	0.0000
1.8132	0.0502	0.0277	0.0025	0.0000
1.8544	0.0495	0.0288	0.0027	0.0000
1.8956	0.0488	0.0299	0.0027	0.0000
1.9368	0.0481	0.0311	0.0028	0.0000
1.9780	0.0473	0.0323	0.0029	0.0000
2.0192	0.0466	0.0335	0.0030	0.0000
2.0604	0.0459	0.0347	0.0031	0.0000
2.1016	0.0452	0.0359	0.0032	0.0000
2.1429	0.0445	0.0371	0.0032	0.0000
2.1841	0.0438	0.0383	0.0033	0.0000
2.2253	0.0432	0.0396	0.0034	0.0000
2.2665	0.0425	0.0409	0.0035	0.0000
2.3077	0.0418	0.0421	0.0035	0.0000
2.3489	0.0411	0.0434	0.0037	0.0000
2.3901	0.0404	0.0447	0.0039	0.0000
2.4313	0.0397	0.0461	0.0041	0.0000
2.4725	0.0391	0.0474	0.0043	0.0000
2.5137	0.0384	0.0488	0.0045	0.0000
2.5549	0.0377	0.0501	0.0047	0.0000
2.5962	0.0371	0.0515	0.0049	0.0000
2.6374	0.0364	0.0529	0.0051	0.0000
2.6786	0.0357	0.0543	0.0053	0.0000
2.7198	0.0351	0.0557	0.0055	0.0000
2.7500	0.0344	0.0568	0.0107	0.0000

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
2.7500	0.0842	0.0568	0.0000	0.0107	0.0000
2.7912	0.0851	0.0603	0.0000	0.0107	0.0000
2.8324	0.0859	0.0638	0.0000	0.0107	0.0000
2.8736	0.0868	0.0674	0.0000	0.0107	0.0000
2.9148	0.0876	0.0710	0.0000	0.0107	0.0000
2.9560	0.0885	0.0746	0.0000	0.0107	0.0000
2.9973	0.0893	0.0782	0.0000	0.0107	0.0000
3.0385	0.0902	0.0819	0.0000	0.0107	0.0000
3.0797	0.0911	0.0857	0.0000	0.0107	0.0000
3.1209	0.0919	0.0894	0.0000	0.0107	0.0000
3.1621	0.0928	0.0933	0.0000	0.0107	0.0000
3.2033	0.0937	0.0971	0.0000	0.0107	0.0000
3.2445	0.0945	0.1010	0.0000	0.0107	0.0000
3.2857	0.0954	0.1049	0.0716	0.0107	0.0000
3.3269	0.0963	0.1088	0.2257	0.0107	0.0000
3.3681	0.0972	0.1128	0.4267	0.0107	0.0000

3.4093	0.0980	0.1168	0.6597	0.0107	0.0000
3.4505	0.0989	0.1209	0.9111	0.0107	0.0000
3.4918	0.0998	0.1250	1.1671	0.0107	0.0000
3.5330	0.1007	0.1291	1.4136	0.0107	0.0000
3.5742	0.1016	0.1333	1.6378	0.0107	0.0000
3.6154	0.1025	0.1375	1.8292	0.0107	0.0000
3.6566	0.1034	0.1417	1.9818	0.0107	0.0000
3.6978	0.1043	0.1460	2.0963	0.0107	0.0000
3.7390	0.1052	0.1503	2.1826	0.0107	0.0000
3.7500	0.1055	0.1515	2.2934	0.0107	0.0000

Surface ation (BR-1)

Element Flows To:

Outlet 1	Outlet 2
	Biofiltration (BR-1)

Biofiltration (BR-2)

Bottom Length:	100.00 ft.
Bottom Width:	35.00 ft.
Material thickness of first layer:	0.25
Material type for first layer:	Mulch
Material thickness of second layer:	1.5
Material type for second layer:	ESM
Material thickness of third layer:	1
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	0.5
Orifice Diameter (in.):	0.75
Offset (in.):	3
Flow Through Underdrain (ac-ft.):	14.907
Total Outflow (ac-ft.):	17.614
Percent Through Underdrain:	84.63
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	12 in.
Element Flows To:	
Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.1377	0.0000	0.0000	0.0000
0.0412	0.1370	0.0010	0.0000	0.0000
0.0824	0.1361	0.0020	0.0000	0.0000
0.1236	0.1351	0.0030	0.0000	0.0000
0.1648	0.1342	0.0040	0.0000	0.0000
0.2060	0.1333	0.0051	0.0000	0.0000
0.2473	0.1323	0.0061	0.0000	0.0000
0.2885	0.1314	0.0072	0.0000	0.0000
0.3297	0.1304	0.0083	0.0000	0.0000
0.3709	0.1295	0.0093	0.0000	0.0000
0.4121	0.1286	0.0104	0.0000	0.0000
0.4533	0.1277	0.0115	0.0000	0.0000
0.4945	0.1267	0.0126	0.0000	0.0000
0.5357	0.1258	0.0137	0.0000	0.0000
0.5769	0.1249	0.0149	0.0000	0.0000
0.6181	0.1240	0.0160	0.0000	0.0000
0.6593	0.1231	0.0171	0.0000	0.0000
0.7005	0.1222	0.0183	0.0000	0.0000
0.7418	0.1213	0.0194	0.0000	0.0000
0.7830	0.1204	0.0206	0.0000	0.0000
0.8242	0.1195	0.0218	0.0000	0.0000
0.8654	0.1186	0.0230	0.0000	0.0000
0.9066	0.1177	0.0242	0.0000	0.0000
0.9478	0.1168	0.0254	0.0000	0.0000
0.9890	0.1159	0.0266	0.0000	0.0000
1.0302	0.1150	0.0279	0.0000	0.0000
1.0714	0.1141	0.0291	0.0000	0.0000
1.1126	0.1132	0.0304	0.0000	0.0000
1.1538	0.1124	0.0317	0.0000	0.0000
1.1951	0.1115	0.0329	0.0003	0.0000
1.2363	0.1106	0.0342	0.0005	0.0000

1.2775	0.1098	0.0355	0.0014	0.0000
1.3187	0.1089	0.0368	0.0019	0.0000
1.3599	0.1080	0.0381	0.0025	0.0000
1.4011	0.1072	0.0395	0.0029	0.0000
1.4423	0.1063	0.0408	0.0034	0.0000
1.4835	0.1055	0.0422	0.0036	0.0000
1.5247	0.1046	0.0435	0.0040	0.0000
1.5659	0.1038	0.0449	0.0043	0.0000
1.6071	0.1029	0.0463	0.0046	0.0000
1.6484	0.1021	0.0477	0.0048	0.0000
1.6896	0.1012	0.0491	0.0051	0.0000
1.7308	0.1004	0.0505	0.0053	0.0000
1.7720	0.0995	0.0525	0.0056	0.0000
1.8132	0.0987	0.0545	0.0057	0.0000
1.8544	0.0979	0.0565	0.0060	0.0000
1.8956	0.0971	0.0585	0.0061	0.0000
1.9368	0.0962	0.0605	0.0064	0.0000
1.9780	0.0954	0.0626	0.0065	0.0000
2.0192	0.0946	0.0646	0.0068	0.0000
2.0604	0.0938	0.0667	0.0069	0.0000
2.1016	0.0930	0.0688	0.0071	0.0000
2.1429	0.0922	0.0709	0.0072	0.0000
2.1841	0.0914	0.0731	0.0075	0.0000
2.2253	0.0905	0.0752	0.0076	0.0000
2.2665	0.0897	0.0774	0.0078	0.0000
2.3077	0.0889	0.0795	0.0079	0.0000
2.3489	0.0882	0.0817	0.0082	0.0000
2.3901	0.0874	0.0839	0.0087	0.0000
2.4313	0.0866	0.0862	0.0092	0.0000
2.4725	0.0858	0.0884	0.0097	0.0000
2.5137	0.0850	0.0907	0.0101	0.0000
2.5549	0.0842	0.0929	0.0106	0.0000
2.5962	0.0834	0.0952	0.0111	0.0000
2.6374	0.0827	0.0975	0.0115	0.0000
2.6786	0.0819	0.0998	0.0119	0.0000
2.7198	0.0811	0.1022	0.0123	0.0000
2.7500	0.0803	0.1039	0.0241	0.0000

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
2.7500	0.1377	0.1039	0.0000	0.0241	0.0000
2.7912	0.1387	0.1096	0.0000	0.0241	0.0000
2.8324	0.1396	0.1153	0.0000	0.0241	0.0000
2.8736	0.1406	0.1211	0.0000	0.0241	0.0000
2.9148	0.1416	0.1269	0.0000	0.0241	0.0000
2.9560	0.1425	0.1328	0.0000	0.0241	0.0000
2.9973	0.1435	0.1387	0.0000	0.0241	0.0000
3.0385	0.1445	0.1446	0.0000	0.0241	0.0000
3.0797	0.1455	0.1506	0.0000	0.0241	0.0000
3.1209	0.1464	0.1566	0.0000	0.0241	0.0000
3.1621	0.1474	0.1626	0.0000	0.0241	0.0000
3.2033	0.1484	0.1687	0.0000	0.0241	0.0000
3.2445	0.1494	0.1749	0.0000	0.0241	0.0000
3.2857	0.1504	0.1810	0.0716	0.0241	0.0000
3.3269	0.1514	0.1873	0.2257	0.0241	0.0000
3.3681	0.1524	0.1935	0.4267	0.0241	0.0000
3.4093	0.1534	0.1998	0.6597	0.0241	0.0000
3.4505	0.1544	0.2062	0.9111	0.0241	0.0000

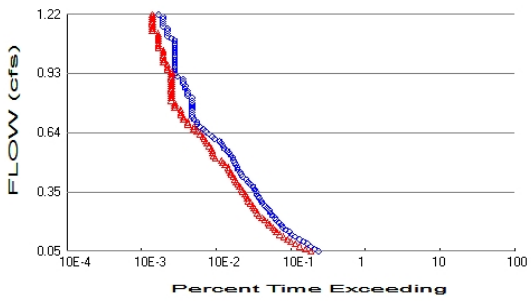
3.4918	0.1554	0.2125	1.1671	0.0241	0.0000
3.5330	0.1564	0.2190	1.4136	0.0241	0.0000
3.5742	0.1574	0.2254	1.6378	0.0241	0.0000
3.6154	0.1584	0.2319	1.8292	0.0241	0.0000
3.6566	0.1594	0.2385	1.9818	0.0241	0.0000
3.6978	0.1604	0.2451	2.0963	0.0241	0.0000
3.7390	0.1614	0.2517	2.1826	0.0241	0.0000
3.7500	0.1617	0.2535	2.2934	0.0241	0.0000

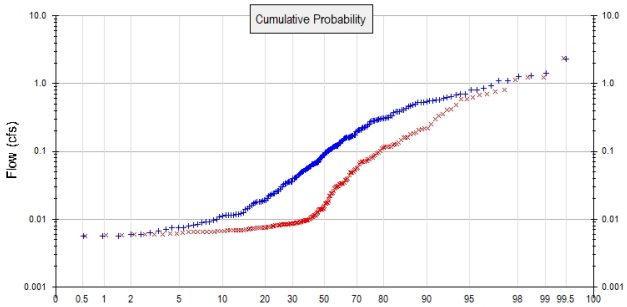
Surface ation (BR-2)

Element Flows To:

Outlet 1	Outlet 2
	Biofiltration (BR-2)

Analysis Results
POC 1





+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 2.77
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 2.28
Total Impervious Area: 0.49

Flow Frequency Method: Cunnane

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	0.539707
5 year	0.834756
10 year	1.223349
25 year	1.583323

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.212751
5 year	0.653453
10 year	1.057776
25 year	1.460991

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0540	854	666	77	Pass
0.0658	749	560	74	Pass
0.0776	665	476	71	Pass
0.0894	594	411	69	Pass
0.1012	529	361	68	Pass
0.1130	467	324	69	Pass
0.1248	415	288	69	Pass
0.1367	372	257	69	Pass
0.1485	342	231	67	Pass
0.1603	307	219	71	Pass
0.1721	280	207	73	Pass
0.1839	270	188	69	Pass
0.1957	249	179	71	Pass
0.2075	228	161	70	Pass
0.2193	219	148	67	Pass
0.2311	203	135	66	Pass
0.2430	192	129	67	Pass
0.2548	185	122	65	Pass
0.2666	174	116	66	Pass
0.2784	162	111	68	Pass
0.2902	152	104	68	Pass
0.3020	144	96	66	Pass
0.3138	137	94	68	Pass
0.3256	130	92	70	Pass
0.3375	124	87	70	Pass
0.3493	122	82	67	Pass
0.3611	119	78	65	Pass
0.3729	113	74	65	Pass
0.3847	104	70	67	Pass
0.3965	96	67	69	Pass
0.4083	91	64	70	Pass
0.4201	81	61	75	Pass
0.4320	78	57	73	Pass
0.4438	75	56	74	Pass
0.4556	71	53	74	Pass
0.4674	69	52	75	Pass
0.4792	66	47	71	Pass
0.4910	63	44	69	Pass
0.5028	61	42	68	Pass
0.5146	60	35	58	Pass
0.5264	57	33	57	Pass
0.5383	54	32	59	Pass
0.5501	51	32	62	Pass
0.5619	46	31	67	Pass
0.5737	44	29	65	Pass
0.5855	42	27	64	Pass
0.5973	40	26	65	Pass
0.6091	34	25	73	Pass
0.6209	32	24	75	Pass
0.6328	29	22	75	Pass
0.6446	26	20	76	Pass
0.6564	24	18	75	Pass
0.6682	22	18	81	Pass

0.6800	20	15	75	Pass
0.6918	20	15	75	Pass
0.7036	18	13	72	Pass
0.7154	17	13	76	Pass
0.7272	17	12	70	Pass
0.7391	17	12	70	Pass
0.7509	17	12	70	Pass
0.7627	17	10	58	Pass
0.7745	17	10	58	Pass
0.7863	17	10	58	Pass
0.7981	17	9	52	Pass
0.8099	17	9	52	Pass
0.8217	15	9	60	Pass
0.8336	15	9	60	Pass
0.8454	15	9	60	Pass
0.8572	14	9	64	Pass
0.8690	14	9	64	Pass
0.8808	13	9	69	Pass
0.8926	13	9	69	Pass
0.9044	13	9	69	Pass
0.9162	11	9	81	Pass
0.9281	10	9	90	Pass
0.9399	10	9	90	Pass
0.9517	10	8	80	Pass
0.9635	10	8	80	Pass
0.9753	10	8	80	Pass
0.9871	10	7	70	Pass
0.9989	10	7	70	Pass
1.0107	10	7	70	Pass
1.0225	10	7	70	Pass
1.0344	10	7	70	Pass
1.0462	10	7	70	Pass
1.0580	10	6	60	Pass
1.0698	10	6	60	Pass
1.0816	10	6	60	Pass
1.0934	10	6	60	Pass
1.1052	9	6	66	Pass
1.1170	8	6	75	Pass
1.1289	8	6	75	Pass
1.1407	8	5	62	Pass
1.1525	8	5	62	Pass
1.1643	7	5	71	Pass
1.1761	7	5	71	Pass
1.1879	7	5	71	Pass
1.1997	7	5	71	Pass
1.2115	7	5	71	Pass
1.2233	6	5	83	Pass

Water Quality

Drawdown Time Results

Pond: Biofiltration (BR-1)

Days	Stage(feet)	Percent of Total Run Time
1	2.378	0.2871
2	0.000	N/A
3	0.000	N/A
4	0.000	N/A
5	0.000	N/A

Maximum Stage: 2.750 Drawdown Time: 01 06:50:00

Pond: Surface ation (BR-1)

Days	Stage(feet)	Percent of Total Run Time
1	N/A	N/A
2	N/A	N/A
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A

Maximum Stage: 0.500 Drawdown Time: Less than 1 day

Pond: Biofiltration (BR-2)

Days	Stage(feet)	Percent of Total Run Time
1	2.381	0.2759
2	0.000	N/A
3	0.000	N/A
4	0.000	N/A
5	0.000	N/A

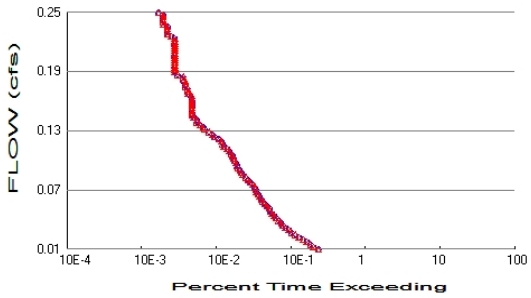
Maximum Stage: 2.750 Drawdown Time: 01 06:30:20

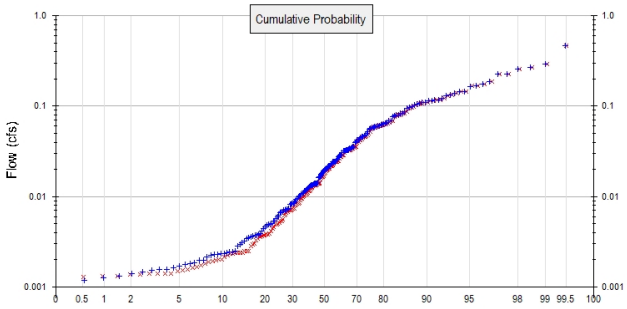
Pond: Surface ation (BR-2)

Days	Stage(feet)	Percent of Total Run Time
1	N/A	N/A
2	N/A	N/A
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A

Maximum Stage: 0.500 Drawdown Time: Less than 1 day

POC 2





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #2
Total Pervious Area: 0.57
Total Impervious Area: 0

Mitigated Landuse Totals for POC #2
Total Pervious Area: 0.57
Total Impervious Area: 0

Flow Frequency Method: Cunnane

Flow Frequency Return Periods for Predeveloped. POC #2

Return Period	**Flow(cfs)**
2 year	0.110778
5 year	0.171511
10 year	0.251385
25 year	0.325511

Flow Frequency Return Periods for Mitigated. POC #2

Return Period	**Flow(cfs)**
2 year	0.110817
5 year	0.171708
10 year	0.251648
25 year	0.325522

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0111	844	846	100	Pass
0.0135	727	729	100	Pass
0.0159	661	661	100	Pass
0.0184	590	590	100	Pass
0.0208	528	529	100	Pass
0.0232	465	465	100	Pass
0.0256	411	412	100	Pass
0.0281	368	369	100	Pass
0.0305	338	339	100	Pass
0.0329	306	306	100	Pass
0.0354	279	279	100	Pass
0.0378	266	268	100	Pass
0.0402	249	249	100	Pass
0.0426	226	227	100	Pass
0.0451	217	217	100	Pass
0.0475	203	203	100	Pass
0.0499	188	191	101	Pass
0.0523	184	184	100	Pass
0.0548	173	173	100	Pass
0.0572	159	160	100	Pass
0.0596	151	152	100	Pass
0.0621	144	144	100	Pass
0.0645	137	137	100	Pass
0.0669	130	130	100	Pass
0.0693	124	124	100	Pass
0.0718	122	122	100	Pass
0.0742	119	119	100	Pass
0.0766	111	112	100	Pass
0.0790	103	103	100	Pass
0.0815	96	96	100	Pass
0.0839	90	90	100	Pass
0.0863	81	81	100	Pass
0.0888	78	78	100	Pass
0.0912	74	75	101	Pass
0.0936	71	71	100	Pass
0.0960	69	69	100	Pass
0.0985	66	66	100	Pass
0.1009	62	63	101	Pass
0.1033	61	61	100	Pass
0.1057	60	60	100	Pass
0.1082	57	57	100	Pass
0.1106	54	54	100	Pass
0.1130	51	51	100	Pass
0.1155	46	46	100	Pass
0.1179	44	43	97	Pass
0.1203	42	42	100	Pass
0.1227	38	40	105	Pass
0.1252	34	34	100	Pass
0.1276	32	32	100	Pass
0.1300	29	29	100	Pass
0.1324	25	25	100	Pass
0.1349	24	24	100	Pass
0.1373	22	22	100	Pass

0.1397	20	20	100	Pass
0.1422	20	20	100	Pass
0.1446	18	18	100	Pass
0.1470	17	17	100	Pass
0.1494	17	17	100	Pass
0.1519	17	17	100	Pass
0.1543	17	17	100	Pass
0.1567	17	17	100	Pass
0.1591	17	17	100	Pass
0.1616	17	17	100	Pass
0.1640	17	17	100	Pass
0.1664	16	17	106	Pass
0.1689	15	15	100	Pass
0.1713	15	15	100	Pass
0.1737	15	15	100	Pass
0.1761	14	14	100	Pass
0.1786	14	14	100	Pass
0.1810	13	14	107	Pass
0.1834	13	13	100	Pass
0.1858	13	13	100	Pass
0.1883	11	11	100	Pass
0.1907	10	10	100	Pass
0.1931	10	10	100	Pass
0.1956	10	10	100	Pass
0.1980	10	10	100	Pass
0.2004	10	10	100	Pass
0.2028	10	10	100	Pass
0.2053	10	10	100	Pass
0.2077	10	10	100	Pass
0.2101	10	10	100	Pass
0.2125	10	10	100	Pass
0.2150	10	10	100	Pass
0.2174	10	10	100	Pass
0.2198	10	10	100	Pass
0.2223	10	10	100	Pass
0.2247	10	10	100	Pass
0.2271	9	9	100	Pass
0.2295	8	8	100	Pass
0.2320	8	8	100	Pass
0.2344	8	8	100	Pass
0.2368	8	8	100	Pass
0.2392	7	7	100	Pass
0.2417	7	7	100	Pass
0.2441	7	7	100	Pass
0.2465	7	7	100	Pass
0.2490	7	7	100	Pass
0.2514	6	6	100	Pass

Model Default Modifications

Total of 0 changes have been made.

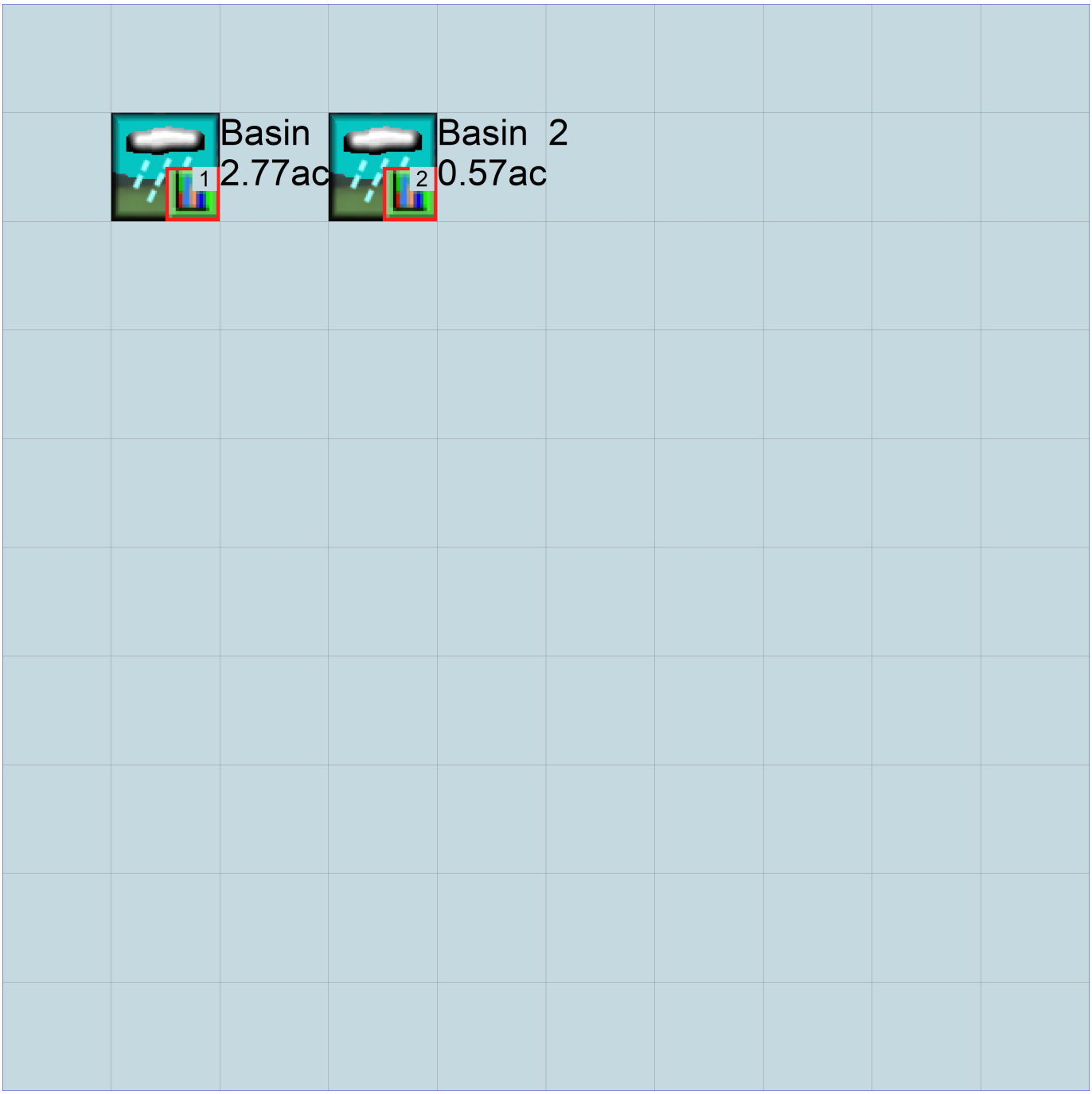
PERLND Changes

No PERLND changes have been made.

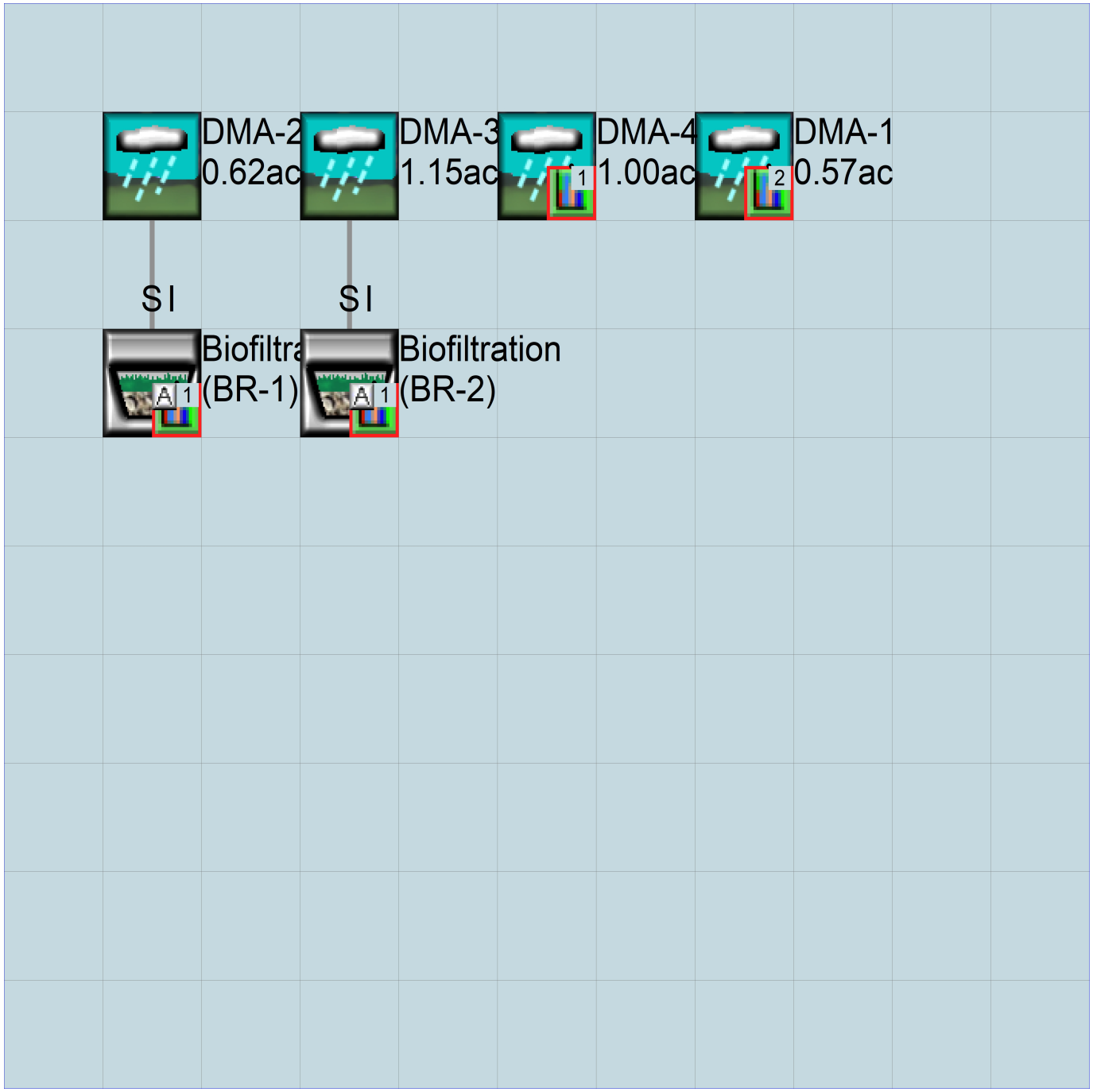
IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic



Mitigated Schematic



Predeveloped UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1963 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   Demler_DMA 2 & 3.wdm
MESSU       25   PreDemler_DMA 2 & 3.MES
            27   PreDemler_DMA 2 & 3.L61
            28   PreDemler_DMA 2 & 3.L62
            30   POCDemler_DMA 2 & 31.dat
            31   POCDemler_DMA 2 & 32.dat
END FILES

OPN SEQUENCE
    INGRP               INDELT 00:60
      PERLND      19
      PERLND      20
      COPY       501
      COPY       502
      DISPLY       1
      DISPLY       2
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  1                   MAX                    1    2   30    9
    2        Basin  2                   MAX                    1    2   31    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  502         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           ***
   19      C,NatVeg,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 ***
   19         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  *********
   19         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 ***
   19         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
   19              0       3.8     0.035       100      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
   19              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 ***
   19              0       0.6      0.04         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  ***
   19       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
   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  ***
   19       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  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
   19              0         0      0.01         0       0.4      0.01         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           ***
  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#   ***
Basin  1***
PERLND  19                        1.77     COPY   501     12
PERLND  19                        1.77     COPY   501     13
PERLND  20                           1     COPY   501     12
PERLND  20                           1     COPY   501     13
Basin  2***
PERLND  19                         0.4     COPY   502     12
PERLND  19                         0.4     COPY   502     13
PERLND  20                        0.17     COPY   502     12
PERLND  20                        0.17     COPY   502     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
COPY   502 OUTPUT MEAN   1 1   12.1        DISPLY   2     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
COPY   502 OUTPUT MEAN   1 1     12.1      WDM    502 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       1963 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   Demler_DMA 2 & 3.wdm
MESSU       25   MitDemler_DMA 2 & 3.MES
            27   MitDemler_DMA 2 & 3.L61
            28   MitDemler_DMA 2 & 3.L62
            31   POCDemler_DMA 2 & 32.dat
            30   POCDemler_DMA 2 & 31.dat
END FILES

OPN SEQUENCE
    INGRP               INDELT 00:60
      PERLND      19
      PERLND      22
      IMPLND       1
      PERLND      20
      RCHRES       1
      RCHRES       2
      RCHRES       3
      RCHRES       4
      COPY       502
      COPY         1
      COPY       501
      COPY       601
      DISPLY       2
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    2        DMA-1                        MAX                  1    2   31    9
    1        Surface ation (BR-1)         MAX                  1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  502         1    1
  501         1    1
  601         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           ***
   19      C,NatVeg,Flat          1    1    1    1   27    0
```

```
 22      C,Dirt,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 ***
 19         0    0    1    0    0    0    0    0    0    0    0    0
 22         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  *********
 19         0    0    4    0    0    0    0    0    0    0    0    0    1    9
 22         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 ***
 19         0    1    1    1    0    0    0    0    1    1    0
 22         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
 19              0       3.8     0.035       100      0.05        2.5      0.915
 22              0       3.8     0.035       100      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
 19              0         0         2         2         0      0.05      0.05
 22              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 ***
 19              0       0.6      0.04         1       0.3         0
 22              0       0.6     0.017         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  ***
 19       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
 22       0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4  0.4
 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  ***
 19       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1    0
 22       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
```

```
   19             0         0      0.01         0       0.4      0.01         0
   22             0         0      0.01         0       0.4      0.01         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
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         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
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         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
  END IWAT-PARM2

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

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

END IMPLND

SCHEMATIC
<-Source->                 <--Area-->     <-Target->   MBLK   ***
<Name>   #                 <-factor->     <Name>   #   Tbl#   ***
DMA-2***
PERLND  19                      0.18     RCHRES   1      2
PERLND  19                      0.18     RCHRES   1      3
PERLND  22                      0.25     RCHRES   1      2
PERLND  22                      0.25     RCHRES   1      3
IMPLND   1                      0.19     RCHRES   1      5
DMA-3***
PERLND  19                      0.52     RCHRES   3      2
PERLND  19                      0.52     RCHRES   3      3
PERLND  22                      0.33     RCHRES   3      2
PERLND  22                      0.33     RCHRES   3      3
IMPLND   1                       0.3     RCHRES   3      5
DMA-1***
```

```
PERLND  22                          0.27     COPY   502     12
PERLND  22                          0.27     COPY   502     13
PERLND  20                          0.17     COPY   502     12
PERLND  20                          0.17     COPY   502     13
PERLND  19                          0.13     COPY   502     12
PERLND  19                          0.13     COPY   502     13
DMA-4***
PERLND  20                             1     COPY   501     12
PERLND  20                             1     COPY   601     12
PERLND  20                             1     COPY   501     13
PERLND  20                             1     COPY   601     13

******Routing******
PERLND  19                          0.18     COPY     1     12
PERLND  22                          0.25     COPY     1     12
IMPLND   1                          0.19     COPY     1     15
PERLND  19                          0.18     COPY     1     13
PERLND  22                          0.25     COPY     1     13
RCHRES   1                             1     RCHRES   2      8
PERLND  19                          0.52     COPY     1     12
PERLND  22                          0.33     COPY     1     12
IMPLND   1                           0.3     COPY     1     15
PERLND  19                          0.52     COPY     1     13
PERLND  22                          0.33     COPY     1     13
RCHRES   3                             1     RCHRES   4      8
RCHRES   2                             1     COPY   501     16
RCHRES   1                             1     COPY   501     17
RCHRES   4                             1     COPY   501     16
RCHRES   3                             1     COPY   501     17
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   502 OUTPUT MEAN   1 1   12.1        DISPLY   2     INPUT  TIMSER 1
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     Surface ation (B-004    2    1    1    1   28    0    1
    2     Biofiltration (B-003    1    1    1    1   28    0    1
    3     Surface ation (B-009    2    1    1    1   28    0    1
    4     Biofiltration (B-008    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
    3         1    0    0    0    0    0    0    0    0    0
    4         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
    3         4    0    0    0    0    0    0    0    0    0    1    9
```

```
    4         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
    3       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
    4       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      0.01       0.0       0.0       0.0       0.0
    2              2      0.01       0.0       0.0       0.0       0.0
    3              3      0.01       0.0       0.0       0.0       0.0
    4              4      0.02       0.0       0.0       0.0       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
    3            0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    4            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      2
   68    4
     Depth      Area    Volume  Outflow1 Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.084246  0.000000  0.000000
  0.041209  0.083631  0.000430  0.000000
  0.082418  0.082794  0.000868  0.000000
  0.123626  0.081960  0.001314  0.000000
  0.164835  0.081129  0.001768  0.000000
  0.206044  0.080301  0.002230  0.000000
  0.247253  0.079476  0.002701  0.000000
  0.288462  0.078653  0.003180  0.000000
  0.329670  0.077833  0.003667  0.000000
  0.370879  0.077016  0.004162  0.000000
  0.412088  0.076202  0.004666  0.000000
  0.453297  0.075391  0.005179  0.000000
  0.494505  0.074582  0.005700  0.000000
  0.535714  0.073777  0.006229  0.000000
  0.576923  0.072974  0.006767  0.000000
  0.618132  0.072173  0.007313  0.000000
  0.659341  0.071376  0.007868  0.000000
  0.700549  0.070582  0.008432  0.000000
  0.741758  0.069790  0.009004  0.000000
  0.782967  0.069001  0.009585  0.000000
  0.824176  0.068215  0.010174  0.000000
  0.865385  0.067432  0.010773  0.000000
  0.906593  0.066651  0.011380  0.000000
  0.947802  0.065874  0.011996  0.000000
  0.989011  0.065099  0.012621  0.000000
  1.030220  0.064327  0.013255  0.000000
  1.071429  0.063557  0.013898  0.000000
  1.112637  0.062791  0.014550  0.000000
  1.153846  0.062027  0.015210  0.000000
```

```
1.195055  0.061267  0.015880  0.000147
1.236264  0.060509  0.016559  0.000220
1.277473  0.059753  0.017247  0.000623
1.318681  0.059001  0.017944  0.000824
1.359890  0.058251  0.018650  0.001122
1.401099  0.057505  0.019366  0.001271
1.442308  0.056761  0.020091  0.001499
1.483516  0.056019  0.020825  0.001613
1.524725  0.055281  0.021568  0.001799
1.565934  0.054545  0.022321  0.001893
1.607143  0.053813  0.023083  0.002054
1.648352  0.053083  0.023855  0.002135
1.689560  0.052356  0.024636  0.002279
1.730769  0.051631  0.025426  0.002351
1.771978  0.050910  0.026533  0.002482
1.813187  0.050191  0.027653  0.002548
1.854396  0.049475  0.028786  0.002670
1.895604  0.048762  0.029932  0.002731
1.936813  0.048052  0.031092  0.002845
1.978022  0.047344  0.032266  0.002902
2.019231  0.046640  0.033452  0.003010
2.060440  0.045938  0.034653  0.003063
2.101648  0.045239  0.035866  0.003166
2.142857  0.044542  0.037094  0.003217
2.184066  0.043849  0.038335  0.003314
2.225275  0.043158  0.039590  0.003363
2.266484  0.042470  0.040858  0.003456
2.307692  0.041785  0.042141  0.003508
2.348901  0.041103  0.043437  0.003664
2.390110  0.040424  0.044747  0.003863
2.431319  0.039747  0.046071  0.004078
2.472527  0.039073  0.047409  0.004295
2.513736  0.038402  0.048762  0.004508
2.554945  0.037734  0.050128  0.004714
2.596154  0.037069  0.051508  0.004914
2.637363  0.036406  0.052903  0.005107
2.678571  0.035746  0.054311  0.005294
2.719780  0.035089  0.055735  0.005478
2.750000  0.034435  0.057674  0.010727
END FTABLE  2
FTABLE      1
 26    5
   Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
    (ft)   (acres) (acre-ft)   (cfs)     (cfs)   (ft/sec)    (Minutes)***
0.000000  0.034435  0.000000  0.000000  0.000000
0.041209  0.085087  0.003489  0.000000  0.010727
0.082418  0.085932  0.007013  0.000000  0.010727
0.123626  0.086779  0.010571  0.000000  0.010727
0.164835  0.087629  0.014165  0.000000  0.010727
0.206044  0.088481  0.017794  0.000000  0.010727
0.247253  0.089337  0.021457  0.000000  0.010727
0.288462  0.090195  0.025157  0.000000  0.010727
0.329670  0.091056  0.028891  0.000000  0.010727
0.370879  0.091920  0.032661  0.000000  0.010727
0.412088  0.092787  0.036467  0.000000  0.010727
0.453297  0.093656  0.040309  0.000000  0.010727
0.494505  0.094529  0.044186  0.000000  0.010727
0.535714  0.095404  0.048099  0.071570  0.010727
0.576923  0.096282  0.052049  0.225672  0.010727
0.618132  0.097163  0.056035  0.426722  0.010727
0.659341  0.098046  0.060057  0.659695  0.010727
0.700549  0.098933  0.064116  0.911089  0.010727
0.741758  0.099822  0.068211  1.167052  0.010727
0.782967  0.100714  0.072343  1.413620  0.010727
0.824176  0.101609  0.076511  1.637810  0.010727
0.865385  0.102506  0.080717  1.829184  0.010727
0.906593  0.103407  0.084960  1.981777  0.010727
0.947802  0.104310  0.089240  2.096308  0.010727
0.989011  0.105216  0.093557  2.182633  0.010727
1.000000  0.105458  0.094714  2.293441  0.010727
```

```
END FTABLE  1
FTABLE      4
 68    4
   Depth      Area    Volume  Outflow1 Velocity  Travel Time***
    (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
0.000000  0.137735  0.000000  0.000000
0.041209  0.137037  0.000998  0.000000
0.082418  0.136087  0.002006  0.000000
0.123626  0.135139  0.003023  0.000000
0.164835  0.134195  0.004049  0.000000
0.206044  0.133253  0.005086  0.000000
0.247253  0.132314  0.006132  0.000000
0.288462  0.131378  0.007187  0.000000
0.329670  0.130445  0.008253  0.000000
0.370879  0.129514  0.009328  0.000000
0.412088  0.128587  0.010413  0.000000
0.453297  0.127662  0.011507  0.000000
0.494505  0.126740  0.012612  0.000000
0.535714  0.125820  0.013726  0.000000
0.576923  0.124904  0.014851  0.000000
0.618132  0.123990  0.015985  0.000000
0.659341  0.123080  0.017130  0.000000
0.700549  0.122172  0.018284  0.000000
0.741758  0.121266  0.019448  0.000000
0.782967  0.120364  0.020623  0.000000
0.824176  0.119464  0.021807  0.000000
0.865385  0.118567  0.023002  0.000000
0.906593  0.117673  0.024207  0.000000
0.947802  0.116782  0.025423  0.000000
0.989011  0.115894  0.026648  0.000000
1.030220  0.115008  0.027884  0.000000
1.071429  0.114126  0.029130  0.000000
1.112637  0.113246  0.030387  0.000000
1.153846  0.112368  0.031654  0.000000
1.195055  0.111494  0.032931  0.000330
1.236264  0.110623  0.034219  0.000495
1.277473  0.109754  0.035517  0.001401
1.318681  0.108888  0.036826  0.001854
1.359890  0.108025  0.038146  0.002525
1.401099  0.107165  0.039476  0.002860
1.442308  0.106307  0.040817  0.003372
1.483516  0.105452  0.042168  0.003628
1.524725  0.104600  0.043531  0.004048
1.565934  0.103751  0.044903  0.004259
1.607143  0.102905  0.046287  0.004621
1.648352  0.102062  0.047682  0.004803
1.689560  0.101221  0.049087  0.005127
1.730769  0.100383  0.050504  0.005289
1.771978  0.099548  0.052478  0.005585
1.813187  0.098716  0.054468  0.005733
1.854396  0.097886  0.056472  0.006007
1.895604  0.097060  0.058492  0.006144
1.936813  0.096236  0.060528  0.006401
1.978022  0.095415  0.062579  0.006529
2.019231  0.094597  0.064645  0.006772
2.060440  0.093781  0.066726  0.006893
2.101648  0.092969  0.068823  0.007123
2.142857  0.092159  0.070936  0.007238
2.184066  0.091352  0.073064  0.007457
2.225275  0.090548  0.075208  0.007567
2.266484  0.089746  0.077368  0.007777
2.307692  0.088948  0.079543  0.007892
2.348901  0.088152  0.081734  0.008243
2.390110  0.087359  0.083941  0.008693
2.431319  0.086569  0.086164  0.009177
2.472527  0.085782  0.088403  0.009664
2.513736  0.084997  0.090658  0.010143
2.554945  0.084215  0.092929  0.010608
2.596154  0.083437  0.095215  0.011057
2.637363  0.082660  0.097518  0.011491
```

```
  2.678571  0.081887  0.099838  0.011913
  2.719780  0.081117  0.102173  0.012325
  2.750000  0.080349  0.105891  0.024135
  END FTABLE  4
  FTABLE      3
   26    5
     Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)     (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.080349  0.000000  0.000000  0.000000
  0.041209  0.138690  0.005696  0.000000  0.024135
  0.082418  0.139648  0.011431  0.000000  0.024135
  0.123626  0.140609  0.017205  0.000000  0.024135
  0.164835  0.141572  0.023019  0.000000  0.024135
  0.206044  0.142538  0.028873  0.000000  0.024135
  0.247253  0.143507  0.034767  0.000000  0.024135
  0.288462  0.144479  0.040701  0.000000  0.024135
  0.329670  0.145454  0.046675  0.000000  0.024135
  0.370879  0.146431  0.052689  0.000000  0.024135
  0.412088  0.147412  0.058743  0.000000  0.024135
  0.453297  0.148395  0.064838  0.000000  0.024135
  0.494505  0.149381  0.070974  0.000000  0.024135
  0.535714  0.150369  0.077150  0.071570  0.024135
  0.576923  0.151361  0.083367  0.225672  0.024135
  0.618132  0.152355  0.089625  0.426722  0.024135
  0.659341  0.153352  0.095924  0.659695  0.024135
  0.700549  0.154352  0.102264  0.911089  0.024135
  0.741758  0.155355  0.108645  1.167052  0.024135
  0.782967  0.156360  0.115068  1.413620  0.024135
  0.824176  0.157369  0.121532  1.637810  0.024135
  0.865385  0.158380  0.128038  1.829184  0.024135
  0.906593  0.159394  0.134585  1.981777  0.024135
  0.947802  0.160410  0.141174  2.096308  0.024135
  0.989011  0.161430  0.147806  2.182633  0.024135
  1.000000  0.161702  0.149581  2.293441  0.024135
  END FTABLE  3
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      2 PREC     ENGL    1              RCHRES   1     EXTNL  PREC
WDM      2 PREC     ENGL    1              RCHRES   3     EXTNL  PREC
WDM      1 EVAP     ENGL    0.5            RCHRES   1     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.7            RCHRES   2     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.5            RCHRES   3     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.7            RCHRES   4     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
RCHRES   1 HYDR   STAGE  1 1         1      WDM   1004 STAG     ENGL       REPL
RCHRES   1 HYDR   O      1 1         1      WDM   1005 FLOW     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
COPY   601 OUTPUT MEAN   1 1      12.1      WDM    901 FLOW     ENGL       REPL
RCHRES   4 HYDR   RO     1 1         1      WDM   1006 FLOW     ENGL       REPL
RCHRES   4 HYDR   STAGE  1 1         1      WDM   1009 STAG     ENGL       REPL
RCHRES   3 HYDR   STAGE  1 1         1      WDM   1010 STAG     ENGL       REPL
RCHRES   3 HYDR   O      1 1         1      WDM   1011 FLOW     ENGL       REPL
COPY     2 OUTPUT MEAN   1 1      12.1      WDM    702 FLOW     ENGL       REPL
COPY   502 OUTPUT MEAN   1 1      12.1      WDM    802 FLOW     ENGL       REPL
COPY   602 OUTPUT MEAN   1 1      12.1      WDM    902 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        8
RCHRES     OFLOW  OVOL   2                 RCHRES         INFLOW IVOL
  END MASS-LINK    8

  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

  MASS-LINK       15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   15

  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


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: 1984/ 8/31 24: 0

RCHRES :    1

RELERR       STORS        STOR       MATIN      MATDIF
-2.686E-01     0.00000  0.0000E+00     0.00000  6.8302E-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: 1987/ 5/31 24: 0

RCHRES :    1

RELERR       STORS        STOR       MATIN      MATDIF
-1.000E+00     0.00000  0.0000E+00     0.00000  6.0175E-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: 1997/ 5/31 24: 0

RCHRES :   1

RELERR	STORS	STOR	MATIN	MATDIF
-1.000E+00	0.00000	0.0000E+00	0.00000	5.0581E-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: 2001/ 5/31 24: 0

RCHRES :   1

RELERR	STORS	STOR	MATIN	MATDIF
-1.000E+00	0.00000	0.0000E+00	0.00000	2.0219E-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: 2001/ 5/31 24: 0

RCHRES :   3

RELERR	STORS	STOR	MATIN	MATDIF
-1.000E+00	0.00000	0.0000E+00	0.00000	5.8412E-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.

Disclaimer

Legal Notice

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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
POC 2	2	Northern edge of project site. Runoff in this area is not concentrated in the existing or proposed condition
POC 1	1	Point where Dual 12" CMPs convey runoff from site boundary
POC 3	3	Impervious area dispersion with amended soils.

8.3 Geomorphic Assessment of Receiving Water Channels

Insert Geomorphic Assessment behind this cover page or submit as a separate stand-alone document labeled Sub-attachment 8.3.

N/A

8.4 Vector Control Plan

Insert Vector Control Plan behind this cover page or submit as a separate stand-alone document labeled Sub-attachment 8.4.

N/A

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:

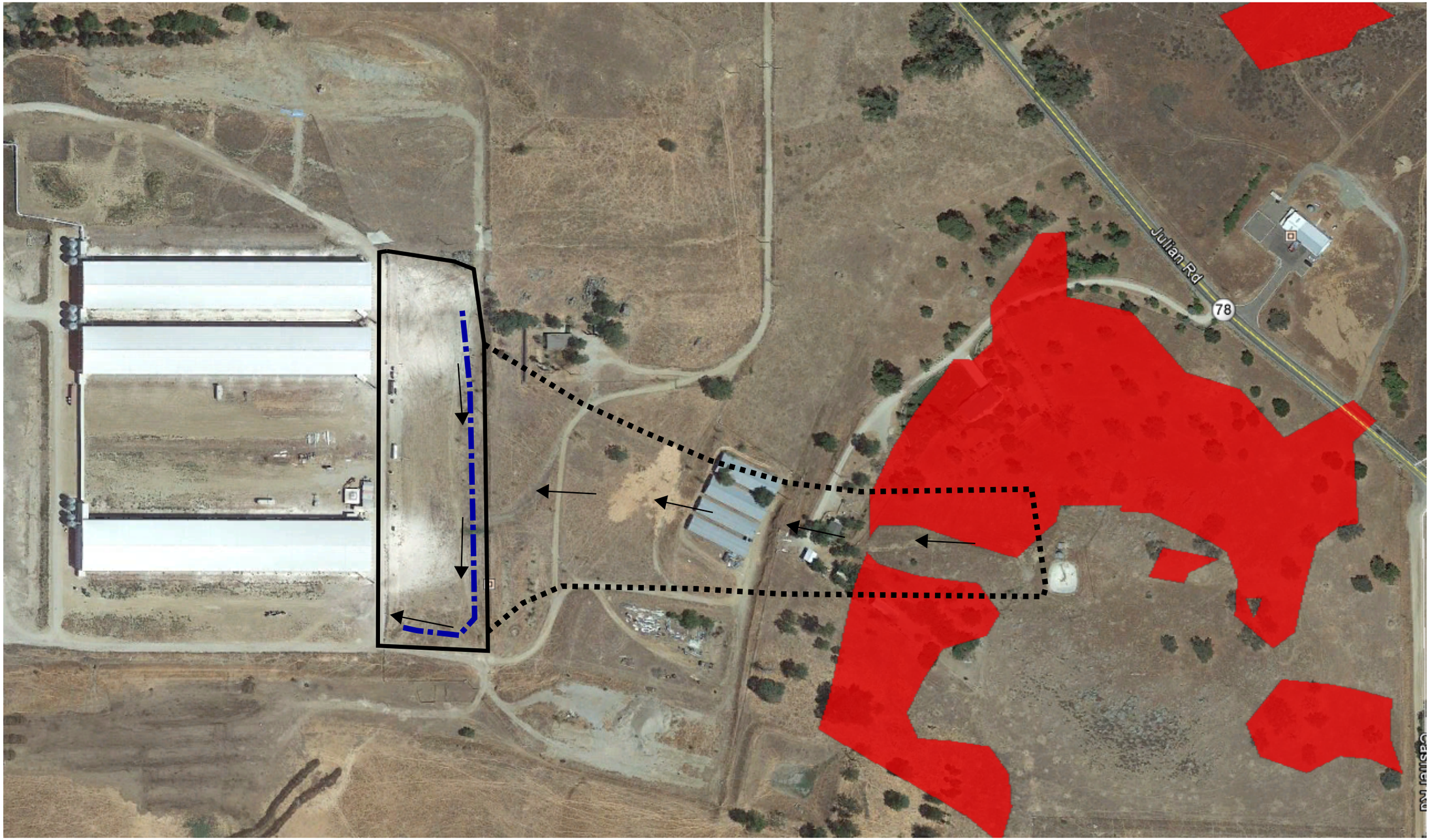
  (a) Less than 5% of PCCSYAs will be impacted (built on or obstructed) by the PDP, and

  (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.

Please see attached.

[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.



CCSYA PER WMAA MAPPING

PROJECT BOUNDARY

PROJECT TRIBUTARY AREA BOUNDARY

PROPOSED CONCRETE BROW DITCH

Michael Baker
INTERNATIONAL
9755 Clairemont Mesa Boulevard
San Diego, CA 92124
Phone: (858) 614-5000 · MBAKERINTL.COM

DEMLER BROTHERS MANURE PROCESSING
CRITICAL COARSE SEDIMENT YIELD
WMAA MAPPING

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.

Please see attached.

Worksheet for Concrete Brow Ditch 1

Project Description

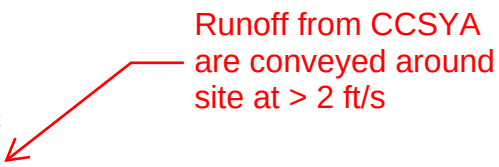
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.06000	ft/ft
Constructed Depth	1.50	ft
Constructed Top Width	3.00	ft
Discharge	8.80	ft³/s

Results

Normal Depth	0.56	ft
Flow Area	0.69	ft²
Wetted Perimeter	2.22	ft
Hydraulic Radius	0.31	ft
Top Width	1.84	ft
Critical Depth	1.08	ft
Critical Slope	0.00441	ft/ft
Velocity	12.80	ft/s
Velocity Head	2.55	ft
Specific Energy	3.11	ft
Froude Number	3.69	
Flow Type	Supercritical	



GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.56	ft
Critical Depth	1.08	ft
Channel Slope	0.06000	ft/ft
Critical Slope	0.00441	ft/ft

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. Do not leave any fields blank; indicate *N/A* for any requested item that is not applicable.

PART 1 General Project and Applicant Information

Table 1: Project and Applicant Information

A. Project Summary Information	**ID No. IVF-20___-____ To be assigned by DPW-WPP**
Project Name	Demler Brothers Manure Processing
Record ID (e.g. grading/improvement plan number, building permit)	PDS2019-MUP-19-004
Project Address	25818 Highway 78 Ramona, CA 92065
Assessor's Parcel Number(s) APN(s)	286-031-01
Project Watershed (complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	San Dieguito, Santa Maria Valley, East Santa Teresa 905.46
B. Owner Information	
Name	Demler Brothers LLC
Address	25818 Highway 78 Ramona, CA 92065
Email Address	alexdemler@sceggs.com
Phone Number	(760) 789-0195

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

If this is a partial Installation Verification Form submittal, list ALL DMAs and BMPs for the Priority Development Project in **Table 2**. Provide acceptance information where applicable.

Table 2: Information for Partial IVF Submittals

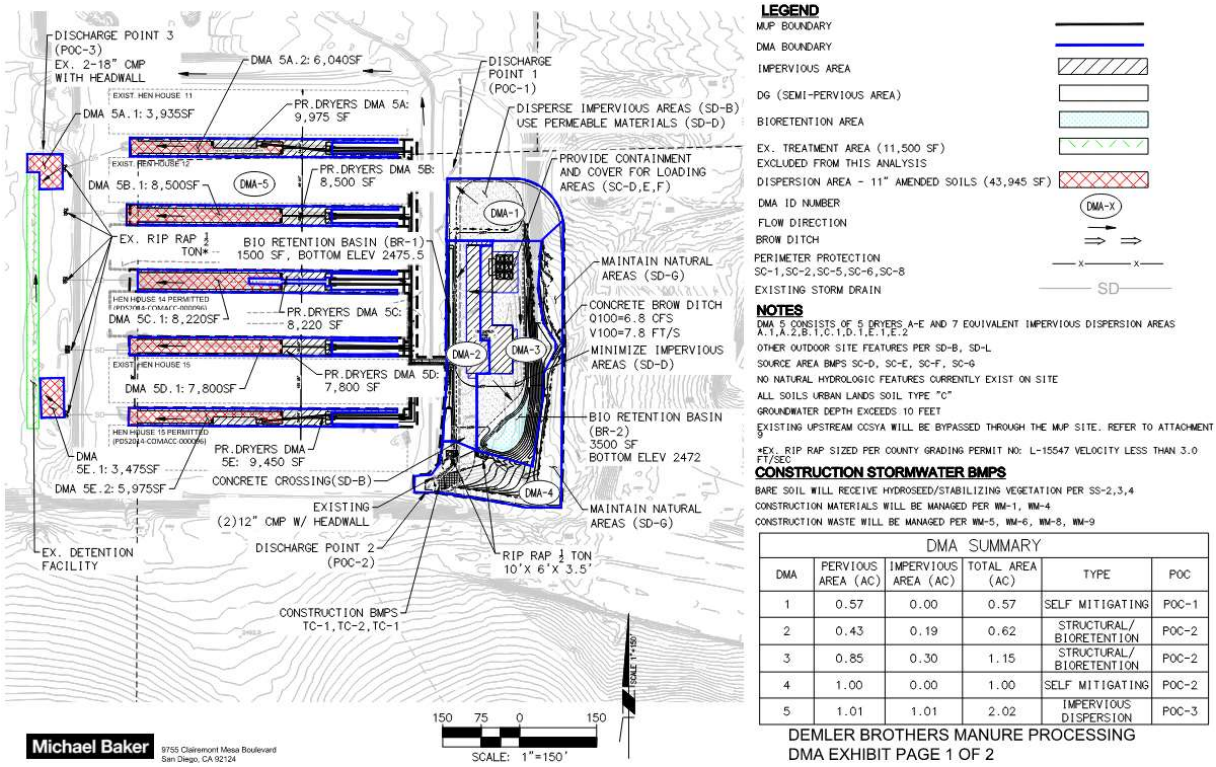
A: DMA and BMP Information

DMA #	Structural and Significant Site Design BMPs	WPP Acceptance Date	IVF ID No. (e.g. 2018-001)
2	Bioretention Basin (BR-1)		
3	Bioretention Basin (BR-2)		
5	Impervious Area Dispersion Amended Soils		

B: DMA and BMP Map

Please attach a map showing (1) all DMAs for the project site, (2) the DMAs and/or lots accepted under previous Verification Forms, and (3) the locations of Structural BMPs and Significant Site Design BMPs previously accepted.

N.T.S



PART 2 DMA and 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.
- Documentation of SD-BMPs is not required in this table for any DMA that also contains S-BMPs.
- 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.

Table 3: Required Information for Structural BMPs and Significant Site Design BMPs

DMA #	BMP Information			Maintenance Category	Maintenance Agreement or Maintenance Notification Recorded Doc. #	Construction Plan Sheet #	Landscape Plan # & Sheet # (For Vegetated BMPs Only)	FOR DPW-WPP USE ONLY *Reviewer concurs that the BMP(s) may be accepted into inventory (date and initial)*
	Quantity	Description/Type of Structural BMP	BMP ID #(s)					
Part A Structural BMPs (S-BMPs)								
2	1	Bioretention Basin	BR-1	2				
3	1	Bioretention Basin	BR-2	2				
Add rows as needed								
Part B Significant Site Design BMPs (SSD-BMPs)								
5	1	SD-B	Dispersion Area	---	---			
				---	---			
				---	---			
Add rows as needed								

PART 3 Required Attachments for All BMPs Listed in Table 3

For ALL projects, submit the following to the County inspector (check all that are attached):

☐ Photographs: Labeled photographs illustrating proper construction of each S-BMP or SSD-BMP.

☒ Maintenance Agreements: Copies of all approved and recorded Storm Water Maintenance Agreements (SWMAs) or Maintenance Notifications (MNs) for all S-BMPs.

Note: All BMPs proposed for County ownership will remain the responsibility of the owner listed on **Page 1** until a signed Letter of Acceptance of Completion is received by the DPW Watershed Protection Program.

For Grading and Improvement projects only, ALSO submit:

☒ Construction Plans: An 11" X 17" copy of the most current applicable approved Construction Plan sheets:

- ☒ Grading Plans, AND/OR
- ☐ Improvement Plans, AND/OR
- ☐ Precise Grading Plan(s) (only for residential subdivisions with tract homes), AND/OR
- ☐ Other (Please specify) Click here to enter text.

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

- ☒ A BMP Table, AND
- ☒ A plan/cross-section of each verified as-built BMP, AND
- ☒ The location of each verified as-built BMP

☒ Landscape Plans: An 11" X 17" copy of the most current applicable Landscape Plan sheets where the BMPs are required to be vegetated, including:

- ☒ The Certification of Completion (Form 407), AND
- ☒ The Certificate of Approval from PDS Landscape Architect

Note: For each Landscape Plan, the sheets submitted must show the location of each verified as-built BMP.

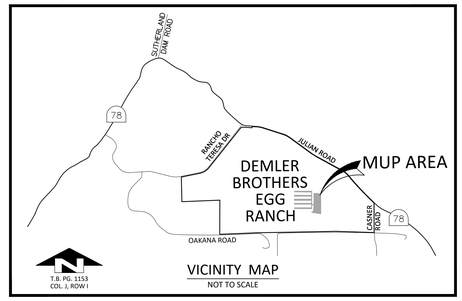
Required only for Verifications for Partial Record Plans

☐ If this is a partial record plan verification, please include the following:

- ☐ A list of previously submitted Verification Forms (**Table 2, A**)
- ☐ A map of DMAs and BMPs (**Table 2, B**)

DEMLER BROTHERS EGG RANCH

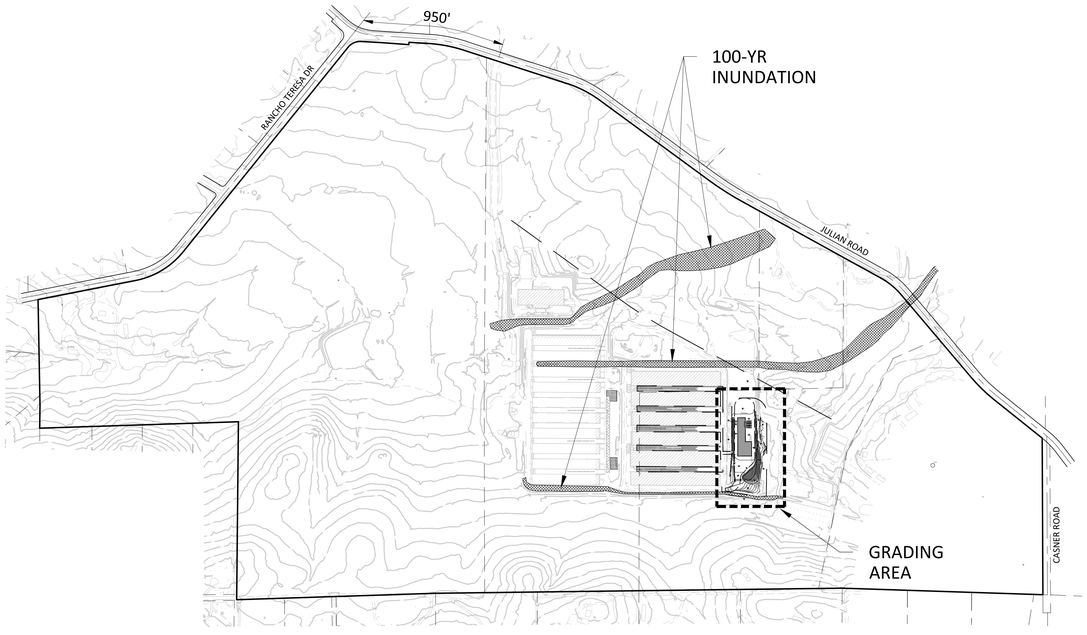
RAMONA, CA
PRELIMINARY GRADING PLAN
PDS 2019-MUP-19-004



VICINITY MAP
NOT TO SCALE

NOTES

1. GROSS AREA: 362.1 ACRES
2. MUP AREA: 6.0 ACRES
3. ALL EXISTING AGRICULTURAL BUILDINGS TO REMAIN. PROJECT ACCESS FROM HWY. 78.
4. APN PARCEL LINES ARE SHOWN HEREON FOR REFERENCE ONLY AND ARE PER COUNTY OF SAN DIEGO APN DATA. ALL APN DATA SHOULD BE CONSIDERED APPROXIMATE ONLY.
5. NO RPO STEEP SLOPES LOCATED ON MUP SITE.
6. ROOF DRAINAGE TO BE DIRECTED TO SWALE AND BIOFILTRATION BASINS.
7. SEE BIOLOGICAL RESOURCE LETTER.
8. THIS PLAN IS PROVIDED TO ALLOW FOR FULL AND ADEQUATE DISCRETIONARY REVIEW OF A PROPOSED DEVELOPMENT PROJECT. THE PROPERTY OWNER ACKNOWLEDGES THAT ACCEPTANCE OR APPROVAL OF THIS PLAN DOES NOT CONSTITUTE AN APPROVAL TO PERFORM ANY GRADING SHOWN HEREON, AND AGREES TO OBTAIN VALID GRADING PERMISSIONS BEFORE COMMENCING SUCH ACTIVITY.
9. DEVELOPMENT AREA IS VEGETATED WITH NON-NATIVE VEGETATION (WEEDS).



KEY MAP
NOT TO SCALE

EARTHWORK

VOLUME OF CUT: 3,000 CY
VOLUME OF FILL: 3,000 CY
EXPORT/IMPORT: 0 CY

NOTE: THIS IS A RAW EARTHWORK VALUE AND IS SUBJECT TO ADJUSTMENTS DUE TO SHRINKAGE AND/OR BULKING, BUILDING FOUNDATION DESIGN AND ROADWAY UNDERCUTS TO BE DETERMINED BY THE PROJECT'S GEOTECHNICAL CONSULTANT.

MAX. DEPTH OF CUT: 7'
MAX. DEPTH OF FILL: 4'

MAX. CUT SLOPE RATIO: 2 TO 1
MAX. FILL SLOPE RATIO: 2 TO 1

TOTAL DISTURBED AREA BEFORE PROJECT: 4.8 AC
TOTAL DISTURBED AREA AFTER PROJECT: 5.5 AC

TOTAL IMPERVIOUS AREA BEFORE PROJECT: 0.0 AC
TOTAL IMPERVIOUS AREA AFTER PROJECT: 1.5 AC

MAXIMUM SITE RETAINING WALL HEIGHT: N/A

TOPOGRAPHIC SOURCE: AEROTECH MAPPING, INC
FLOWN 2/8/2018

SUMMARY OF LID/SITE DESIGN BMPs

- MINIMIZE DISTURBANCE TO NATURAL DRAINAGE AREAS
- MINIMIZE IMPERVIOUS SURFACES
- MINIMIZE SOIL COMPACTION
- DRAINAGE RUNOFF FROM IMPERVIOUS SURFACE TO PERVIOUS AREAS
- UNMANNED FACILITY, PERSONNEL WILL ONLY BE ON SITE IN THE EVENT OF REQUIRED MAINTENANCE ACTIVITIES

SUMMARY OF SOURCE CONTROL BMPs

- BINDING AGENT TO ADDED ON ALL DISTURBED OR EXPOSED SURFACES AREAS

MUP ASSESSOR PARCEL NUMBER

POR. 286-030-22 & POR. 286-031-01

LEGAL DESCRIPTION

(EX RD) DOC 82-10326 IN NWQ OF SEQ & IN NEQ SEC 4-13-2E & D74-304132 IN WQ SEC L4 S OF RS 329 & IN NEQ OF SEQ 4-13-2E

BASIS OF BEARINGS

THE COORDINATES SHOWN HEREON ARE BASED UPON THE CALIFORNIA COORDINATE SYSTEM OF 1983, CCS83, ZONE 6, (EPOCH 1991.35). SAID COORDINATES ARE BASED LOCALLY UPON FIELD-OBSERVED TIES TO THE FOLLOWING CONTROL STATION PER NGS DATA SHEET (PID DX5024). THIS METHODOLOGY WAS PERFORMED BY JAIME TAYLOR IN 2009.THIS METHODOLOGY IS NOT SUFFICIENT FOR MAPPING PURPOSES.

BENCHMARK

THE BASIS OF ELEVATIONS FOR THIS SURVEY IS THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29) PER NGS DATA SHEET (PID DX0281), BENCHMARK DESIGNATION: "E62" 3.5" BRASS DISC IN 1' SQ. CONCRETE MONUMENT, STAMPED E62 1927. ELEVATION: 2187.39 (NGRD29)

OWNER/APPLICANT

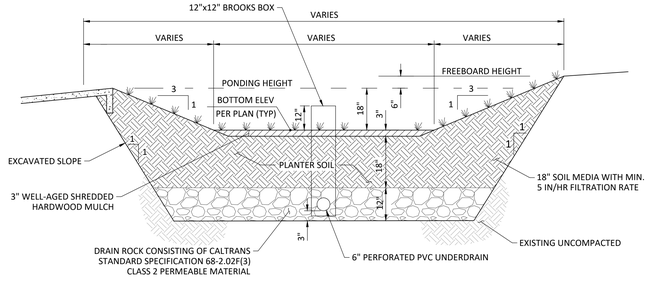
DEMLER BROTHERS, LLC
25818 HIGHWAY 78
RAMONA, CA 92065

PLANNER/ENGINEER

MICHAEL BAKER INTERNATIONAL
STEVE WRAGG
9755 CLAIREMONT MESA BLVD.
SAN DIEGO, CA. 92124
(858) 614-5000

SITE ADDRESS

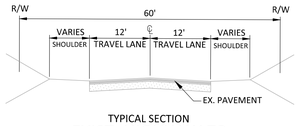
25818 HIGHWAY 78
RAMONA, CA 92065



NOTE:

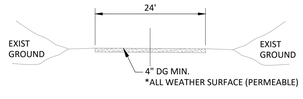
1. COVER PLANTER SURFACE WITH 3" THICK LAYER OF MULCH.
2. PROVIDE 2"x2" CLUSTERED FIELD SEDGE AND COBBES. PLANT AT 6" ON CENTER IN AREAS INDICATED ON PLANS.
3. PLANTER SOIL MIX TO CONSIST OF 20% COMPOST, 60% SAND, 20% TOP SOIL (NO CLAY).
4. PROVIDE TEMPORARY IRRIGATION MEASURES UNTIL VEGETATION IS ESTABLISHED.

SECTION - BIORETENTION BASIN
N.T.S.



TYPICAL SECTION
EXIST. HIGHWAY 78
N.T.S.

NOTE:
PER COUNTY GENERAL PLAN ROAD IS DESIGNATED AS 2.1D, ULTIMATE RIGHT-OF-WAY 84'. NOT A PART OF THIS MUP APPLICATION.



TYPICAL SECTION
EXIST. PRIMARY PROJECT ACCESS
N.T.S.

* ALL WEATHER (DECOMPOSED GRANITE, CLASS 2 BASE OR GRAVEL) MIN. 75,000 lbs. FIRE APPARATUS BEARING LOAD

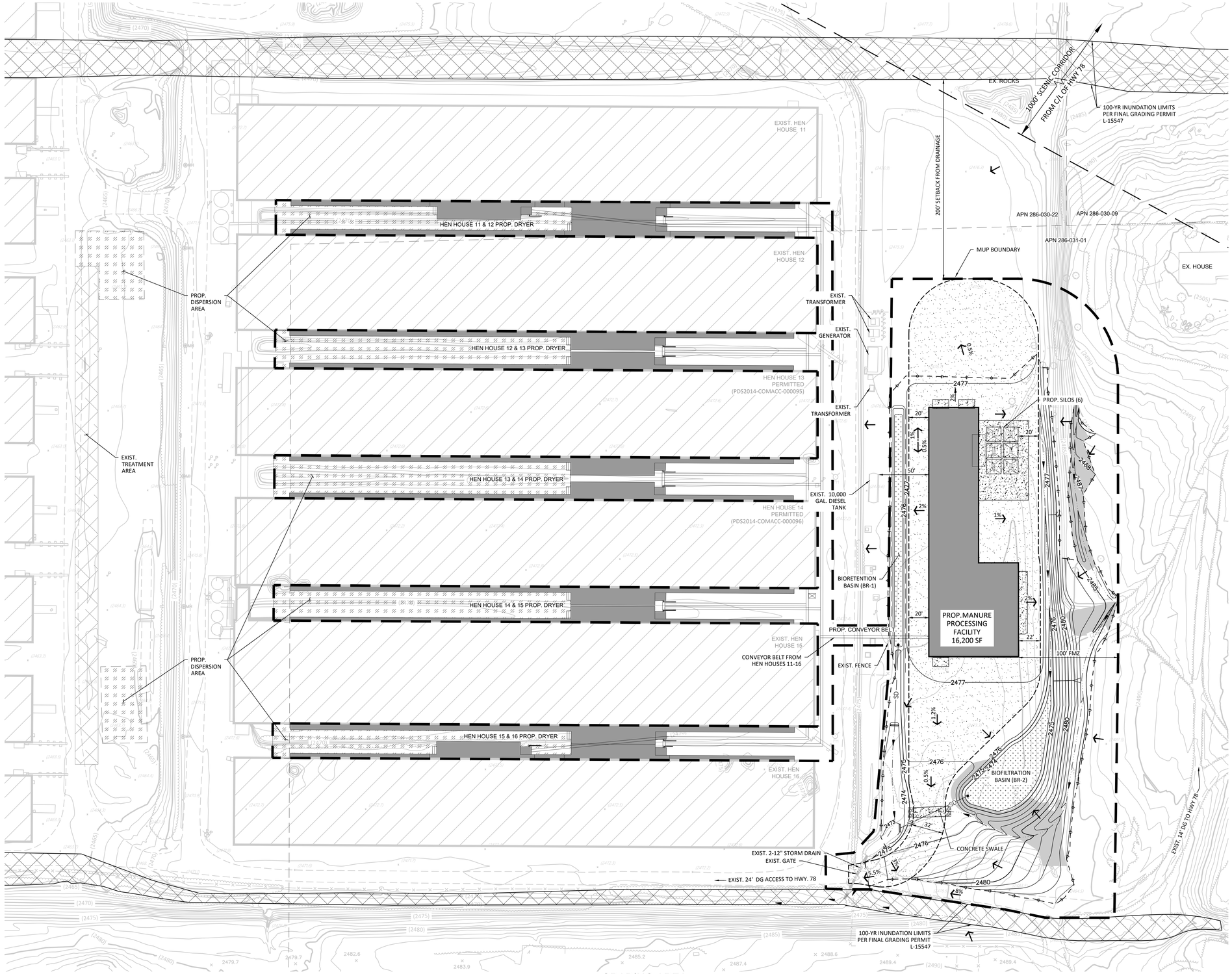
DEMLER BROTHERS EGG RANCH
RAMONA, CA
MANURE PROCESSING FACILITY PROJECT
PDS 2019-MUP-19-004
PRELIMINARY GRADING PLAN

SHEET 1 OF 2
DATE: 9/11/2020

Michael Baker INTERNATIONAL
9755 Clairemont Mesa Blvd.
San Diego, CA 92124
Phone: (858) 614-5000
MBAKERINTL.COM

LEGEND

- MUP BOUNDARY
- EXIST. LOT LINE
- EXIST. METAL FENCE
- EXIST. GATE
- EXIST. HEADWALL
- EXIST. POLE
- EXIST. BOLLARD
- EXIST. FIRE HYDRANT
- EXIST. EGG RANCH STRUCTURES / HOUSE
- 100-YR. INUNDATION AREA
- EXIST. DG ACCESS ROAD
- PROP. DG SURFACE (SECTION PER GEOTECH CONSULTANT)
- PROP. MUP STRUCTURE
- FUTURE EGG RANCH HEN HOUSES
- CONCRETE APRON
- EXIST. CONTOUR (2475)
- PROP. CONTOUR 2675
- PROP. EARTHEN SWALE
- DIRECTION OF FLOW
- DAYLIGHT LINE
- BIORETENTION BASIN
- PROP. RIP-RAP
- PROP. FILL SLOPE
- PROP. DISPERSION AREA
- 12"X12" BROOK BOX W/ 6" SD PIPE (SD)
- PROP. HEADWALL



SCALE 1"=40'

40 0 40 80 120

SCALE: 1"=40'

GRADING AREA

SCALE: 1"=40'

DEMLER BROTHERS EGG RANCH
RAMONA, CA
MANURE PROCESSING FACILITY PROJECT
PDS 2019-MUP-19-004
PRELIMINARY GRADING PLAN

SHEET 2 OF 2

DATE: 9/11/2020

Michael Baker INTERNATIONAL
9755 Clairemont Mesa Blvd.
San Diego, CA 92124
Phone: (858) 614-5000
MBAKERINTL.COM

H:\PDATA\169807 DEMLER BROTHERS\CADD\PLANNING\DLV\169807-01-GP.DWG BUTTS, KIMBERLY 9/10/2020 8:50 AM

PART 4 Preparer's Certification

By signing below, I certify that the BMP(s) listed in Table 3 of this Verification Form have been constructed and all 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 (Table 3, Part A) must be certified by a licensed professional engineer.

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

[SEAL]

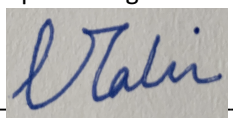
Preparer's Printed Name:

____Leila Talebi_____

Email: _leila.talebi@mbakerintl.com_____

Phone Number: _858-810-1428_____

Preparer's Signed Name:



_____

Date: 9/10/2020

COUNTY - OFFICIAL USE ONLY:

For County Inspectors

County Department: _____

Date verification received from EOW: _____

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

Inspector Name: _____

Inspector's Signature: _____ Date: _____

For Building Division Only

Inspection Supervisor Name: _____

Inspector Supervisor's Signature: _____ Date: _____

PDCI & Building, along with the rest of this package, please provide to DPW WPP:

☐ A copy of the final accepted SWQMP and any accepted addendum

For Watershed Protection Program Only

Date Received: _____

WPP Reviewer: _____

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

WPP Reviewer's Signature: _____ Date: _____

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 (Category 1 BMPs)

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

☒ Stormwater Maintenance Agreement (Category 2 BMPs)

- Exhibit A: Legal Description of Property
- Exhibit B: BMP Maintenance Plan (see below)
- Exhibit C: Project Site Vicinity Map

Maintenance agreement templates and instructions are provided on the County's website:

www.sandiegocounty.gov/stormwater under the Development Resources tab.

PDP applicants contact County staff to ensure they have the most current forms.

b. Maintenance Plan Requirements

Use this checklist to confirm that each maintenance plan includes the following that as applicable.

☒ Specific **maintenance indicators and actions** for proposed structural BMP(s). These must be based on based on maintenance indicators presented in BMP Design 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.

Exhibit A – Legal Description

Real property in the unincorporated area of the County of San Diego, State of California, described as follows:

The Northeast Quarter of the Southeast Quarter of Section 4, and that portion o' the Southwest Quarter of the Northwest Quarter, and the Northwest Quarter of the Southwest Quarter of Section 3, lying Southerly of County Road Survey No. 329, as shown on Map of said Survey on file 1n the office of the County Surveyor of San Diego County, all 1n Township 13 South, Range 2 East, San Bernardino Base and Meridian, in the County of San Dieqo, State of California, according to United States Government Survey approved September 21, 1875.

EXCEPTING that portion lying Easterly of a line described as follows:Beginning at a point in the South line of said Northeast Quarter of the Southeast Quarter of said Section 4, distant thereon South 88°36'36” West 148.05 feet from the Southeast corner thereof; thence North ll°22'll" East 905.01 feet; thence North 25°53'll" East 684.30 feet; thence North 65°56'31" East 345.01 feet to the center line of said Road Survey No. 329, including all fixtures of trustor of every kind and character now or hereafter located on the premises above described.

The property hereinabove described Includes all wire cages, brooding units, water and feeding facilities, feed storage bins, and all poultry units and equipment physically attached to any of the aforesaid, now on and hereafter placed on said land, which said wire cages, broodinq units, water and feeding facilities, feed storage bins, and all poultry units and equipment physically attached to any of the aforesaid, are hereby declared to be fixtures.

APN: 286-031-01

INF-2
Bioretention

BMP MAINTENANCE FACT SHEET
FOR
STRUCTURAL BMP INF-2 BIORETENTION

Bioretention (bioretention without underdrain) facilities are vegetated surface water systems that filter water through vegetation and soil, or engineered media prior to infiltrating into native soils. Bioretention facilities are designed to infiltrate the full design capture volume (DCV) into native soils. They have no underdrain, and no impermeable liner. Typical bioretention components include:

- Inflow distribution mechanisms (e.g., perimeter flow spreader or filter strips)
- Energy dissipation mechanism for concentrated inflows (e.g., splash blocks or riprap)
- Shallow surface ponding for captured flows
- Side slope and basin bottom vegetation selected based on climate and ponding depth
- Non-floating mulch layer
- Media layer (planting mix or engineered media) capable of supporting vegetation growth
- Filter course layer consisting of aggregate to prevent the migration of fines into uncompacted native soils or the optional aggregate storage layer
- Optional aggregate storage layer for additional infiltration storage
- Uncompacted native soils at the bottom of the facility
- Overflow structure

Normal Expected Maintenance

Bioretention requires routine maintenance to: remove accumulated materials such as sediment, trash or debris; maintain vegetation health; maintain infiltration capacity of the media layer; replenish mulch; and maintain integrity of side slopes, inlets, energy dissipators, and outlets. A summary table of standard inspection and maintenance indicators is provided within this Fact Sheet.

Non-Standard Maintenance or BMP Failure

If any of the following scenarios are observed, the BMP is not performing as intended to protect downstream waterways from pollution and/or erosion. Corrective maintenance, increased inspection and maintenance, BMP replacement, or a different BMP type will be required.

- The BMP is not drained between storm events. Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health, and surface ponding longer than approximately 96 hours following a storm event poses a risk of vector (mosquito) breeding. Poor drainage can result from clogging of the media layer, filter course, aggregate storage layer, underlying native soils, or outlet structure. The specific cause of the drainage issue must be determined and corrected. If it is determined that the underlying native soils have been compacted or do not have the infiltration capacity expected, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.
- Sediment, trash, or debris accumulation greater than 25% of the surface ponding volume within one month. This means the load from the tributary drainage area is too high, reducing BMP function or clogging the BMP. This would require pretreatment measures within the tributary area draining to the BMP to intercept the materials. Pretreatment components, especially for sediment, will extend the life of components that are more expensive to replace such as media, filter course, and aggregate layers.

- Erosion due to concentrated storm water runoff flow that is not readily corrected by adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan. If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.

Other Special Considerations

Bioretention is a vegetated structural BMP. Vegetated structural BMPs that are constructed in the vicinity of, or connected to, an existing jurisdictional water or wetland could inadvertently result in creation of expanded waters or wetlands. As such, vegetated structural BMPs have the potential to come under the jurisdiction of the United States Army Corps of Engineers, SDRWQCB, California Department of Fish and Wildlife, or the United States Fish and Wildlife Service. This could result in the need for specific resource agency permits and costly mitigation to perform maintenance of the structural BMP. Along with proper placement of a structural BMP, **routine maintenance is key to preventing this scenario**.

SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR INF-2 BIORETENTION		
The property owner is responsible to ensure inspection, operation and maintenance of permanent BMPs on their property unless responsibility has been formally transferred to an agency, community facilities district, homeowners association, property owners association, or other special district. Maintenance frequencies listed in this table are average/typical frequencies. Actual maintenance needs are site-specific, and maintenance may be required more frequently. Maintenance must be performed whenever needed, based on maintenance indicators presented in this table. The BMP owner is responsible for conducting regular inspections to see when maintenance is needed based on the maintenance indicators. During the first year of operation of a structural BMP, inspection is recommended at least once prior to August 31 and then monthly from September through May. Inspection during a storm event is also recommended. After the initial period of frequent inspections, the minimum inspection and maintenance frequency can be determined based on the results of the first year inspections.		
Threshold/Indicator	**Maintenance Action**	**Typical Maintenance Frequency**
Accumulation of sediment, litter, or debris	Remove and properly dispose of accumulated materials, without damage to the vegetation or compaction of the media layer.	• Inspect monthly. If the BMP is 25% full* or more in one month, increase inspection frequency to monthly plus after every 0.1-inch or larger storm event. • Remove any accumulated materials found at each inspection.
Obstructed inlet or outlet structure	Clear blockage.	• Inspect monthly and after every 0.5-inch or larger storm event. • Remove any accumulated materials found at each inspection.
Damage to structural components such as weirs, inlet or outlet structures	Repair or replace as applicable.	• Inspect annually. • Maintenance when needed.
Poor vegetation establishment	Re-seed, re-plant, or re-establish vegetation per original plans.	• Inspect monthly. • Maintenance when needed.
Dead or diseased vegetation	Remove dead or diseased vegetation, re-seed, re-plant, or re-establish vegetation per original plans.	• Inspect monthly. • Maintenance when needed.
Overgrown vegetation	Mow or trim as appropriate.	• Inspect monthly. • Maintenance when needed.
2/3 of mulch has decomposed, or mulch has been removed	Remove decomposed fraction and top off with fresh mulch to a total depth of 3 inches.	• Inspect monthly. • Replenish mulch annually, or more frequently when needed based on inspection.

*"25% full" is defined as ¼ of the depth from the design bottom elevation to the crest of the outflow structure (e.g., if the height to the outflow opening is 12 inches from the bottom elevation, then the materials must be removed when there is 3 inches of accumulation – this should be marked on the outflow structure).

SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR INF-2 BIORETENTION (Continued from previous page)		
Threshold/Indicator	**Maintenance Action**	**Typical Maintenance Frequency**
Erosion due to concentrated irrigation flow	Repair/re-seed/re-plant eroded areas and adjust the irrigation system.	• Inspect monthly. • Maintenance when needed.
Erosion due to concentrated storm water runoff flow	Repair/re-seed/re-plant eroded areas, and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan. If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.	• Inspect after every 0.5-inch or larger storm event. If erosion due to storm water flow has been observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed. If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.
Standing water in BMP for longer than 24 hours following a storm event Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health	Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, or repairing/replacing clogged or compacted soils. If it is determined that the underlying native soils have been compacted or do not have the infiltration capacity expected, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.	• Inspect monthly and after every 0.5-inch or larger storm event. If standing water is observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed.
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology	If mosquitos/larvae are observed: first, immediately remove any standing water by dispersing to nearby landscaping; second, make corrective measures as applicable to restore BMP drainage to prevent standing water. If mosquitos persist following corrective measures to remove standing water, or if the BMP design does not meet the 96-hour drawdown criteria because the underlying native soils have been compacted or do not have the infiltration capacity expected, the [City Engineer] shall be contacted to determine a solution. A different BMP type, or a Vector Management Plan prepared with concurrence from the County of San Diego Department of Environmental Health, may be required.	• Inspect monthly and after every 0.5-inch or larger storm event. If mosquitos are observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed.

References

American Mosquito Control Association.
http://www.mosquito.org/

California Storm Water Quality Association (CASQA). 2003. Municipal BMP Handbook.
https://www.casqa.org/resources/bmp-handbooks/municipal-bmp-handbook

County of San Diego. 2014. Low Impact Development Handbook.
http://www.sandiegocounty.gov/content/sdc/dpw/watersheds/susmp/lid.html

San Diego County Copermittees. 2016. Model BMP Design Manual, Appendix E, Fact Sheet INF-2.
http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=250&Itemid=220

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INF-2
Bioretention

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	
Property / Development Name:	Responsible Party Name and Phone Number:	
Property Address of BMP:	Responsible Party Address:	

INSPECTION AND MAINTENANCE CHECKLIST FOR INF-2 BIORETENTION PAGE 1 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Accumulation of sediment, litter, or debris Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove and properly dispose of accumulated materials, without damage to the vegetation ☐ If sediment, litter, or debris accumulation exceeds 25% of the surface ponding volume within one month (25% full*), add a forebay or other pre-treatment measures within the tributary area draining to the BMP to intercept the materials. ☐ Other / Comments:		
Poor vegetation establishment Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Re-seed, re-plant, or re-establish vegetation per original plans ☐ Other / Comments:		

*"25% full" is defined as ¼ of the depth from the design bottom elevation to the crest of the outflow structure (e.g., if the height to the outflow opening is 12 inches from the bottom elevation, then the materials must be removed when there is 3 inches of accumulation – this should be marked on the outflow structure).

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR INF-2 BIORETENTION PAGE 2 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Dead or diseased vegetation Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove dead or diseased vegetation, re-seed, re-plant, or re-establish vegetation per original plans ☐ Other / Comments:		
Overgrown vegetation Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Mow or trim as appropriate ☐ Other / Comments:		
2/3 of mulch has decomposed, or mulch has been removed Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove decomposed fraction and top off with fresh mulch to a total depth of 3 inches ☐ Other / Comments:		

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR INF-2 BIORETENTION PAGE 3 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Erosion due to concentrated irrigation flow Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Repair/re-seed/re-plant eroded areas and adjust the irrigation system ☐ Other / Comments:		
Erosion due to concentrated storm water runoff flow Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Repair/re-seed/re-plant eroded areas, and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan ☐ If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction ☐ Other / Comments:		

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR INF-2 BIORETENTION PAGE 4 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Obstructed inlet or outlet structure Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Clear blockage ☐ Other / Comments:		
Damage to structural components such as weirs, inlet or outlet structures Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Repair or replace as applicable ☐ Other / Comments:		

INF-2
Bioretention

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR INF-2 BIORETENTION PAGE 5 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Standing water in BMP for longer than 24 hours following a storm event* Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, or repairing/replacing clogged or compacted soils. ☐ Other / Comments:		
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Apply corrective measures to remove standing water in BMP when standing water occurs for longer than 24-96 hours following a storm event.** ☐ Other / Comments:		

*Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health, and surface ponding longer than approximately 96 hours following a storm event poses a risk of vector (mosquito) breeding. Poor drainage can result from clogging of the media layer, filter course, aggregate storage layer, underdrain, or outlet structure. The specific cause of the drainage issue must be determined and corrected. If it is determined that the underlying native soils have been compacted or do not have the infiltration capacity expected, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.

**If mosquitos persist following corrective measures to remove standing water, or if the BMP design does not meet the 96-hour drawdown criteria because the underlying native soils have been compacted or do not have the infiltration capacity expected, the [City Engineer] shall be contacted to determine a solution. A different BMP type, or a Vector Management Plan prepared with concurrence from the County of San Diego Department of Environmental Health, may be required.

SD-5
Impervious Area Dispersion

BMP MAINTENANCE FACT SHEET
FOR
SITE DESIGN BMP SD-5 IMPERVIOUS AREA DISPERSION

Impervious area dispersion (dispersion) refers to the practice of effectively disconnecting impervious areas from directly draining to the storm drain system by routing runoff from impervious areas such as rooftops (through downspout disconnection), walkways, and driveways onto the surface of adjacent pervious areas. The intent is to slow runoff discharges, and reduce volumes. Typical dispersion components include:

- An impervious surface from which runoff flows will be routed with minimal piping to limit concentrated inflows
- Splash blocks, flow spreaders, or other means of dispersing concentrated flows and providing energy dissipation as needed
- Dedicated pervious area, typically vegetated, with in-situ soil infiltration capacity for partial or full infiltration
- Optional soil amendments to improve vegetation support, maintain infiltration rates and enhance treatment of flows
- Overflow route for excess flows to be conveyed from dispersion area to the storm drain system or discharge point

Normal Expected Maintenance

Vegetated area shall be maintained as part of normal landscape maintenance. Additionally, ensure that storm water runoff can be conveyed into the vegetated area as designed. That is, the mechanism that allows storm water runoff from impervious area to flow into the pervious area (e.g., a curb cut allows runoff from a parking lot to drain onto adjacent landscaping area, or a roof drain outlet is directed to a lawn) shall not be removed, blocked, filled, or otherwise changed in a manner that prevents storm water from draining into the pervious area. A summary table of standard inspection and maintenance indicators is provided within this Fact Sheet.

Non-Standard Maintenance or BMP Failure

Impervious area dispersion is a site design BMP that normally does not require maintenance actions beyond routine landscape maintenance. If changes have been made to the area, such as the vegetated area has been replaced with impervious area, or the mechanism that allows storm water runoff from impervious area to flow into the pervious area has been removed (e.g., roof drains previously directed to vegetated area have been directly connected to the street or storm drain system), the BMP is not performing as intended to protect downstream waterways from pollution and/or erosion. Corrective maintenance will be required to restore drainage into the pervious area as designed. If the pervious area has been removed, contact the [City Engineer] to determine a solution.

Runoff directed into vegetated areas is expected to be drained within 24-96 hours following a storm event. Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health, and surface ponding longer than approximately 96 hours following a storm event poses a risk of vector (mosquito) breeding. Poor drainage can result from clogging or compaction of the soils. Loosen or replace the soils to restore drainage.

Other Special Considerations

Site design BMPs, such as impervious area dispersion, installed within a new development or redevelopment project are components of an overall storm water management strategy for the project. The presence of site design BMPs within a project is usually a factor in the determination of the amount of runoff to be managed with structural BMPs (i.e., the amount of runoff expected to reach downstream retention or biofiltration basins that process storm water runoff from the project as a whole). When site design BMPs are not maintained or are removed, this can lead to clogging or failure of downstream structural BMPs due to greater delivery of runoff and pollutants than intended for the structural BMP. Therefore, the [City Engineer] may require confirmation of maintenance of site design BMPs as part of their structural BMP maintenance documentation requirements. Site design BMPs that have been installed as part of the project should not be removed, nor should they be bypassed by re-routing roof drains or re-grading surfaces within the project. If changes are necessary, consult the [City Engineer] to determine requirements.

SD-5
Impervious Area Dispersion

SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR SD-5 IMPERVIOUS AREA DISPERSION		
The property owner is responsible to ensure inspection, operation and maintenance of permanent BMPs on their property unless responsibility has been formally transferred to an agency, community facilities district, homeowners association, property owners association, or other special district. Maintenance frequencies listed in this table are average/typical frequencies. Actual maintenance needs are site-specific, and maintenance may be required more frequently. Maintenance must be performed whenever needed, based on maintenance indicators presented in this table. The BMP owner is responsible for conducting regular inspections to see when maintenance is needed based on the maintenance indicators. During the first year of operation of a structural BMP, inspection is recommended at least once prior to August 31 and then monthly from September through May. Inspection during a storm event is also recommended. After the initial period of frequent inspections, the minimum inspection and maintenance frequency can be determined based on the results of the first year inspections.		
Threshold/Indicator	**Maintenance Action**	**Typical Maintenance Frequency**
Poor vegetation establishment	Re-seed, re-plant, or re-establish vegetation per original plans.	• Inspect monthly. • Maintenance when needed.
Dead or diseased vegetation	Remove dead or diseased vegetation, re-seed, re-plant, or re-establish vegetation per original plans.	• Inspect monthly. • Maintenance when needed.
Overgrown vegetation	Mow or trim as appropriate.	• Inspect monthly. • Maintenance when needed.
Standing water in vegetated pervious area for longer than 24 hours following a storm event Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health	Disperse any areas of standing water to nearby landscaping (i.e., spread it out to another portion of the pervious area so it drains into the soil). Make appropriate corrective measures such as adjusting irrigation system, or repairing/replacing clogged or compacted soils.	• Inspect monthly and after every 0.5-inch or larger storm event. If standing water is observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed.
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology	Disperse any areas of standing water to nearby landscaping (i.e., spread it out to another portion of the pervious area so it drains into the soil). Loosen or replace soils to restore drainage (and prevent standing water)	• Inspect monthly and after every 0.5-inch or larger storm event. If mosquitos are observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed
Entrance / opening to the vegetated pervious area is blocked such that storm water from impervious area will not drain into the pervious area (e.g., a curb cut opening is blocked by debris or a roof drain outlet has been directly connected to the storm drain system)	Make repairs as appropriate to restore drainage into the vegetated pervious area.	• Inspect monthly. • Maintenance when needed.

References

American Mosquito Control Association.
http://www.mosquito.org/
County of San Diego. 2014. Low Impact Development Handbook.
http://www.sandiegocounty.gov/content/sdc/dpw/watersheds/susmp/lid.html
San Diego County Copermittees. 2016. Model BMP Design Manual, Appendix E, Fact Sheet SD-5.
http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=250&Itemid=220

SD-5

Impervious Area Dispersion

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	
Property / Development Name:	Responsible Party Name and Phone Number:	
Property Address of BMP:	Responsible Party Address:	

INSPECTION AND MAINTENANCE CHECKLIST FOR SD-5 IMPERVIOUS AREA DISPERSION PAGE 1 of 3			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Poor vegetation establishment Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Re-seed, re-plant, or re-establish vegetation per original plans ☐ Other / Comments:		
Dead or diseased vegetation Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove dead or diseased vegetation, re-seed, re-plant, or re-establish vegetation per original plans ☐ Other / Comments:		
Overgrown vegetation Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Mow or trim as appropriate ☐ Other / Comments:		

SD-5
Impervious Area Dispersion

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR SD-5 IMPERVIOUS AREA DISPERSION PAGE 2 of 3			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Standing water in vegetated pervious area for longer than 24 hours following a storm event Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Disperse any areas of standing water to nearby landscaping (i.e., spread it out to another portion of the pervious area so it drains into the soil). Make appropriate corrective measures to prevent standing water such as adjusting irrigation system, or repairing/replacing clogged or compacted soils ☐ Other / Comments:		
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Disperse any areas of standing water to nearby landscaping (i.e., spread it out to another portion of the pervious area so it drains into the soil) ☐ Make corrective measures (see above) to restore drainage (and prevent standing water) ☐ Other / Comments:		

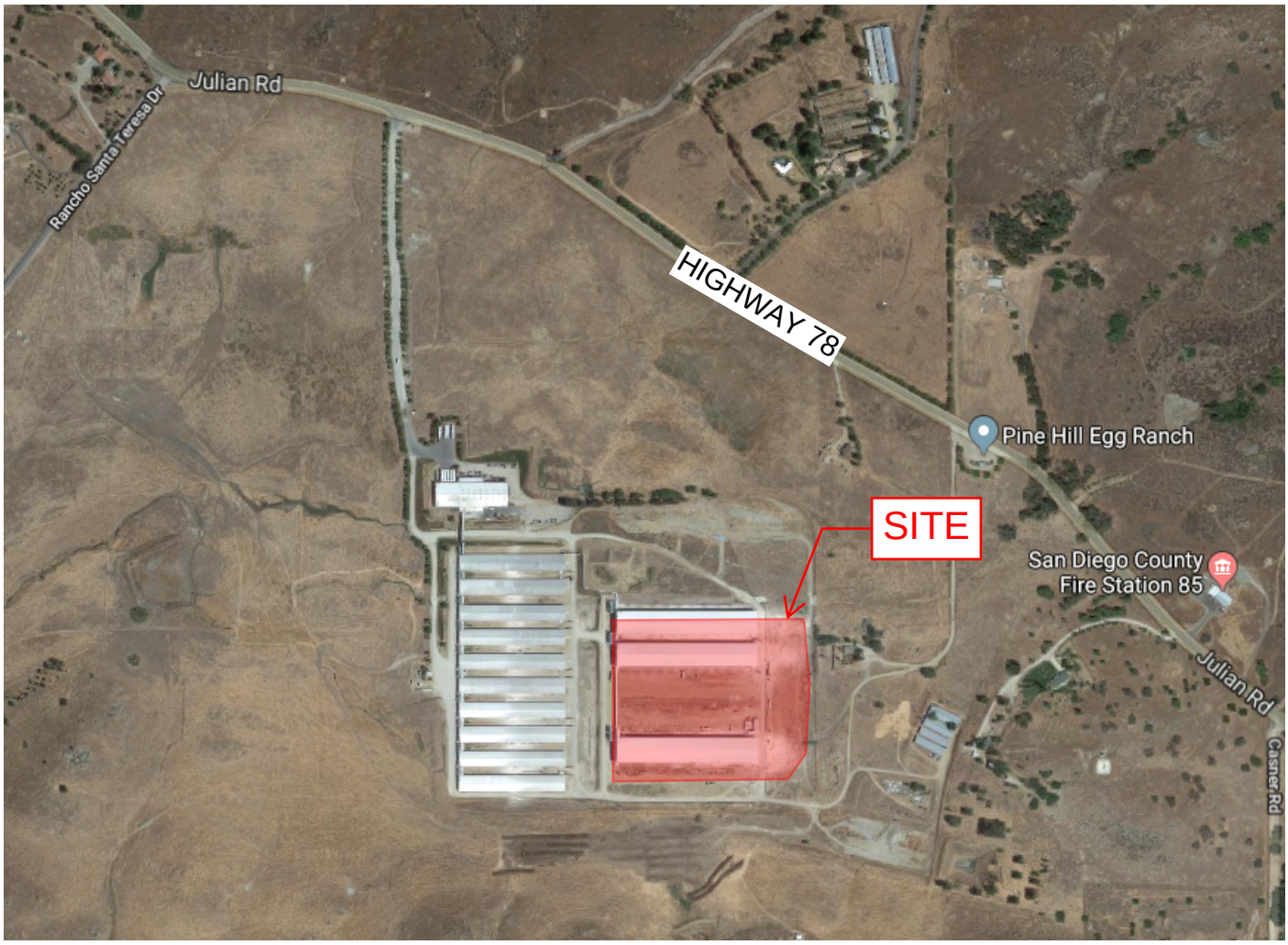
SD-5

Impervious Area Dispersion

Date:	Inspector:	BMP ID No.: NA
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR SD-5 IMPERVIOUS AREA DISPERSION PAGE 3 of 3			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Entrance / opening to the vegetated pervious area is blocked such that storm water from impervious area will not drain into the pervious area (e.g., a curb cut opening is blocked by debris or a roof drain outlet has been directly connected to the storm drain system) Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Make repairs as appropriate to restore drainage into the vegetated pervious area* ☐ Other / Comments:		

*If the pervious area has been removed, contact the [City Engineer] to determine a solution.



VICINITY MAP

Demler Brothers Manure Processing

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